# INSTITUTIONAL CATALOG

# 2025-2030

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UCC
UNIVERSIDAD CENTRAL DEL CARIBE

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# STATEMENT OF A DISCRIMINATION-FREE ENVIRONMENT

As part of efforts to maintain a positive workplace, the Universidad Central del Caribe (**UCC**) is committed to ensuring a discrimination-free environment for all its employees and job applicants, regardless of their race, color, religion, sex (including pregnancy, childbirth, and related medical conditions, sexual orientation, and gender identity), national origin, age, disability, marital status, social condition, political affiliation, political or religious beliefs, or for being a victim or perceived as a victim of domestic violence, sexual assault, or stalking, or for being military, ex-military, serving or having served in the United States Armed Forces, or for holding veteran status, by protective hairstyles or hair textures or any other category protected under applicable federal and local laws.

These protections apply to all aspects of employment, including, but not limited to, the recruitment process, hiring, task assignments, promotions, transfers, dismissals, reemployment, compensation, benefits, training, professional development programs, and other terms and conditions of employment. The University is committed to prohibiting any form of employment discrimination, promoting a respectful work environment, and ensuring that all employment decisions are based on merit, qualifications, and individual performance.

The University is committed to providing reasonable accommodations for hired personnel and job applicants with disabilities, as well as for those with religious reasons, upon request, as long as it does not impose an undue hardship on the University.

Any person hired by the University or job applicant who believes they have been subjected to discrimination should immediately report it to the Human Resources Office, extension 2508 or 2509.

# DISCLAIMER

The information in this catalog is subject to change without notice. The Universidad Central del Caribe reserves the right to make changes as deemed necessary in calendars, tuition and fees, policies, academic requirements, regulations, programs, and other subjects, after the publication date of this catalog.

The Universidad Central del Caribe (**UCC**) is approved by the Puerto Rico State Approving Agency to provide academic training to students under the various GI Bill® programs. The term "GI Bill®" is a registered trademark of the U.S. Department of Veterans Affairs (**VA**). For more information about the education benefits offered by the VA, please visit the official U.S. government website at http://www.benefits.va.gov/gibill.

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*Date of Revision: October 28, 2025, to document programs of BMS in moratorium*
*August 19, 2025, to address revisions from the SoM program courses*
*May 21, 2025, to address an audit from the Registrar's office.*
*March 14, 2025, to comply with Federal Government executive orders.*
*January 28, 2025, for the purpose of updating the curricular revision of the PhD programs.*
*December 9, 2024, for the purpose of updating in accordance with new programs.*

# MESSAGE FROM THE PRESIDENT

The Universidad Central del Caribe (**UCC**) reaffirms its commitment to excellence in the formation of health professionals and biomedical scientists who will serve humanity with dedication and compassion and the highest ethical and moral standards.

Through its academic programs in Medicine, Chiropractic, Substance Abuse Counseling, Biomedical Sciences, Technological Radiology, and Medical Images, our institution has served our community for close to fifty years. The **UCC** has contributed to the enrichment of knowledge with our programs in the clinical, biopsychosocial, and biomedical sciences. Our university has provided clinical services to the population of the Bayamón Health Region since 1984.

There is now an ongoing process of academic renewal at the **UCC**. With the most advanced educational technology infrastructure and innovations, as well as comprehensive wellness and student support services, the **UCC** will better serve our students and enable them to reach their maximum professional potential. Our progress reflects the visionary efforts of dedicated faculty, academic administrators, staff, and students.

We move into the future as a vigorous, maturing institution with vision and hope for our continued growth and development as a health sciences university within an academic medical center.

Within the context of this vision, we welcome our students, faculty, staff, and visitors to share with us the experiences that the **UCC** has to offer as Puerto Rico's private health sciences university, now, and in the bright future ahead of us.

Waleska Crespo, DrPH, MHSA President

# GOVERNANCE AND ADMINISTRATION

An eleven-member board of trustees outlines the general policies and oversees the operations of the university at the policy level, framed under shared governance best practices. Prestigious members of our community volunteer to participate in this governing body. The president of the university is appointed by the board of trustees and is the chief executive officer of the university. The deans are appointed by the board of trustees upon the president's recommendation and report to the president. Appointments of all administrative officials and faculty are the responsibility of the president, after consultation with the deans and faculty.

To fulfill her responsibilities, the president of the Universidad Central del Caribe (**UCC)** has the assistance of qualified administrators consisting of a vice-president of finances and operations, an executive dean, a dean of academic affairs, a dean of admissions and student affairs, a dean of administration, and a dean of institutional development and strategic planning. To complete her cabinet, three faculty deans follow the day-to-day activities at the programmatic levels: a dean of the School of Medicine (**SoM**) (Medicine and Graduate Programs in Biomedical Sciences); a Dean of the School of Chiropractic (**SoC**) (Doctor of Chiropractic Program), and a dean of health science and technologies (Substance Abuse, Medical Images and its modalities).

The dean of academic affairs, with the support of two assistant deans (curriculum development and innovations, and accreditations and licensing), oversees academic rigor and coherence of the academic programs. The dean of admissions and student affairs, in collaboration with the assistant dean of admissions and student affairs, supervises all student services and the admissions process of all university programs. The dean of administration oversees all administrative and support services. The dean of institutional development and strategic planning supports strategic planning, the search for external funding, and the Office of Alumni.

The dean of the school of medicine is supported by three associate deans (medical education, research and graduate studies, and faculty and clinical affairs), an assistant dean of student affairs, and a cadre of Basic Science and Clinical departmental chairs. The associate dean of medical of the **SoM** is responsible for the curriculum conducive to the Doctor of Medicine Program. The associate dean of research and graduate studies oversees the research agenda and the academic director of the Graduate Program in Biomedical Sciences. The dean of faculty and clinical affairs assures optimal communication with the clinical affiliates network, the operations of the faculty practice plan, and continuing medical education. The school of medicine sponsors a residency program in Internal Medicine with categorical and preliminary positions, as well as the first Multidisciplinary Fellowship in Addiction Medicine for primary care physicians on the island.

The recently established School of Chiropractic (**SoC**) is led by the Dean of Chiropractic, who has oversight of the Doctor of Chiropractic Program. The dean of chiropractic is supported by the program associate directors.

The Office of the Dean of Health Sciences and Technologies has oversight of the graduate-level Substance Abuse Programs and the undergraduate-level Medical Imaging Technology Program. In the discharge of her duties and responsibilities, the dean of health sciences and technologies supervises and is supported by the program directors and coordinators.

The **UCC's** size and governance structure make it possible to offer an array of academic programs in the health science field with the appropriate support services, ensuring a personal and meaningful experience for its students.

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# GENERAL INFORMATION

The Universidad Central del Caribe (**UCC**) was founded in 1976, in Cayey, Puerto Rico, as a private non-profit institution, incorporated under the laws of the Commonwealth of Puerto Rico. The first educational units established were the school of medicine, with the four-year program leading to the **MD** degree, and the Radiologic Technology Program.

In 1990, all university facilities were integrated into one campus at the grounds of the Dr. Ramón Ruiz Arnau University Hospital in the city of Bayamón.

The **UCC** is duly authorized by the Board of Postsecondary Institutions and accredited by the Middle States Commission on Higher Education (MSCHE). In 2020, the **MSCHE** authorized the institution to include the delivery method of distance education within the scope of its accreditation. The **MSCHE** review process requires periodic institutional self-studies aimed at continuous improvement, survey visits, and reporting. The next **MSCHE** institutional self-study evaluation is scheduled for academic year 2026-2027.

The program leading to the **MD** holds accreditation from the Liaison Committee on Medical Education (LCME). As of June 2024, the medical school has graduated 3,025 physicians serving the Commonwealth of Puerto Rico and Hispanic communities in the United States. The school of medicine houses a Graduate Program in Biomedical Sciences that was initiated in 1989. In 2009, the Graduate Program expanded to confer a **PhD** in Cellular and Molecular Biology; subsequently, in 2011, a **PhD** and an **MS** in Neurosciences were initiated. The Graduate Program in Biomedical Sciences has conferred 90 degrees. Since 1978, the **UCC** School of Medicine (**UCCSoM**) has sponsored a residency program in Internal Medicine with categorical and preliminary positions accredited by the Accreditation Council on Graduate Medical Education (ACGME). **UCCSoM** also sponsors, since 2019, the first Multidisciplinary Fellowship in Addiction Medicine for primary care physicians on the island.

In 1995, the Substance Abuse Counseling Program was initiated, offering a Post-Baccalaureate Certificate in Substance Abuse Counseling and the Master of Health Sciences in Substance Abuse Counseling. The program has conferred 211 degrees.

The Medical Imaging Technology Program (**MITP**) (formerly the Radiologic Technology Program) has been awarded 2,069 degrees from its inception to June 2015. Since 1993, the UCC has offered the Post-Associate Certificate in Mammography; and the Post-Associate Certificate in Diagnostic Medical Sonography; since 2000, the Post-Associate Certificate in Mammography; and the Post-Associate Certificate in Computerized Tomography and in Magnetic Resonance, which were initiated in 2002. The Bachelor of Sciences in Diagnostic Images, started in August 2006. Since 2020, the Post-Associate Certificate in Mammography has been authorized as an online education modality program. The latest undergraduate programs include post-associate degrees in Interventional Radiology and Angiography, and Vascular sonography (both approved in 2024 as online education modality programs).

The academic program conducive to a Doctor of Chiropractic (**DC**) degree was initiated in August 2018. The Doctor of Chiropractic Program (**DCP**) combines a solid foundation in basic sciences and clinical skills, together with an in-depth immersion into the evidence-based chiropractic field. The Council on Chiropractic Education (CCE) awarded in June 2021 the maximum initial accreditation of 4 years. The school of Chiropractic has conferred 49 degrees.

## Mission of the Universidad Central del Caribe

To prepare high-quality and devoted health professionals and biomedical scientists to meet the health needs of the community in its biological, physical, and social context with a humanistic focus and a high sense of moral obligation.

## Core Competencies

To fulfill the institutional mission, each academic program must demonstrate that its graduates have mastered eight core competencies that should be developed and assessed according to the program's particular specialization:

1. The fundamental concepts, principles, and basic information are deemed necessary in their field of specialization.
2. The technical/clinical skills required in the field of specialization.
3. Communication skills, in English and Spanish, written and spoken, and interpersonal skills, to effectively communicate with patients, colleagues, and other members of the community.
4. The skills and attitudes conducive to personal and professional development, through continuous study throughout their lives.
5. The skills and knowledge required to identify and assess reliable sources of information, to discern and be able to analyze it, and apply it according to the required tasks.
6. The fundamental values and the ethical and humanistic attitudes to practice their profession, emphasizing professionalism, empathy, compassion, integrity, and dedication.
7. The added value of collaboration among multiple health workers from different professional backgrounds learning and working together with patients, families, carers (caregivers), and communities to deliver the highest quality of patient-centered care.
8. The respect for the dignity of all human beings.

What distinguishes the Universidad Central del Caribe (**UCC**) from other educational institutions in Puerto Rico is its unwavering dedication to preparing high-quality health professionals who can offer preventive care, promote healthy lifestyles, and provide excellent services with humanism, compassion, and the highest ethical values. Characteristics of the institution are its intensive and extensive program of practical experiences in clinical settings in the community, regardless of the program of study, and its longstanding record of public/private partnerships and service-linked education.

## Positive Learning Environment Statement

We affirm our commitment to creating and maintaining a positive learning environment, valuing and respecting the dignity of each member of our academic community.

To ensure adherence to these principles, mistreatment, abuse, bullying, cyberbullying, and any form of unprofessional behavior will not be tolerated. We encourage reporting any observed incidents of mistreatment under the firm conviction that a positive learning environment will be free of retaliation, with multiple opportunities to amend and construct the educational experience necessary for the development of caring and compassionate health care professionals.

Additionally, we are firmly committed to the possibilities of learning from positive influences in the development of appropriate professional behaviors.

## Location

Bayamón is one of the most important urban centers in Puerto Rico. Nearly 170,000 people live in this, the second-largest city in Puerto Rico.

Bayamón is located on the north side of the island, seven miles west of San Juan, the capital city of Puerto Rico. Due to the short distance between Bayamón and San Juan, it is accessible to ports and airport facilities, allowing rapid movement of people and merchandise. This element helps facilitate Bayamón's commercial, industrial, and tourist activity expansion.

The commercial development resulting from Bayamón's urban growth during recent years has permitted the proliferation of shopping centers, with modern amenities and installations. Towards the periphery of the city, there are many new residences and modern recreational, sports, and cultural facilities. Bayamón has become one of the most important educational centers on the island, boasting higher education centers and several junior colleges and vocational schools.

## The UCC Campus and its facilities

The University facilities are located on the spacious grounds of the Dr. Ramón Ruiz Arnau University Hospital in Bayamón. This 55-acre complex contains the hospital, the Biomedical Sciences Building, and the Casa de Salud, which houses administrative offices, as well as clinical facilities. Ample parking is available, and green areas abound.

The Biomedical Sciences Building has a total area of 64,000 square feet. Of this, 4,178 are designated for individual research activity distributed over twenty-eight specialized laboratory facilities. A Common Instrumentation Room provides centralized research support, including a preparation room, storage, scintillation counters, and high-speed centrifuges. In addition, a cold room is available on each floor, and autoclave facilities are adjacent to the Department of Microbiology and Immunology. The animal care facility occupies nearly the entire basement. This large area has been designed and equipped to meet the requirements for the Office of Laboratory Animal Welfare accreditation. The Neurosciences Department facilities are located at a nearby structure and encompass a state-of-the-art complex to conduct specialized multidisciplinary investigations of the nervous system and its functions.

The Biomedical Sciences Building holds multiple facilities for conducting the main teaching and learning activities directed toward the fulfillment of the programmatic missions. It includes large conference lecture rooms, equipped with educational technology to enhance the learning process. The Learning and Information Resources Center (**LIRC**) includes two computer rooms with capacity for 70 state-of-the-art computers, small study rooms, a telehealth room for video and/or audio recordings, individual study carrels, and offices for the support staff. Additionally, the Biomedical Sciences Building houses a Multidisciplinary Center for the Development of Clinical Skills and the Basic Chiropractic Skills Laboratory. Both are state-of-the-art facilities to assist all our students in the mastery of the corresponding competencies and skills to excel as practitioners. The learning experience is enriched using specialized laboratories, including the following:

The ***Human Gross Anatomy Laboratory*** is a modern dissection space used for teaching and demonstrations and is shared by all programs at the Universidad Central del Caribe that require such facilities. Normally, students have 24-hour access to the laboratory except when class is in session. The recently renovated laboratory is outfitted with standard air filtering technology and two large sinks with eight motion-sensor-activated faucets, in addition to storage space and standard dissecting and cleaning supplies. The laboratory and specimens housed within it are routinely maintained by the full-time laboratory technician.

The laboratory includes 16 dissection tables. Each table is outfitted with a specialty dissection lamp and adjustable stools for students to use during laboratory sessions. A touchscreen computer with keyboard and an additional display is mounted on the wall and shared between every two dissection tables, so that students can access online resources such as atlases or other information during dissection. Physical atlases are also available for use during laboratory sessions. Although students are assigned a single cadaver to dissect, they can study from and observe all the cadavers available in the laboratory.

In addition, the laboratory is outfitted with a **SECTRA** virtual dissection table, smartboard, and an additional computer for instructor use. The **SECTRA** table is a large touchscreen computer that provides access not just to a virtual dissection model based on a real cadaver from the Virtual Human Project, but also to countless real clinical cases in **CT** and **MRI** modalities, available in both 2D and 3D renderings. The **SECTRA** and the instructor's computer can be projected onto the smartboard as well as any of the touchscreen computers at the dissection tables, and are typically used to share relevant dissection images, atlas sections, or medical images.

A movable dissection microscope with a dedicated computer station is also available for the filming and projection of detailed dissections of small structures of the head and other regions

The ***Multidisciplinary Clinical Skills Training Center*** (**MdCSTC**) is located on the first floor of the Biomedical Sciences Building to provide the academic support resources necessary for the teaching of clinical skills. **MdCSTC** is a state-of-the-art, enriched simulation center available to assist students with the practice and proficiency of clinical skills scenarios found in real practice throughout their different courses, fields of specialization, and health professions. Clinical scenario experiences are developed at the **MdCSTC** using standardized patients or simulators and will enhance clinical instruction and facilitate student learning. The use of high-fidelity simulation and state-of-the-art technology provides the student with many opportunities to focus on critical thinking, clinical reasoning, communication, and clinical judgment skills, and to minimize errors and repetitions of the scenarios until the competencies are achieved, in addition to acquiring new knowledge while managing psychological responses.

The ***Introductory Chiropractic Skills Laboratory*** serves as the foundation for the development of the principles of chiropractic technique and assessment methods. The technique laboratory sessions comprise hands-on workshop experiences to develop the proper ergonomics, posture, and palpation skills of chiropractic art and science. The students will be exposed individually to the Force Sensing Table Technology (**FSTT**) to develop the initial psychomotor skills for the chiropractic adjustment, and will be provided with video recordings of their performances as well as quantitative data of their skills. Palpation techniques are also developed extensively in this laboratory setting to enhance students' development of tactile skills in synergy with the Human Gross and Developmental Anatomy course.

For chiropractic students, the ***Advanced Chiropractic Techniques Laboratory*** is the progression towards the development of evidence-based and chiropractic technique therapeutic protocols. This laboratory will develop a set of technical skills applicable to a varied patient population. Techniques such as flexion/distraction, gravity table-assisted, extremities, and soft tissue technique protocols will be taught in a series of courses and practicum modules. The **FSTT** will be used as well to continuously measure quantitative and qualitative data in conjunction with video recordings of student performances. This state-of-the-art laboratory will expose chiropractic students to the most advanced chiropractic equipment and passive and active care therapeutics to enhance their clinical rationale and judgement according to the standardized guidelines for a variety of neurological and musculoskeletal conditions.

Nearby the university is the 6,720 square feet clinical facility known as the University Center for Complementary and Integrative Health (**CUMIC**, for its Spanish acronym), envisioning the capability of this center to support wellness and preventive health. The **CUMIC** includes the chiropractic students' clinic.

## Learning and Information Resources Center

At the heart of Universidad Central del Caribe's academic life lies the Learning and Information Resources Center (**LIRC**). The **LIRC** houses four interconnected operational units that serve the multidimensional academic life at the university, including the Dr. Arturo L. Carrión Pacheco Library, Educational Technology Unit, Technological Resources Unit, Information Systems and Telecommunications Unit, and the Center for Research and Science Communication Opportunity. Orientations, consultation, and professional development activities are continuously delivered to keep **UCC** constituents at the forefront of the advanced technologies that support the three pillars of the institutional mission: excellence in education, clinical services, and research.

The **LIRC** is the central core through which the **UCC** deploys information and provides technical support to students, faculty, researchers, administrators, non-teaching personnel, and the community in general. **LIRC** oversees the electronic communication, Internet, electronic mail, the library, and other resources and services, which are highly important to maintain the high educational level achieved in the academic programs run by the **UCC**. **LIRC** has incorporated new methods of interaction with the academic community based on the trends in online and offline exchanges between teachers and learners, and has improved the interactions among the community by alternatively using cloud computing.

**LIRC** improvements in hardware and software are allowing the development of interactive educational alternatives, with a positive approach in applying teaching and learning theories as part of a new dimension of our learning resources. All units in the **LIRC** work interconnectedly to provide first-line support to university constituents.

The **Arturo L. Carrión Pacheco Library** is in the Basic Sciences Building. The library's first floor houses the circulation, reserve, and reference collections, printed serials, and three small-group study rooms. The library provides traditional and online services. The library holds interlibrary loan agreement services with libraries in Puerto Rico and off the island. Among those is the interlibrary loan through "Loansome Doc" from the National Library of Medicine. All bibliographical material requested through this service is usually received the same day. Electronic journals and books currently available can be accessed onsite or via the virtual private network (**VPN**). A variety of online databases and resources are also available. Some of those are: **UCC** electronic catalog; **EBSCOhost**: full-text electronic journals; SMART image-based; **OVID** Electronic Books & Journals; DynaMed Plus; The Cochrane Collection; Unbound Medicine; Access Medicine; and the discovery engine tool LibSteps. Additionally, the first floor houses 8 individual computer working stations, 20 individual study carrels, and several tables to promote collaborative learning.

Complementing the services, on the second floor the **Educational Resources Facility** (**ERF**) is in place, which includes: 3 small-group study rooms with capacity for up to 20 students (open 24/7); the computer laboratories (1 and 2) with capacity for 70 individual computer working stations; and 16 individual study carrels (available 24/7/365).

The **Educational Technology Unit** (**ETU**) provides continuous support to all academic activities of the undergraduate and graduate programs. This unit supports instructional design and the development of classroom activities as well as distant education activities. The **ETU** is responsible for the in-house online exam construction and administration, as well as the support, administration, and security for the web-based examinations from externally sponsored sources. In the middle of 2017, ExamSoft was acquired to administer the tests using completely online technology. With this tool, we are updated with the current curricular tracking mechanisms of our students. This unit also provides support, maintenance, and training resources under the Elentra Platform ™. The computer laboratories' hardware and software are also maintained by this unit. The **ETU** is involved in all activities that require using off- and online software by the computer laboratories for training purposes.

The **Technological Resources Unit** (**TRU**) oversees the circulation and loan of equipment, media production and audiovisual services, and computers-on-wheels, including computers in the classrooms. The **TRU** assists in the preparation of instructional materials, presentations, reports, spreadsheets, information searches, and technology training. The **UCC** website elaboration and maintenance is under the responsibility of this unit, including its guideline production, and the instructional guides to users in charge of departmental pages. The **Telehealth Facility** is a state-of-the-art TV studio to support academic activities, also located within this unit. They generate the pre- and post-production of any video conferences, classes, or tele-health and tele-research activities. They edit the required post-processing to have the video conferences available to any user and/or published through the **UCC-TV** channel. The **TRU** assists researchers in the design and production of posters and presentations to their final elaboration. The unit assists videoconferencing services to the academic community through CISCO WebEx, Microsoft Teams, and **Skype**.

The **Information System and Telecommunication Unit** (**ISTU**) serves the needs of the university community through the support and ongoing maintenance of the network, servers, computers, laptop computers, and any portable devices distributed throughout the entire campus for the use of **UCC** constituents. The unit formulates and executes the installation of different communication alternatives, including, among others, Internet, **Wi-Fi**, IP phones, etc. The implementation of several projects to integrate new technological advances into the **UCC** infrastructure, both hardware and software, responds to the **ISTU**. This unit is responsible for the implementation of forefront technologies and their cost-effective utilization. This unit also supports the use of the **VPN** of the university.

The **Center for Research and Science Communication Opportunity** (**CRESCO**) was established to assist students and faculty with the development of activities directed at promoting skills in clinical and translational research. The **CRESCO** provides resources and support to bring the academic community, especially undergraduate students and faculty, closer to clinical and translational research. **CRESCO** is equipped with a smart TV capable of video and web conferences, small group presentations, and a 3D printer so students can print life-like models to use in their research projects and presentations. Additionally, it includes applications to help students verify the similarities in their documents and to analyze research data. An information technologist is available to give support in the use of equipment, research writing, and publishing.

**LIRC** offers workshops and seminars on various technologies and information-related topics. The areas covered range from computerized applications to online courses, as well as online testing design and development, electronic tools for assessment, information literacy, and Internet searching strategies.

The counter service is available during the library hours indicated below:

Library Hours:

| | |
|---|---|
| Monday to Thursday | 8:00 am-6:00 pm |
| Friday | 8:00 am-4:30 pm |
| Saturday and Sunday | **Closed** |
| Holidays | **Closed** |

All the online **Arturo L. Carrión Pacheco Library** services to support student achievement are available 24 hours, seven days a week, and 365 days a year through the virtual private network (**VPN**).

The second-floor individual study carrels and small-group study rooms are available 24 hours, seven days a week, and 365 days a year.

All other units within **LIRC** observe the following working schedule[1]:

| | |
|---|---|
| Monday to Friday | 8:00 am - 8:00 pm |
| Weekend & Holidays | **Closed** |

## Research Activities, Centers, and Support Programs

### Clinical Research Center of the Universidad Central del Caribe (CRCUCC)

The **CRCUCC** is a brand-new facility prepared and certified to perform clinical research studies within the **UCC**. This facility has personnel, physical, and administrative resources to support clinical trials in different medical areas.

### Institute of Research, Education, and Services on Addiction (IRESA)

The **IRESA** was established in 1992 as the Center for Addiction Studies (**CEA**). The purpose of **IRESA** is to promote and develop research, education, and services for substance use and other behavioral health conditions in Puerto Rico, the US Virgin Islands, and the Latino communities in the United States. It has conducted an array of initiatives in prevention and substance use treatment and recovery support services, criminal justice, homelessness, **HIV**, and workforce development. In addition to these roles, the evolution of the institute provides an excellent example of the seamless integration of research, education, and services in the substance use and behavioral health field.

### Integrative Center for Glial Research

The center unifies a multi-institutional group of researchers focused on glial cell investigation and oriented to disorders originating from or related to glial cell function and pathology. The center represents scientific research groups from the **UCC**, **UPR**, and adjunct members from the **UPR**. At the **UCC**, there is a large group of researchers from the basic sciences departments who share interrelated research interests in neuroglial cell physiology, molecular biology, biochemistry, pharmacology, and biophysics. The center has developed a core facility named glial cells (the "silent brain") that do not generate spikes. Instead, glial signaling in the brain is through molecular and ionic mechanisms inside the glial syncytium and between glia and neurons. These signaling avenues use a wide variety of molecules that can be detected with the help of new techniques developed or employed by the investigators. In addition, the center uses common core facilities, such as the Common Instrumentation Area, the Optical Imaging Facility, and the Behavioral Testing Facility, which provide services to center members. The center has established widespread national and international partnerships. The center coordinates lab meetings, journal clubs, seminars, and an annual symposium ("CaribeGLIA"), which is attended by distinguished national and international glial researchers, physicians, students, and associates.

[1] *Some personnel are on call.*

## Retrovirus Research Center (RRC)

The Retrovirus Research Center is a multidisciplinary research center for the study of **HIV/AIDS** and other retroviruses. The center promotes the study of **HIV** infection as a multidisciplinary research arena in which the clinical features, immunology, and virological elements, and the psychological and behavioral parameters need to be integrated into a coherent research strategy. The center brings together a coalition of multidisciplinary researchers whose interest is to describe and understand key elements that play a role in the progression and/or expression of **HIV** infection according to an ecological view of the problem.

## Research Facilities

The **UCC** has research laboratories and specialized research facilities with the necessary equipment to perform the research according to the researcher's interests. The average size of the laboratories is 180 square feet. The individual research laboratories are complemented with common instrumentation areas, a cell culture laboratory, a retrovirology laboratory, an electron microscope, and a radioisotope laboratory.

The specialized research facilities are:

**Animal Resources Center (ARC)**

The Animal Resource Center is staffed with specialized personnel in animal care and handling to support research and education activities. The center houses small and large animals in its 7,700 square feet facility and provides information concerning purchasing, basic husbandry, quarantine, and veterinary medical care of laboratory animals.

The center also provides technical assistance and advice dealing with animal species used for investigation and supports research programs by making readily available animals, materials, and animal husbandry supplies.

The center is equipped with specialized areas to provide the following services: necropsy, stock and treatment, quarantine, bedding, cage washing, and storage. The facilities also include an experimental surgery area with surgical, scrub, sterilizing, and recovery rooms.

**Behavioral Testing Facility (BTF)**

The Behavioral Testing Facility was created to facilitate the development of neuroscience research at the Universidad Central del Caribe, recognizing the importance of behavioral testing. The **BTF** has two (2) major components: the equipment infrastructure and the technical support division. The facility offers equipment for remote behavior visualization (**RBV**).

**Biomedical Proteomic Facility (BPF)**

The mission of the facility is to accelerate discovery by giving **UCC** investigators access to cutting-edge technologies in proteomics and mass spectrometry. The facility stimulates the use of 2D gels and protein analysis, via the software **PD-Quest**, by the faculty. The aim is to provide separation and mass spectrometry techniques for the quantitative analysis of the proteome. One major objective is to identify disease and other relevant biological markers.

**Common Instrumentation and Technical Support Unit**

This core area houses major equipment such as ultracentrifuges, freezers, spectrophotometers, gamma counters, as well as the centralized cell culture facility. It fosters equipment sharing, centralizes maintenance of equipment, and provides repair for the equipment of all the projects.

**Data Management and Statistical Research Support Unit (DMSRSU)**

The **DMSRSU** provides study design, data management, quality assurance, and statistical analysis support for **UCC** researchers. **DMSRSU** has a strong infrastructure, which includes the following sub-units: Data Abstraction and Management; Data Entry; Quality Control; Data Analysis and Consultant; and Administrative and Computer Systems. Each of these subunits consists of experienced professionals readily available to assist researchers and to provide data management and statistical research support to investigators. In addition, **DMSRSU** has a highly experienced and reliable consulting team.

**HIV and Substance Abuse Laboratory**

The laboratory supports research in the areas of **HIV/AIDS** and substance abuse. Specialized facilities are made available to researchers for scientific studies in fields of immunology, drugs of abuse, **HIV/AIDS**, and related infectious diseases.

**Optical Imaging Facility**

The facility provides microscope-based systems and complementary resources necessary to carry out successful live cell, single, double, and triple fluorescence imaging. The facility equipment located on the 1st floor of the Basic Sciences (**BS**) building includes upright and inverted light microscopes equipped for transmitted light (brightfield, phase contrast, and **DIC**) and epifluorescence imaging. The **OIF** also includes an Olympus Flouview 1000 confocal laser scanning microscope located in the **BS** building basement. The Fluoview 1000 is a three-laser confocal microscope that acquires simultaneous or sequential high-resolution fluorescence images from thick specimens (20-200 microns). In addition, **OIF** has three online and two offline licenses of the molecular devices image analysis software MetaMorph®. The software contains various application modules that provide quantitative morphometric analysis used for cell counting, assessing cell cycle, cell migration, cell viability, apoptosis, cytotoxicity, motion analysis, and particle tracking.

**Transmission Electron Microscopy Laboratory**

The **TEM** laboratory provides access to ultrastructural analysis of biological specimens via a Jeol 100 **CX** transmission electron microscope. The **TEM** is equipped with an **AMT 4 MP** digital camera to facilitate image acquisition and **3D** reconstruction from serial sections. In addition to conventional **EM** procedures of in situ and cell culture specimens, the laboratory also offers immunogold labeling and the visualization of fluorescent dyes after photoconversion.

## Research Support Programs

**Research Initiative for Scientific Enhancement (RISE)**

The Preparing Future Faculty Program will be developed by Universidad Central del Caribe (**UCC**) to train Ph.D. candidates in biomedical research and in educational methodology, to prepare them for future careers as academic scientists and educators. Recruitment of trainees will be easily accomplished, since nearly all students at the **UCC** are members of groups underrepresented in the sciences (Hispanic and economically disadvantaged).

**Title V Cooperative with UPR-RCM**

The Title V Cooperative Agreement between the UPR Medical Sciences Campus and the **UCC** is funded by the Department of Education. The main goal of this consortium is to reduce minority health disparities through the development and support of Clinical and Translational Research. The project aims for the development of undergraduate students as potential candidates for graduate training in clinical and translational research, with the responsibility and commitment to offer Hispanic students in Puerto Rico the best opportunities to obtain an education that will empower them to pursue graduate degrees in the health sciences.

**The Hispanic Alliance for Clinical & Translational Research in Puerto Rico (ALLIANCE)**

The Hispanic Alliance for Clinical & Translational Research in Puerto Rico (Alliance) is built upon the previously funded infrastructure known as the *Puerto Rico Clinical and Translational Research Consortium (***PRCTRC**). The Alliance expands the scope of our successful 10-year partnership by leveraging the intellectual and physical resources of the three major academic health sciences centers on the Island:

- University of Puerto Rico Medical Sciences Campus
- Universidad Central del Caribe
- Ponce Health Sciences University

The Alliance is founded on our hypothesis that research-driven improvements in health outcomes require an integrated network of key stakeholders representing academia, government, community-based organizations, and health care delivery systems working together in an interdisciplinary, multi-sectoral clinical-translational research model. The objective is to develop and support an integrated, island-wide strategy focused on conducting clinical and translational research across Puerto Rico that addresses prevalent diseases and those that affect the medically underserved population.

## Research Support Offices

**Office of the Associate Dean for Research and Graduate Studies (OADRGS)**

The **OADRGS** actively facilitates and promotes interdisciplinary research enterprises and curriculum development within the **UCC's** academic community. The mission of the **OADRGS** is to develop an administrative structure that promotes and facilitates organized scientific investigation and graduate studies.

The office provides research support personnel in the areas of pre- and post-grant award administration, sponsored program administration, and institutional compliance. Priorities for the office include fostering research activities, aiding in the recruitment and retention of faculty, and increasing research activity. Additionally, the office coordinates and oversees all academic and research endeavors of the Graduate Program in Biomedical Sciences.

# STUDENT SERVICES

## Student Health Services

Every student must carry health insurance coverage. Any student without private health insurance is required to subscribe to the institutional health insurance plan through the Deanship of Admissions and Student Affairs. Students are encouraged to use this service most cost-effectively. The student who has subscribed to the institutional health insurance plan may visit the physician, laboratory, or any health care service of their choice following the insurer's policies. Minor or major emergencies are channeled through the closest Emergency Room accessible to the student. The coverage is also available for family dependents. The cost of health insurance could vary every year depending on the type of insurance and the insurance provider's analysis. The coverage includes dental and pharmacy.

## Counseling Program

Counseling services are available through the Deanship of Admissions and Student Affairs, which is staffed with licensed professional counselors. The Counseling Program is aimed at assisting students to take maximum advantage of the educational opportunities at the **UCC** and to contribute to their success in their future professional goals through academic and career advising. Students are referred to other specialized health professional services as needed.

## Mental Hygiene Clinic

A mental hygiene clinic is in place to assist the Counseling Program and manage students at risk of confronting academic difficulties due to personal and psychological problems that interfere with their ability to study and perform. The clinic is staffed by a licensed clinical psychologist with no academic appointment. Referrals to the clinic are channeled through the licensed professional counselor with the student's consent for case discussions and for additional active referrals from the Psychologist as deemed necessary. The Mental Hygiene Clinic is also available for the delivery of individual or group sessions on effective time management, enhancing test-taking abilities, and managing test performance anxiety, among others.

## Student Tutorial Program

It is the goal of this program to provide academic tutorial assistance to all **UCC** students, especially those students confronting academic difficulties. Students with academic difficulties are referred to the Counseling Program for a comprehensive assessment. Contingent on the findings of this assessment, they are referred to the Tutorial Program or the appropriate professional service.

## Comprehensive Wellness Program

The Comprehensive Wellness Program is a student service designed to support students' well-being, facilitate integration into the new academic environment, and prevent the negative impact of burnout associated with conflicting demands. The program is staffed with a licensed professional counselor, social worker, and a neuropsychologist who teams up with the other licensed professional counselors and the mental hygiene clinic psychologist for service coordination. The program provides workshops and group sessions to support wellness in areas such as nutrition, stress management, recreation, yoga, memory enhancement techniques, mindfulness, mandala and painting, fitness, among others. Services from the wellness program may be accessed through the Deanship of Admissions and Student Affairs.

## Orientation activities for entering students

The **UCC** offers orientation workshops and activities to the entering freshman class of all academic programs before the beginning of the academic year. Workshops are conducted on how to improve study habits, develop better attitudes regarding stressful situations, and how to deal with them. Registration occurs at a scheduled time during these periods of activity. Several presentations are provided regarding institutional policies, specific information about areas of services (Registrar's Office, financial aid, counseling, immunization requirements, emergency drills, parking requirements, etc.; library, **BLS** course, among others). The main goal is to assist the incoming student in better adapting to academic demands and rigors.

## Parking

Parking is provided to all students, granting access to specific areas of the institution. After payment of an annual fee, this service grants access to the designated parking area. The student must present all required pertinent documents (i.e., driver's license, vehicle registration, and academic registration) and must agree to fulfill all institutional regulations.

## Extracurricular Activities Program

The Universidad Central del Caribe (**UCC**) believes that students should be encouraged to develop an interest in culture and the arts. With this principle in mind, the Office of the Dean of Admissions and Student Affairs sponsors educational, social, cultural, and prevention activities for the student body. Every Thursday from 12:00 pm to 2:00 pm, the **UCC** observes the universal hour. The universal hour is devoted to extracurricular activities and to encourage student organizations to engage in their activities.

## Student ID Cards

An identification card is issued to all registered students and includes a photograph, name, academic program, and student number. The **ID** is required to gain access to all **UCC** facilities and entrance to hospitals, community preceptorships, practicums and internships, campus events, checking out books from the library, and other official activities. The student **ID** is also programmed to be used as a key to enter the 24/7 study areas in the library.

## Housing and Cafeteria Facilities

Housing facilities are not available on campus. Students who may need housing facilities are encouraged to discuss and seek advice from the Deanship of Student Affairs personnel.

The university has a food truck on campus serving meals from 6:00 am to 3:00 pm Monday to Friday. Also, there are various fast-food restaurants in the vicinity of the institution.

## Student Organizations

The official body representing students at the **UCC** is the General Student Body Council. This council is elected by the student body, as described in the General Student Rules and Regulations, with representation from all the academic programs. Medical students have an active chapter of the Medical Student Section of the American Medical Association and the American Women Medical Association, the Latino Medical Student Association, the Gold Humanism Honor Society Chapter, and the Alpha Omega Alpha Gamma chapter. There are also a variety of interest groups related to community services and specialties (Surgery, Neurology, **Dr4Kids**, **LGBTQ+**, Internal Medicine, etc.). Chiropractic students also have chapters of the Student American Chiropractic Association (**SACA**), the International Chiropractic Pediatric Association (**ICPA**), and the World Congress on Chiropractic Students (**WCCS**). They also maintain a Doctor of Chiropractic program student organization named *Kiros* for community volunteering services and professional development purposes, and a radiology interest group **ChiroRad**. Students from the Biomedical Sciences Programs also meet in student organizations proper to their fields of study. In addition to the Graduate Student Association, whose mission is to enrich graduate student experience and to represent, support, and promote graduate student interests.

## Relaxation Facility "Student Lounge"

The relaxation facility located in the Casa de Salud building is designed to become a space in which students can deal with the stressors associated with academic demands. The facility includes a kitchenette and dining area; billiards, domino; television, relaxation music, a sound system, and reclining chairs. The area also contains individual lockers. The facility is a secure space available 24/7.

## U-Report (Confidential reporting service for concerns or accolades)

Recognizing our obligation to our students, faculty, staff, and the community to maintain the highest ethical standards and a positive learning environment, the **UCC** has chosen to provide an anonymous or identifiable way to report concerns that may be violations of university policies or rules and regulations. Additionally, accolades can be reported to contribute to the positive academic learning environment at the **UCC**. The reporting system may be accessed through the institutional webpage at any time. Concerns and accolades are discussed or investigated to improve the learning environment. (U-report).

# ADMISSIONS OFFICE

The Admissions Office is responsible for the administration and coordination of the different admissions processes. The Admissions Office assures confidentiality and integrity in the admissions processes in adherence to institutional and federal regulations. The admissions committees are responsible for selecting the best candidates who apply for admission to each existing program. The candidates must present evidence of successful completion of all admission requirements for the program in which they are interested. The admissions committees also consider non-academic factors as additional criteria in evaluating applicants. The admissions office adheres to the institutional affirmative action statement.

Contact information at:

Universidad Central del Caribe Admissions Office
PO Box 60327
Bayamon, PR 00960-6032

| | |
|---|---|
| **Phone:** | 787-798-3001 extensions 2402, 2403, 2404 |
| **Fax:** | 787-269-7550 |
| **Email:** | admissions@uccaribe.edu |
| **Web page:** | https://www.uccaribe.edu/deanship-students-affairs/admissions/ |

## General Requirements

Students wishing to be admitted to Universidad Central del Caribe must comply with the following requirements[2]:

1. File an application with the Office of Admissions within the required time limit for the program. Additionally, first-year medical degree applicants are also required to file an **AMCAS** application through www.aamc.org/amcas.
2. Submit the necessary official transcripts, grades, or certifications from accredited Institutions as requested per the program.

Students from high school, or those who have completed an equivalency exam without previous university experience, must provide a high school transcript with the degree conferred.

1. Submit the official scores of the corresponding admission tests according to the selected program criteria.
2. Have the minimum admission academic index established by the Admissions Committee according to the selected program.
3. Pay the applicable non-refundable application fee.
4. Submit the reference letters according to the program.
5. A personal interview is required prior to consideration for admission to members of the faculty (by invitation only).
6. Applicants must demonstrate proficiency in both Spanish and English during the admissions interview. This is essential, since lectures are conducted in either language, even though Spanish is the predominant language of the institution. Moreover, the required clinical experiences are mainly with Spanish-speaking patients.
7. Certificates of Good Conduct, obtained from the local Police Department of the state of residence. MD students applying through **AMCAS** require a criminal background check (**CBC**) performed by *Certiphi*, as required by the **AAMC** since 2010.

[2] ***Students from international institutions must send an official translation, validation and/or equivalency to the U.S.A. system to have their academic documentation considered. We suggest Word Educational Services (WES) as an external agency for this purpose. The web site is www.wes.org.***

8. Once admitted to the program, the student must submit a health certificate and a physical examination by a licensed physician, tuberculin test or chest X-ray (if positive reaction to tuberculin test), and the following tests: **VDRL**, urinalysis, and **CBC**.
9. Certificate of Immunization that includes: three doses of Hepatitis B; **MMR** vaccines; polio vaccines; **DTP** vaccines; Td or Tdap vaccine (booster required every 10 years); evidence of having had chickenpox certified by a licensed physician; positive titers of varicella or if he/she has not suffered the disease, evidence of two doses of varicella vaccine (Varivax); seasonal flu vaccination (regular or combined **H1N1**), and a full vaccination course for **COVID-19**. All students must complete all immunization requirements.
10. All admitted students are required to submit their respective program a technical standards attestation upon admission to the academic program.

## Requirements for International Candidates

1. File an application with the Office of Admissions within the required time limit for the program.
2. Provide official transcripts from all secondary and post-secondary institutions attended, translated into English.
3. Include two letters of recommendation from teachers or professionals who can speak about the student's qualifications and character.
4. Write a personal statement or essay outlining your academic interests, career goals, and reasons for choosing this institution.
5. Provide a current resume or CV highlighting your academic achievements, work experience, and extracurricular activities.
6. Submit a certification letter from a financial institution as proof of sufficient financial resources to cover tuition expenses during their studies.
7. Include a clear copy of their valid passport to verify their identity and nationality.
8. Be prepared to meet any additional visa requirements (F-1) as specified by the institution and the host country.
9. Pay the fee for the Student and Exchange Visitor Program (**SEVP**) **SEVIS I-901** and the Form I-20, which lists the date on which you are allowed to enter the United States.
10. A personal interview is required before consideration for admission with members of the faculty (by invitation only).

## Readmission

1. Students must apply for readmission, with the corresponding fee, if they interrupt their studies and do not attend the university for two years or more. Students interested in pursuing readmission should review the caducity of credits for each academic program at the **UCC**. Applications for readmission must be submitted before the deadline determined in each academic term. (Summer sessions do not count as interruptions.)
2. Students must comply with the requirements of the study program of their choice, at the time of their readmission, as well as other general requirements that may apply.
3. Interested candidates should submit transcripts of any coursework taken outside the **UCC** during the time they were absent from the program.
4. Students suspended for disciplinary reasons may apply for readmission to the academic session following the end of the suspension period. Readmission may not be granted if the student has violated institutional regulations during the period in which he/she was suspended.

5. Students who interrupt their studies must comply with the admission requirements in effect during the year in which they apply for readmission.
6. Students who complete the academic session but who do not register again, or withdraw their registration, must comply with the minimum **GPA** required. If this requirement is not fulfilled, readmission, if granted, will be provisional.
7. Candidates for readmission might be required to have an interview with the admissions committee of their academic program or by an *Ad-hoc* committee comprised of the dean of students or designee, the registrar, the dean of academic affairs or designee, and a department chair. The committee will have the final authority to recommend the admission of special cases.

### Transfer Students[3]

A student from another institution of higher learning who applies for admission at the UCC and meets the admission requirements for a given program will be considered a transfer student. The Admissions Office will process their application. The students must not be under academic or disciplinary sanction in the institution from which they come proven through a letter from the Dean or an officer of similar rank. To be considered for transfer admission, students wishing to transfer must meet the requirements of the program of their choice. The programmatic admissions committees will evaluate the applications. See policy under the Office of the Registrar section.

Applications for transfer or advanced standing to the **UCC** School of Medicine (**UCCSoM**) will be considered from those who are currently enrolled in Liaison Committee on Medical Education-accredited medical schools or American Osteopathy Association-accredited Schools of Osteopathy.

***UCCSoM*** *is accredited by the* ***LCME*** *and only admits students for transfer or advanced standing if such students can complete all degree requirements from the time of their initial matriculation into the program until the time of award of the* ***MD*** *degree in an* ***LCME****-accredited program geographically located in the United States. Any extramural elective requirements completed outside of an* ***LCME****-accredited program geographically located in the United States should not be counted as part of the degree requirement.*

## Specific Admission Requirements

### School of Medicine

Admission to the school of medicine is the sole responsibility of the Admissions Committee, composed of faculty members. In evaluating applicants, the Admissions Committee considers academic qualifications, personal traits, and potential for success in medical school as evidenced in academic records, the results of the Medical College Admission Test (**MCAT**), personal statement, letters of recommendation, personal interviews, research, community, and health-related experience.

#### General Requirements

1. Applicants to the first year must have a minimum of ninety (90) credits approved prior to application in a college or university accredited by the Postsecondary Institutions Board of the Puerto Rico Department of State or the corresponding US accrediting agency. A bachelor's degree is highly recommended.
2. The applicant must have a minimum general grade point average of 3.00 or above on a scale where A=4.0 (including all courses taken at college/university level).

[3] ***Students from international institutions must send an official translation, validation and/or equivalency to the U.S.A. system to have their academic documentation considered. We suggest Word Educational Services (WES) as an external agency for this purpose. The web site is www.wes.org.***

3. The applicant must have a minimum science grade point average of 3.00 or above on a scale where A=4.0 (includes all courses in Biology, Chemistry, Physics, and Mathematics taken at college/university level).

Total coursework must include the following:

| Courses | Credits | Comments |
|---|---|---|
| *Behavioral Sciences and Social Sciences** | 9 | Coursework must be in sociology, psychology, economics, or anthropology. |
| *Biochemistry* | 3 | -- |
| *College Mathematics* | 6 | -- |
| *English* | 9 | Six (6) semester hours in honor courses in English approved with a grade of A or B per semester may substitute for the twelve (12) semester hours required - |
| *General Biology or Zoology* | 8 | Basic introductory courses in Biological Sciences may not be substituted for the credit hour stipulated. |
| *General Chemistry or Inorganic Chemistry* | 8 | -- |
| *General Physics* | 8 | Basic introductory courses in Physical Sciences may not be substituted for the credit hour stipulated |
| *Genetics* | 3 | -- |
| *Molecular and Cell Biology* | 3 | -- |
| *Organic Chemistry* | 8 | -- |
| *Other highly recommended courses:* | | -- |
| *Psychology* | 6 | -- |
| *Spanish* | 9 | Six (6) semester hours in honor courses in Spanish approved with a grade of A or B per semester may substitute for the twelve (12) semester hours required. |

1. All academic requirements must be completed not later than the end of the second semester of the academic year preceding admission.
2. Official results of the **MCAT** scores taken within two years prior to application. A minimum score of 495 is required. The website is www.aamc.org/mcat.
3. Applicants must demonstrate fluency in speaking, reading, and writing in Spanish and English during the admissions interview. This is essential since lectures are conducted in either language, even though Spanish is the predominant language of the institution. Moreover, the required clinical experiences are nearly always conducted in Spanish.
4. The **UCC** School of Medicine does not admit students who received dismissal from the **UCC** medical education program or another medical school. This applies to new admissions and transfer students.

**Application Process**

1. Application to the school of medicine is through the American Medical College Application Service (**AMCAS**). The complete application must be processed by **AMCAS** between ***June 1st and no later than December 1st***. Therefore, all applicants must file an **AMCAS** application only; the website is www.aamc.org/students/amcas.

2. One (1) official transcript from each college/university attended, to be sent directly to our Admissions Office.
3. A minimum of two (2) letters from faculty members or the Premedical Committee of the college or university of attendance, uploaded through AMCAS.
4. The payment of a $200.00 non-refundable application fee is established at our institution. Please be advised that we do not waive the admissions fee. Payments must be in the form of a money order addressed to the Universidad Central del Caribe and sent directly to our Collection Office.
5. The interview is by invitation only after qualification from the Admissions Committee. The admissions interview follows the multiple mini-interview protocol.

**Acceptance**

1. To guarantee enrollment upon acceptance, the candidate must make a $100.00 non-refundable deposit.
2. A criminal background check (**CBC**) performed by Certiphi, as required by the **AAMC**.
3. The attestation of admissions technical standards.
4. The student must submit a health certificate and a physical examination by a licensed physician with the laboratory and test required. Students must comply with all vaccination requirements. **CPR** certification from an authorized American Red Cross vendor is required.

**Admission for Transfer or Advanced Standing**

Transfer applicants may apply for admission for advanced standing to the third year of the curriculum leading to the **MD** degree. Applications for transfer or advanced standing to the school of medicine will be considered only from those who are currently enrolled in Liaison Committee on Medical Education (**LCME**) accredited medical schools and from schools of osteopathy accredited by the American Osteopathic Association (**AOA**).

Admission is on a competitive basis, and the number admitted depends upon the availability of spaces in the total number of students per class, as established by the **LCME**. The Admissions Committee, in collaboration with the Evaluation and Promotion Committee, will reserve the right to recommend the placement according to the **UCCSoM** curriculum.

**Admission Requirements for Transfer or Advanced Standing**

Applications for transfer or advanced standing to the Universidad Central del Caribe School of Medicine will be considered from those who are currently enrolled in Liaison Committee on Medical Education-accredited medical schools or American Osteopathy Association-accredited schools of osteopathy.

The **UCCSoM** is accredited by the **LCME** and only admits students for transfer or advanced standing if such students can complete all degree requirements from the time of their initial matriculation into the program until the time of award of the MD degree in an **LCME**-accredited program geographically located in the United States. Any extramural elective requirements completed outside of an **LCME-accredited program geographically located in the United States should not be counted as** part of the degree requirement.

The applicants must fulfill the following requirements and request the indicated documents to be forwarded to the Universidad Central del Caribe School of Medicine to be eligible for consideration:

See policy under the Office of the Registrar section for other general transfer requirements.

**Application Process**

1. An institutional application with a letter of intention indicating your interest in being considered by the **UCCSoM** as a transfer student.
2. The application must be submitted no later than **April 1st**.
3. Official transcript from each college/university attended for all undergraduate and graduate studies. Also required is the basic academic index (**GPA/SGPA**) and the premedical courses according to the minimum required in semester hours (please see the list in admissions requirements).
4. Official transcript from the medical school attended.
5. A minimum of two (2) letters from faculty members of your school of medicine.
6. All applicants must have passed Step I of the U.S. Medical Licensing Examination and must submit the official result with their application.
7. A letter of evaluation from the dean of the school of medicine, currently attending. The dean's letter must acknowledge that the applicant has requested to transfer and must certify the applicant's current academic status.
8. Payment of a non-refundable application fee of $200.00 as established by our institution.
9. A criminal background check (**CBC**) is required (issued less than six months prior).
10. The interview is by invitation only.

**Acceptance**

1. To guarantee enrollment upon acceptance, the candidate must make a $100.00 non-refundable deposit.
2. The technical standard agreement with the official signature.
3. The student must submit a health certificate and a physical examination by a licensed physician with the laboratory and test required.

## Doctor of Chiropractic Program

Admission to the Doctor of Chiropractic Program is the sole responsibility of the Admissions Committee, composed of faculty members. In evaluating applicants, the Admissions Committee considers academic qualifications, personal traits, and potential for success in the chiropractic school as evidenced by academic records, multiple mini-interviews or personal interviews, personal statement, letters of recommendation, research, community, and health-related experience.

**General Requirements**

1. Applicants must have an approved bachelor's degree from a college or university accredited by the Board of Postsecondary Institutions or the corresponding US accrediting agency.
2. The applicant must have a minimum general grade point average of 3.00 or above on a scale where A=4.0 (including all courses taken at college/university level).
3. The applicant must have a minimum science grade point average of 2.50 or above on a scale where A=4.0 (including all courses in Biology, Chemistry, Physics, and Mathematics taken at the college/university level with a grade point average of 2.00 or above in each individual course).
4. Two formal letters of recommendation, one of which must come from a Doctor of Chiropractic (**DC**), sent to the Admissions Office. Recommendation letters from the **DC** will be accompanied by an evaluation rubric that consists of at least 8 hours of shadowing with the **DC**.
5. A personal statement, written in English, establishing why you are passionate about becoming a chiropractor.
6. A *curriculum vitae* (**CV**) written in English.
7. The interview is in person and by invitation only; we use the modality of Multiple Mini-Interview.

8. All academic requirements must be completed no later than the end of the second semester of the academic year preceding admission.
9. Applicants must demonstrate fluency in speaking, reading, and writing in Spanish and English during the admissions interview process. This is essential since lectures are conducted in either language, even though Spanish is the predominant language of the institution. Moreover, the required clinical experiences are nearly always conducted in Spanish.

Total coursework must include the following:

| Courses | Credits | Comments |
|---|---|---|
| *Behavioral and Social Sciences in Psychology* | 12 | Basic introductory courses in Social Sciences may not be substituted for the credit hours stipulated. |
| *Biology* | 8 | Basic introductory courses in Biological Sciences may not be substituted for the credit hour stipulated. |
| *English* | 9 | Six (6) semester hours in honor courses in English approved with a grade of A or B per semester may substitute for the twelve (12) semester hours required. |
| *General or Inorganic Chemistry* | 8 | - |
| *Mathematics* | 6 | - |
| *Organic Chemistry* | 8 | - |
| *Physics* | 8 | Basic introductory courses in Physical Sciences may not be substituted for the credit hour stipulated. |
| *Spanish* | 6 | - |

**Application Process**

1. An institutional application for the Chiropractic Program, no later than May 1st, directly to the Admissions Office.
2. One (1) official transcript from each college/university attended, to be sent directly to our Admissions Office.
3. A minimum of two (2) letters, preferably from science faculty members and a chiropractic physician.
4. The payment of a $200.00 non-refundable application fee is established at our institution.
5. Curriculum Vitae.
6. A personal statement in which their motivation to study chiropractic is stated.
7. A criminal background check is required (issued within six months or less).
8. The interview is by invitation only after qualification from the Admissions Committee. The admissions interview follows the multiple mini-interview protocol.

**Acceptance**

1. To guarantee enrollment upon acceptance, the candidate must make a $100.00 non-refundable deposit.
2. The technical standard agreement with the official signature.
3. The student must submit a health certificate and a physical examination by a licensed physician with the laboratory and test required, and **CPR** certification from an authorized American Red Cross vendor. Students must comply with all vaccination requirements.

## Graduate Program in Biomedical Sciences

Admission to the Graduate Program in Biomedical Sciences (**GPBS**) is the sole responsibility of the **GPBS** Admissions Committee. In evaluating applicants, the Admissions Committee considers academic qualifications, personal traits, and potential for success in the program as evidenced in academic records, personal statement, letters of recommendation, personal interviews, research, and other related experience.

**General Requirements**

1. Applicants must have a bachelor's degree from a college or university accredited by the Council of Higher Education or the corresponding US accrediting agency.
2. The applicant must have a minimum general grade point average of 2.75 or above on a scale where A=4.0 (includes all courses taken at college/university level).
3. The applicant must have a minimum science grade point average of 3.00 or above on a scale where A=4.0 (includes all courses in Biology, Chemistry, Physics, and Mathematics taken at college/university level).
4. Applicants must demonstrate fluency in speaking, reading, and writing in Spanish and English during the interview process.

Total coursework must include the following:

- 2 courses in Mathematics
- 2 courses in Chemistry
- 2 courses in Biology
- 2 courses in Physics

It is recommended that candidates complete the following coursework at the undergraduate level: Calculus I, Statistics, General and Organic Chemistry, General Biology, Biochemistry, Cell Biology, Molecular Biology or Genetics, General Physics, Microbiology, Immunology, and/or other courses related to the area of specialization.

**Application Requirements**

1. An institutional application for the Biomedical Sciences Program, no later than April 15th, directly to the admission office.
2. An essay indicating your interest in a graduate degree in biomedical sciences, including a statement of purpose and a personal statement. The statement of purpose highlights the candidate's reason for choosing a specific program and research topic of interest. The personal statement highlights the student's motivation for applying.
3. Official transcript from each college/university attended, to be sent directly to our Admissions Office.
4. Three letters of recommendation, including at least two from former professors in the student´s area of specialization for the last completed degree.
5. Payment of a $50.00 non-refundable processing fee established at our institution. Please contact the Admission Office regarding payment procedures.
6. A criminal background check is required (issued within six months or less).
7. Interview with the department to which the student is applying or the Graduate Program in Biomedical Sciences Admissions Committee.

**Acceptance**

1. To guarantee enrollment upon acceptance, the candidate must make a $100.00 non-refundable deposit.
2. The technical standard attestation.
3. The student must submit a health certificate and a physical examination by a licensed physician with the laboratory and test required, and **CPR** certification from an authorized American Red Cross vendor. Students must comply with all vaccination requirements.

**Transfer Students**

Students who desire admission into the Graduate Program in Biomedical Sciences as transfer students from another graduate program of an accredited institution will be considered for admission if they fulfill all admissions requirements. The applicants must request that the institution from which they wish to transfer submit all pertinent documentation. The Graduate Program in Biomedical Sciences Committee will evaluate the student's academic record and will recommend to the Registrar's Office the transfer of coursework as follows:

Transfer of graduate credit hours will be accepted for the **PhD** degree, provided the grades in those courses transferred are B or higher and the courses are equivalent in content and depth to those offered by the **UCC** Graduate Program in Biomedical Sciences. The number of credits/courses transferred/validated will never exceed 50% the total courses/credits required for the degree.

A maximum of 9 credit hours of approved coursework will be accepted for the **MS/M**A degree, provided the grades in those courses are B or better, the courses are equivalent to those offered by the Graduate Program in Biomedical Sciences, and they satisfy departmental requirements.

Transfer courses at the graduate level must have been taken within the past five years.

No credits used for the completion of a **BS** or **PhD** degree will be transferred. See policy under the Office of the Registrar section.

## Substance Abuse Counseling Program

Admission to the Substance Abuse Counseling Program is the sole responsibility of the Admissions Committee, an advisory committee composed of faculty members. In evaluating applicants, the Admissions Committee considers academic qualifications, personal traits, and potential for success in the program as evidenced by academic records, personal statement, letters of recommendation, personal interviews, research, community, and other related experiences.

**General Requirements**

1. Applicants must have a bachelor's degree from a college or university accredited by the Council of Higher Education or the corresponding US accrediting agency.
2. The applicant must have a minimum grade point average of 2.5 based on a scale of A=4.0 (includes all courses taken at college/university level).
3. Applicants must demonstrate fluency in speaking, reading, and writing in Spanish and proficiency in English during the interview process.

Total course work must include the following:

| Course | Credit |
|---|---|
| *Biology* | 3 |
| *Behavioral Sciences (Psychology and/or Sociology)* | 9 |
| *Mathematics* | 3 |

**Application Process**

1. An institutional application for the Graduate Program. The application must be submitted no later than **May 1st** directly to the Admissions Office.
2. An essay with your interest in our Substance Abuse Academic Program.
3. Official transcripts from each college/university attended are to be sent directly to our Admissions Office.
4. Three letters of recommendation. At least one (1) letter should be from faculty members of your area of specialization, and the other two (2) letters should be from any academic or professional field.
5. Current curriculum vitae that includes any professional experience with the substance abuse population.
6. Payment of $50.00 non-refundable processing fee is established at our institution.
7. A criminal background check (**CBC**) is required (issued less than six months prior).
8. The interview is by invitation only.

**Acceptance**

1. To guarantee enrollment upon acceptance, the candidate must make a $100.00 non-refundable deposit.
2. The student must submit a health certificate and a physical examination by a licensed physician with the laboratory and test required, and **CPR** certification from an authorized American Red Cross vendor. Students must comply with all vaccination requirements.

**Transfer Students (Transfer of coursework)**

Transfer of coursework will be considered if the student fulfills all admission documents and requirements (see General Requirement and Application Process). The faculty will study the student's academic record and will recommend to the Program Coordinator and then to the Registrar's Office the transfer of coursework as follows:

1. For the certificate, only six (**6**) credit hours will be accepted if the grades of transferred courses are A or B, if the courses are equivalent to those offered by the Program in Substance Abuse, and if they satisfy program requirements.
2. For the master's degree, only nine (**9**) credit hours will be accepted if the grades of transferred courses are A or B, if the courses are equivalent to those offered by the Program in Substance Abuse, and if they satisfy program requirements.

See policy under the Office of the Registrar section.

## Medical Imaging Technology Program

The admissions process to the Medical Imaging Technology Program is the sole responsibility of the Admissions Committee, composed of faculty members. In evaluating applicants, the Admissions Committee considers academic qualifications, personal traits, and potential as indicated by the entire academic record, results of the College Board Entrance Examination (**CEEB**), letters of recommendation, and individual interviews.

### General Requirements and Application Process

1. Institutional Application with a letter that indicates your interest in pursuing studies at the UCC Medical Imaging Program must be submitted no later than **May 1st**.
2. Payment of $25.00 non-refundable application fee established by our institution.
3. Applicants must have approved Algebra, Geometry, or Mathematics courses and two of the following science courses: Biology, Physics, and/or Chemistry.
4. Official transcript from an accredited college and/or university*.
5. Copy of the scores of the College Board Entrance Examination (**CEEB**) if the students are less than 25 years old.
6. Two (2) letters of recommendation from professors.
7. Letter from the dean of student affairs of the college or university currently attending, indicating your status.
8. An interview is required and is by invitation only.
9. A criminal background check is required (only for students 18 years old or above).
10. Applicants must demonstrate fluency in speaking, reading, and writing in Spanish and proficiency in English.

### Associate Degree in Radiologic Technology and Bachelor of Science in Diagnostic Images

#### General Requirements and Application Process (for high school, college, and transfer students)

1. Institutional application must be submitted no later than **May 1st**.
2. Payment of a $25.00 non-refundable application fee established by our institution.
3. Essay on why you want to pursue a career in medical imaging or an area of specialty.
4. Applicants must have approved Algebra, Geometry, or Mathematics courses and two of the following science courses: Biology, Physics, and/or Chemistry.
5. Official transcript from high school, college, and/or university.
6. Official scores of the College Board Entrance Examination (**CEEB**) if the students are less than 25 years old.
7. Two (2) letters of recommendation from professors.
8. An interview in person is required and is by invitation only.
9. A criminal background check is required (only for students 18 years old or above).
10. Applicants must demonstrate fluency in speaking, reading, and writing in Spanish and proficiency in English.

#### High School Applicants

1. A minimum general grade point average (**GPA**) of 2.30 or above on a scale where A=4.0 is required for the associate degree from an accredited public or private high school or its equivalent.
2. A minimum general grade point average (**GPA**) of 2.50 or above on a scale where A=4.0 for the bachelor's degree from an accredited public or private high school or its equivalent.
3. Compliance with all application general requirements.

**College Applicants/Advanced Standing Students**

A minimum general grade point average (**GPA**) of 2.00 or above on a scale where A=4.0 is required for both associate and bachelor's degrees.

Applicants must comply with all application general requirements.

**Acceptance**

1. To guarantee enrollment upon acceptance, the candidate must make a $100.00 non-refundable deposit.
2. The admissions technical standard attestation.
3. The student must submit a health certificate and a physical examination by a licensed physician with the laboratory and test required, and CPR certification from an authorized American Red Cross vendor. Students must comply with all vaccination requirements.

**Post-Associate Certificates (Diagnostic Medical Sonography, Mammography, Computerized Tomography, and Magnetic Resonance)**

**General Requirements and Applications Process**

1. An associate degree comparable with the AD Program offered at the **UCC** taken in an institution accredited by the Joint Review Committee of Education in Radiologic Technology (**JRCERT**) or a regional accreditation agency such as the Middle States Commission on Higher Education (**MSCHE**).
2. Institutional application with a letter that indicates your interest in pursuing studies at the **UCC** in the modality of your preference. This application must be submitted no later than **May 1st**.
3. Payment of $25.00 non-refundable application fee established by our institution.
4. Official transcript from an accredited college and/or university with a minimum general point average (**GPA**) of 2.50 or above on a scale where A=4.0[3].
5. Two letters of recommendation from professors, clinical instructors, or a supervisor in the modality of choice.
6. A criminal background check is required.
7. An interview with the program's faculty.
8. Applicants must demonstrate fluency in speaking, reading, and writing in Spanish and proficiency in English during the interview process.

**Acceptance**

1. To guarantee enrollment upon acceptance, the candidate must make a $100.00 non-refundable deposit.
2. The admissions technical standard attestation.
3. The student must submit a health certificate and a physical examination by a licensed physician with the laboratory and test required, and **CPR** certification from an authorized American Red Cross vendor. Students must comply with all vaccination requirements.

**Transfer Students**

Applications for transfer in advanced standing will be considered from those currently enrolled in a radiologic technology program accredited by the Joint Review Committee on Education in Radiologic Technology (**JRCERT**) or a regional accreditation agency such as the Middle States Commission on Higher Education (**MSCHE**). These applicants will be considered on an individual basis. See policy under the Office of the Registrar section.

# FINANCIAL AID OFFICE

The Financial Aid Office is in the Deanship of Admissions and Student Affairs. Its main goal is to advise and provide access to the different sources of financial aid available to our students in compliance with United States Department of Education regulations. The following summary includes a description of the scholarships and loan opportunities available. Inquiries and detailed information regarding each program may be obtained at the Financial Aid Office.

## Universidad Central del Caribe default rate

The USA Department of Education report of September 2021 documents that the official cohort default rate for FY 2018 is 1.7.

## Academic Excellence and Need-Based Scholarship Program

Institutional scholarships, tuition exemptions, and stipends are available to support the student's achievement of their professional goals at the **UCC**. These academic program-specific financial support opportunities are granted on an annual basis. The number of scholarships and stipends granted per academic program is contingent on the total amount of funds identified by external sources through the Institutional Development Deanship and matched with institutional funds.

## National Health Service Corps (NHSC)

This program is mandated by Congress. It is designed to provide scholarships to train health care professionals in the disciplines and specialties most needed to deliver primary care services in health professional shortage areas in the United States, including Puerto Rico. For medical students, the program will pay tuition, required fees, books, and a monthly stipend. The program stipulates a two-year minimum service requirement after graduation at an eligible site located in a federally designated Health Professional Shortage Area.

## ChiroHealth USA

ChiroHealthUSA's Foxworth Family Scholarship is an achievement-based scholarship awarded to Chiropractic College students. Students are recognized for their capacity to lead and serve and their commitment to making an impact on their communities and the profession.

The Foxworth Family Chiropractic Scholarship, fully funded by ChiroHealthUSA, was established in honor of President Dr. Ray Foxworth's parents, Dr. Betty Pace Mathews and Dr. Charles Vernon Mathews. ChiroHealthUSA will award $15,000 to the scholarship recipient and donate $10,000 to the chiropractic college where the student is enrolled.

## Institutional Scholarship Fund

This is a limited fund made available through private Puerto Rican donors. At present, the funds are available to a limited number of "good Puerto Rican medical students", as explicitly established by the private sponsors.

## Federal Pell Grant

This grant helps undergraduate students (who have not earned a bachelor's degree) to pay for their post-secondary education. The student must be enrolled in at least one (1) credit to receive the benefit and must meet the eligibility requirements of the program.

## Federal Supplemental Educational Opportunity Grant (FSEOG)

This is a grant for undergraduate students with exceptional financial need. To get an **FSEOG**, students must fill out the Free Application for Federal Student Aid (**FAFSA**) form.

## Federal Family Education (FFELP)

This program is authorized in Part B of Title IV of the Higher Education Act of 1965, as amended in 1998. Under the **FFELP** program, students and their parents can obtain low-cost education loans to assist in the payment of higher education costs. The loan is guaranteed to protect the lender from loss in the event of the borrower's death, disability, bankruptcy, or default. The US Department of Education reinsures the guarantor.

**Direct Subsidized Loan**- is a loan for undergraduate students with financial need, as determined by your cost of attendance minus expected family contribution and other financial aid (such as grants or scholarships). Subsidized loans do not accrue interest while you are in school at least half-time or during deferment periods.

**Direct Unsubsidized Loan**- is a loan for both undergraduate and graduate students that is not based on financial need. Eligibility is determined by your cost of attendance minus other financial aid (such as grants or scholarships). Interest is charged during in-school, deferment, and grace periods. Unlike a subsidized loan, you are responsible for the interest from the time the unsubsidized loan is disbursed until it is paid in full. You can choose to pay the interest or allow it to accrue (accumulate) and be capitalized (that is, added to the principal amount of your loan).

**Grad Plus Loan Program**- are loans for graduate and professional students who are ineligible for unsubsidized loans or need to supplement their unsubsidized awards. The borrower is responsible for the interest from the time the PLUS loan is disbursed until it is paid in full. Students should be aware that Graduate PLUS loans are subject to credit approval by the Department of Education.

## Alternative Loan Program

This fund was created by private banking institutions for students in need of additional help to cover their medical education. To be eligible, the student must be currently enrolled at least half-time in an **AAMC**-approved medical school. The student is required to be a citizen or national of the **US** or a permanent resident without conditions and with proper evidence of eligibility. The student must also apply for a Stafford subsidized and unsubsidized loan before applying for the **ALP** loan. The annual maximum is the cost of education minus other financial aid.

## Emergency Loans

This is a **UCC** fund that was initially created by donations from Merck, Sharp and Dohme, other institutions, and private sponsors. It provides up to a maximum of $500.00 for professional and graduate programs or $250.00 for undergraduate programs per semester to cover unanticipated emergency study expenses.

## Student Work and Study Program

The Federal Work-Study Program of the Department of Education provides funds for part-time employment to help students in need, to finance the costs of postsecondary education. Students may be employed by the institution itself; a federal, state, or local public agency; a private nonprofit organization; or a private for-profit organization.

## Eligibility Criteria

To meet the eligibility requirements for all the previously described programs, the student must:

1. Demonstrate financial need.
2. Have a high school diploma or a General Education Development (**GED**) Certificate for undergraduate programs.
3. Have a bachelor's degree or the premed requirements for professional and graduate programs.
4. Be working toward a degree or certificate in an eligible program.
5. Be a U.S. citizen or eligible noncitizen.
6. Have a valid Social Security number.
7. Maintain satisfactory academic progress.
8. Submit the Free Application for Federal Student Aid (**FAFSA**) or Renewal **FAFSA** to the Financial Aid Office.
9. Register with the Selective Service, if required.
10. Be enrolled at least half-time, except for the Federal Pell Grant, which allows less than half-time enrollment.
11. Provide documentation of any information requested by the Office of Financial Aid.
12. Other criteria may apply for eligibility for institutional scholarships.

## Deadlines

The Financial Aid Office sets deadlines to apply for aid. The students must file the applications by these deadlines for federal, state, and institutional grants and scholarships.

# OFFICE OF THE REGISTRAR

The Office of the Registrar is part of the Deanship of Academic Affairs. It is responsible for preparing the academic calendar, the registration of students, maintaining the students' academic records, and preparing and/or remitting official and unofficial academic transcripts, certifications of students, and certifications of degrees earned in our university. It is also in charge of submitting to the Department of Education the in-school deferments of the students who receive federal student loans. In addition, the Office of the Registrar prepares the official list of classes and the official grade lists to each course offered during each academic period.

## Services for Veterans, Military Personnel and Dependents

The university provides academic training to students under the various **GI Bill®** programs. Eligible students intending to enroll that receive **VA** educational benefits should apply through the Department of Veterans Affairs portal. The eligible students have the right to enjoy these benefits only for the period required for completing their academic degree as established in this catalog and by applicable legislation and regulations.

The Registrar's Office is responsible for certifying and keeping updated the academic load of all students who receive benefits from the Veterans Administration, through its online system. Students who are certified are those who receive benefits from:

| | |
|---|---|
| Chapter 30: | Active Duty |
| Chapter 31: | Vocational Rehabilitation |
| Chapter 33: | Post 9-11/**GiBill®** |
| Chapter 35: | Dependents of Veterans |
| Chapter 1606-1607: | Reservists and National Guard |

*"**GI Bill®** is a registered trademark of the US Department of Veterans Affairs (**VA**)."*

These beneficiaries must comply with all the admissions requirements of the Universidad Central del Caribe. Once admitted to the institution, the student must present the letter of benefits (Certificate of Eligibility) issued by the Veterans Administration. The Registrar's Office will be responsible, upon student matriculation, for completing the certification of enrollment in the Veterans Administration system on the Internet.

For more information on how to apply for benefits and determine eligibility, visit the official website: www.gibill.va.gov.

*"**GI Bill®** is a registered trademark of the US Department of Veterans Affairs (**VA**)."*

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

Study time required for completing an academic program depends on the number of credits required for the program, the nature of the courses, and the number of credits the student takes each term.

An estimate of the period required may be obtained by dividing the total number of credits required for the program by 15, which is the average number of credits taken by a full-time regular student.

Students accumulate semesters of study as indicated below:

Students also accumulate study time at the rate of one (1) semester for every twelve (12) transferred credits. A covered individual is any individual who is entitled to educational assistance under chapter 31, Veterans Readiness and Employment, and chapter 33, Post-9/11 "**GI Bill®**". The policy permits any covered individual to attend or participate in education during the period beginning on the date on which the individual provides to the educational institution a certificate of eligibility for entitlement to educational assistance under chapter 31 and chapter 33. A "certificate of eligibility" can also include a "Statement of Benefits" obtained from the Department of Veterans Affairs' (**VA**) website - eBenefits, or a VAF 28-1905 form, for chapter 31 authorization purposes, and ending on the earlier of the following dates:

1. The date on which payment from **VA** is made to the institution.
2. 90 days after the date the institution certified tuition and fees following the receipt of the certificate of eligibility.

The policy ensures that an educational institution will not impose any penalty, including the assessment of late fees, the denial of access to classes, libraries, or other institutional facilities, or the requirement that a covered individual borrow additional funds, on any covered individual because of the individual's inability to meet his or her financial obligations to the institution due to the delayed disbursement funding from **VA** under chapter 31 and chapter 33 (Section 103-PL115-407).

## Address Change

All students are required to provide permanent and current addresses to the Registrar's Office at the time of registration. Students are also required to notify this office of any change of address. The **UCC** is not responsible for university correspondence that fails to reach the student due to inaccurate address information.

## Registration and Final Grades

A student who satisfies all admission requirements and is admitted to an academic program must register according to the time schedule prepared by the Registrar's Office. To become an official student at the university, the student must complete the registration process when notified. At the end of the registration process, the student can obtain a copy of the registration form for his/her records.

## Grading System

Grading system is based on honor points.

| Grades | Progress Description | Honor Points |
|---|---|---|
| A | Excellent | 4 |
| B | Good | 3 |
| C | Average | 2 |
| F | Failure | 0 |
| H | Passed with honors | 0 |
| I | Incomplete coursework | 0 |
| IP | In progress | 0 |
| P | Passed | 0 |
| W | Withdrawal | 0 |

## Equivalency of Contact Hours to Credit Hours Policy

*(the full version of this policy may be accessed in **UCC** webpage)*

### Policy Statement

The credit hour serves as the University's common measure of instruction based on the expected number of contact hours of coursework during the academic period (semester/quarter). All credit hours awarded by the Universidad Central del Caribe (**UCC**) will conform with the definitions and guidance outlined by the U.S. Department of Education (**CFR**, Title 34: Education, Part 600 – Institutional Eligibility under the Higher Education Act of 1965, as amended, Subpart A General, Section 600.2 §602.24 and §668.8), and the Middle States Commission on Higher Education (Credit Hour Policy, 2012). The **UCC** establishes and defines the standards and procedures for assigning semester/credit hours to the courses offered by all academic programs at the University. In addition, establishes the method by which the University ensures compliance with its credit hour assignment policy.

### Definitions

Academic period (term): At the **UCC**, two types of academic periods are in place, consisting of semesters and quarters.

Semester: consisting of a minimum of fifteen weeks of coursework, and examinations represent a semester.

Quarter: consisting of a minimum twelve weeks of coursework, and examinations represent a quarter.

Credit hour: one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester hour of credit, or twelve weeks for one quarter hour of credit.

Contact hour: Refers to a 60-minute period of academic experience.

## General Rules for the Transferred / Convalidation of Credits / Courses

### Rationale

Universidad Central del Caribe (**UCC**) reserves the right to determine the number of credits which are to be transferred/convalidated to a student. The academic program faculty, in coordination with the Registrar's Office, will determine, before the beginning of the student academic experience at **UCC**, which course(s) will be transferred/convalidated on a case-by-case basis. Transfer/convalidation of courses is subject to various accreditation, regulatory or licensure organizations to which the **UCC** must abide, such as federal requirement 34 **CFR** 602.24, which establishes that an institution must have a transfer credit policy that is publicly disclosed [section 668.43(a) (11)].

### Established criteria for the transfer of credit/convalidation of courses/credits earned at another institution

Courses to be transferred/convalidated must be taken in higher education institutions accredited by one of the regional accrediting bodies or a corresponding programmatic accreditation organization recognized by the United States Department of Education at the time the student completed the courses.

Any student who requests the transference/convalidation of courses is required to submit with the admission application an official copy of the academic transcript along with a copy of an institutional catalog and official evidence where the course content and credit value is described (course syllabus, electronic catalog, etc.). The catalog should cover the time when the student satisfactorily completed the course.

The Admissions Office will submit to the dean/program director/program coordinator the supporting documents at least ten (**10**) days prior to the expected student registration date in the program. The dean/program director/program coordinator will review the documentation and via the corresponding form, recommends to the dean of academic affairs the results of the revision. The dean of academic affairs has the final authority for approval of the transference/convalidation request. The final documentation should be submitted to the Registrar's Office at least three (**3**) days before the student registration date.

Course/credit transferred/convalidation will be based on contact-hours or credit-hours, content, academic level, as included in the official course description in the institutional documents when the course was approved and comparable to the corresponding course at the **UCC**. Courses with contact-hours or credit-hours value higher than the corresponding courses at the **UCC** will be transferred with the credit value assigned at the **UCC** to that course. The student will be required to present relevant evidence of equivalence in terms of content and learning objectives if the requested transference/convalidation of courses is for courses with contact-hour or credit-hour value lower than the corresponding course at the **UCC** to the satisfaction of the **UCC**.

For undergraduate and first professional level programs, no course is to be transferred/convalidated if approved with a letter grade lower than "**C**" on a letter grade scale or 70% on a percentage grading scale. For graduate programs, the minimum grade to consider a course for convalidation will be a "**B**" or 80%.

Courses/credits to be transferred/convalidated should have been taken within the effective period. Basic and general courses should have been taken within the previous 10 years and core, professional, or specific specialty courses should have been approved within the previous 6 years.

Courses which have been used for the attainment of a higher/lower or equivalent degree as that applied for by the student will not be subject to transference/convalidation.

The number of courses/credits to be transferred/convalidated will depend on the curricular sequence of the academic program. The number of credits/courses transferred/convalidated will never exceed 50% the total courses/credits required for the degree at the **UCC**. Courses taken or credits earned in distance education modalities are subject to be transferred if such courses are considered towards the attainment of a degree by the accredited conferring institution. Acceptance of such courses/credits will be determined by the dean/program director/program coordinator according to this policy.

In the case of international students requesting transfer/convalidation of credits, the credits must have been taken in an institution recognized by the corresponding nation's Ministry of Education or equivalent with comparable accreditation processes. All coursework information should be in English or a verified translation from an international language. Courses/degrees should be reviewed and compared to courses offered in the **USA** educational system by a credential evaluation service affiliated with the National Association of Credential Evaluation Services or recognized by the **US** Department of Education.

Courses/credits authorized for transference/convalidation will be annotated in the **UCC's** student record with a letter "**T**" as grade and the number of credits authorized. A comment will be added to identify the institution and the date the course/credit was approved. Grades transfered/convalidated will not be considered in the determination of the student's **GPA** at the **UCC**.

# Satisfactory Academic Progress

## Satisfactory Academic Progress Policy of Educational Services for Veteran Beneficiaries

Students registered on each of our academic offers will be evaluated according to the program-specific Rules and Regulations for Student Evaluation and Promotion. According to the regulations established in the Code of Federal Regulations, Title 38 (38U.S. Code) related to the educational benefits for veterans and its beneficiaries, the student must complete the academic program within the regular timeframe. Any student who extends his/her studies beyond the regular timeframe will not be eligible to receive the veterans' benefits.

If the student receives "Pell Grant" financial aid, he/she can continue with this benefit during 50% of the additional time stipulated in Title IV Regulations.

## Satisfactory Academic Progress (SAP) Policy

Satisfactory Academic Progress (**SAP**) is the 'set of academic standards' that all students must meet in order to qualify for Title IV financial aid. **SAP** is required for Title IV aid eligibility regardless of whether the student has previously received Title IV aid. Students registered in each of the Universidad Central del Caribe (**UCC**) academic offerings will be evaluated according to the program-specific Rules and Regulations for Student Evaluation and Promotion.

Satisfactory Academic Progress (**SAP**) measures the academic progress of the student towards the attainment of an academic credential. Federal regulations require that all students who receive Title IV funds as part of their financial aid package maintain **SAP**. The **SAP** policy applies to all students within categories, e.g., full-time, part-time, undergraduate, and graduate students, and may differ based on program enrollment. The evaluation criteria for **SAP** include a qualitative and quantitative component. The qualitative measure is based on the cumulative grade point average (**CGPA**). The quantitative measure is based on the number of credit hours the student attempts and earns. This calculation is completed by dividing the cumulative number of credit hours a student successfully earns by the total number of credit hours the student attempts over the student's academic career in a particular program at the Institution. Students are expected to complete their program within 150 percent (%) of the length of the program as measured in credit hours. Students who exceed the 150% are not eligible for Title IV funds.

## Satisfactory Academic Progress for Students in the Medical Education Program

Successful completion of four full academic years will be required for graduation. This includes having obtained at least a grade of C (2.00) in all required courses, having passed the **USMLE** Step 1, having passed the knowledge component of **USMLE Step 2**, and having passed the third-year comprehensive clinical skills exam (**CPX**). Successful completion of four full academic years will be required for graduation from the medical degree program. This includes passing all required courses and successfully completing the elective course requirement prior to graduation. To obtain a medical degree from this medical school, the student must be enrolled in this institution for the final two academic years.

## Satisfactory Academic Progress for Students in the Biomedical Sciences Program

To be in good academic standing, the student must have a **GPA** of 3.0 or higher. If the grade index is below 3.0 but above 2.5, the student will be placed on probation for the following academic year, at the end of which he/she will be dismissed if his/her grade index has not improved to 3.0. Students attaining a **GPA** below 2.5 will be dismissed from the program. A student has only one opportunity to retake a failed (**F**) or withdrawn (**W**) course to achieve a grade of **C** or better. If a student obtains a **C** on the second attempt, they cannot retake the course again. Failure to pass the BMS 899: Graduate Research course on the first attempt and any other course on the second attempt will result in dismissal from the program.

## Satisfactory Academic Progress for Students in the Substance Abuse Counseling Program

### Post-Baccalaureate Certificate in Substance Abuse Counseling Students

To be in good academic standing, the student must have a grade index of 3.0 or higher. If the grade index is below 3.0, but the deficiency does not extend beyond the limits for academic suspension (2.5), the student will be on probation for the next academic year until he/she reaches satisfactory academic progress.

### Master of Science in Substance Abuse Counseling

To be in good academic standing, the student must have a grade of 3.0 or higher. If the grade index is below 3.0, but the deficiency does not extend beyond the limits for academic suspension (2.5), the student will be on probation for the next academic year until he/she reaches satisfactory academic progress.

## Satisfactory Academic Progress for Students in the Medical Images Technology Program

To be in good academic standing, all courses established in the program curriculum must be approved with the minimum grade of "C" (2.0) or higher.

## Satisfactory Academic Progress for Students in the Doctor of Chiropractic Program

Good academic standing is the designation given when a student has received a grade of C or higher in all courses/clerkships and professional behaviors (GPA $\geq$ 2.5). A student considered in good academic standing can continue or return to the curriculum. Taking the Chiropractic Licensure Examination Part 1 is required for promotion to the third year. Passing of the Chiropractic Licensure Examination Part 1, 2, and 3 are required for graduation

- Program's specific details on academic progress definitions and applicability are described in each academic program regulations for evaluation and promotion.
- Students must attain program's specific satisfactory academic progress (**SAP**) in order to qualify for Title IV funds.
- To be eligible for Title IV funds, students are expected to complete their academic program within 150 percent of the length of the program as measured in credit hours.

## Withdrawal Procedures

Authorized withdrawals will be granted following the established rules and regulations. The deadline for withdrawal from a course or courses will be stipulated in the academic calendar of the **UCC**.

The withdrawal process starts at the Registrar's Office where the appropriate forms are provided. The student will follow the instructions and must collect the signature of the professors and pertinent university officials. The student should explain in the withdrawal form the reason for its decision. The withdrawal becomes official when the registrar or his/her representative signs the form.

At the time of withdrawal, authorized withdrawals are to be graded **W** or **WF** according to the student's academic performance in the course from which he/she is withdrawing.

In the Graduate Program in Biomedical Sciences, unauthorized withdrawals constitute grounds for dismissal from the program.

## Auditing Students

Those students who wish to audit a course may do so by submitting a letter for the approval of the chairperson of the department offering the course(s) and only after they register to the UCC. They must also pay the corresponding fees and charges. Auditing students may attend lectures and are not allowed to take exams and quizzes, interact with patients or participate in laboratories.

## Certifications and Transcripts

If a student needs an official transcript, certification of studies, and/or certification of degree earned and dean's letter, he/she should request this in writing or online and pay the applicable fees. Official documents will be sent directly to the concerned college, university, industrial firm, etc. and will never be given directly to the student. However, students may obtain non-official copies of their academic record.

All students have the right to request amendment of their official academic record. Students who consider that there are errors in their transcripts must communicate to the Registrar's Office within seven (**7**) days after the receipt of the document.

## Graduation

Application for graduation can be done in two ways: through the completion of the last pre-registration process or do so directly at the Registrar's Office. By any of the available mechanisms the student must indicate the specific name that will appear in the diploma. The corresponding graduation fee must be paid no later than the date set in the academic calendar. Non-compliance with these and other administrative or curricular requirements may postpone the conferring of the degree.

## Diplomas

The diplomas will be distributed by the Registrar's Office. All claims pertaining to the diplomas should be made no later than one month after the commencement date. The **UCC** is not responsible for diplomas that are not claimed one year after graduation.

## Academic Honors

Academic honor will be given to those students of degree programs who have obtained the following cumulative averages, after completing all the program's requirements.

| "CQPI" | HONOR |
|---|---|
| 3.75 a 4.00 | SUMMA CUM LAUDE |
| 3.50 a 3.74 | MAGNA CUM LAUDE |
| 3.25 a 3.49 | CUM LAUDE |

Certificates and non-degree program graduate academic honors will not be recorded in official documents.

# SPECIFIC GRADUATION REQUIREMENTS

## Doctor of Medicine

Successful completion of four full academic years will be required for graduation. This includes having obtained at least a grade of C in all required courses, to pass the **USMLE Step 1**, and to pass the knowledge component of **USMLE Step 2**. To obtain a medical degree from this medical school, the student must be enrolled in this institution for the final two academic years.

1. Grade index: 2.0 or above
2. Credits as stipulated by the program of study; 129 credits minimum.
3. Residence: A minimum of 50% credit must be completed at the **UCC**.
4. Time limitations: A maximum of 6 years to satisfy all the requirements.
5. Licensing examinations: Required of all students to pass the **USMLE Step 1** for promotion to the third year of studies and passing the **USMLE Step 2** for graduation from the program.

Please refer to other specific requirements for student promotion and graduation as contained in the Regulations for Student Evaluation and Promotion.

## Doctor of Chiropractic Program

1. Successful completion of four full academic years will be required for graduation. This includes having obtained at least a grade of **C** in all required courses and passing the **NBCE** parts 1, 2, and to obtain a chiropractic degree from this Doctor of Chiropractic program, the student must be enrolled in this institution for the final two academic years.
2. Grade index: 2.5 or above
3. Credits as stipulated by the program of study; 209 credits minimum.
4. Residence: A minimum of 50% credit must be completed at the **UCC**.
5. Time limitations: A maximum of 6 years to satisfy all the requirements.
6. Licensing examinations: Required all students to take the NBCE Part 1 for promotion to the third year of studies and passing the **NBCE** parts 1, 2 & 3 for graduation from the program.

Please refer to other specific requirements for student promotion and graduation as contained in the Regulations for Student Evaluation and Promotion.

## Graduate Program in Biomedical Sciences

A **MS/MA** or **PhD** student must complete all the requirements and have turned in the final version of his/her thesis/dissertation to participate in the Commencement Ceremony.

Students must remain enrolled until completing all graduation requirements and delivering the final version of the thesis/dissertation.

### PhD Degree

Early in the doctoral work, a dissertation subject is chosen in the field of study and approved by the Dissertation Committee. The dissertation must represent an original investigation that contributes new knowledge to the candidate's field. The student must comply with the following requirements to be granted the **PhD** Degree.

a. Grade index: 3.0 or above
b. Credits: As stipulated by the program of study, 72 credits minimum.
c. Residence (if applicable): A minimum of 36 credits must be completed at **UCC**.
d. Time limitation: A maximum of 7 years to satisfy all the requirements.

e. Pass the candidacy examination
f. Pass the dissertation defense: Required of all students
g. Authorship: First author in at least one (1) original research manuscript accepted for publication in a peer-reviewed journal, which incorporates work that was performed by the student and is included in the student's dissertation. Brief/short communications, reviews, systematic reviews and clinical cases do not meet this requirement.
h. Deliver the final version of his/her dissertation

Note: Students must comply with all the requirements to participate in the Commencement Ceremony and remain enrolled in the Program.

Participating in the graduation ceremony does not imply that **UCC** will confer the degree with the respective honors. The student is required to meet all academic and administrative graduation requirements mandated by the institution to be eligible to the corresponding degree.

## MA Degree

a. Grade index: 3.0 or above
b. Credits: As stipulated by the program of study, 36 credits minimum.
c. Residence: A minimum of two years of full-time work must be completed at **UCC**
d. Time limitations: A maximum of 4 years to complete all the requirements. Refer to extension request procedure
e. Pass comprehensive examination

## MS Degree

a. Grade index: 3.0 or above
b. Credits: As stipulated by the program of study, 36 credits minimum.
c. Residence: A minimum of two years of full-time work must be completed at **UCC**
d. Time limitations: A maximum of 4 years to complete all the requirements Refer to extension request procedure
e. Pass comprehensive examination
f. Thesis defense

**PhD** and **MS** students must deliver the approved dissertation/thesis electronically according to the Dissertation/Thesis Formatting Manual to complete the graduation requirements to receive his/her diploma. The Graduate Program in Biomedical Sciences will print and bind three (**3**) copies of the thesis or dissertation: one for the student, one for the department (**MS**) or Mentor (**PhD**), and one for the library.

Refer to other specific requirements for student promotion and graduation as contained in the Regulations for Student Evaluation and Promotion.

## Substance Abuse Counseling Program

### Post-Baccalaureate Certificate in Substance Abuse Counseling

The students must comply with all academic and institutional requirements of the Program in Substance Abuse and the **UCC**:

1. Grade index: 2.5 or above
2. Credits as stipulated by the program of study; 25 credits minimum.
3. Internship I: Substance Abuse Counseling: A minimum of 300 hours and 4 credits must be completed at the fourth trimester.
4. Time limitations: A maximum of 3 years to satisfy all the requirements.

### Master of Health Science in Substance Abuse Counseling

The students must comply with all academic and institutional requirements of the Program in Substance Abuse and the **UCC**:

1. Grade index: 3.0 or above
2. Credits as stipulated by the program of study; 44 credits minimum.
3. Internship I: A minimum of 300 hours and 4 credits must be completed at the fourth trimester.
4. Internship II: A minimum of 200 hours and 4 credits must be completed at the seventh trimester.
5. Time limitations: A maximum of 5 years to satisfy all the requirements.
6. Licensing examinations: Required of all students to pass a comprehensive exam with a minimum score of 70% in each component of the exam.

Please refer to other specific requirements for student promotion and graduation as contained in the Regulations for Student Evaluation and Promotion.

## Medical Images Technology Program

To obtain a degree for all Medical Images Technology Program offerings, students must:

1. Grade index: 2.0 or above
2. Credits as stipulated by the program of study.
3. Residence: A minimum of 50% credit must be completed at the **UCC**.
4. Time limitations: According to each program of study it does not exceed the 150% timeframe.

Please refer to other specific requirements for student promotion and graduation as contained in the Regulations for Student Evaluation and Promotion.

# PROFESSIONAL LICENSURE

The US Department of Education regulations and **NC-SAR**A policies require that Universidad Central del Caribe (**UCC**) disclose to students whether a program leading to professional licensure or certification meets the educational requirements for licensure or certification in all **US** states and territories.

All **UCC's** programs that lead to licensure are designed to meet the educational requirements of regulatory authorities in Puerto Rico. While program curricula often meet the requirements of states and territories outside of Puerto Rico, statutes and regulations about licensure vary widely. Many state regulatory bodies recognize only educational credentials from accredited institutions.

Students should understand that educational requirements are just one part of licensure or certification in a profession. Applicants are often required to demonstrate passage of national exams, have applicable work or clinical experience, complete background checks, and pay required fees, etc. Each state board, department, or agency has the ultimate authority and discretion to determine whether professional licensure or certification will be issued.

# ACADEMIC CALENDARS*

## FALL SEMESTER

### 2024-2025 Academic Calendar

| Activity | Period per term | |
|---|---|---|
| | **Semester** | **Quarter[1]*** |
| Online Pre-Registration | June 10-14, 2024 (current students) | June 10-14, 2024 (current students) |
| Last day to apply for an authorized Leave of Absence (LOA), Fall semester | July 12, 2024 (current students) | July 12, 2024 (current students) |
| Online Registration | June 24-28, 2024 (current students) | June 24-28, 2024 (current students) |
| | July 22-24, 2024 (prospective students) | July 22-24, 2024 (prospective students) |
| First day of classes<br>Online Late registration | August 5, 2024 | August 6, 2024 (1 & 5 quarters)<br>October 29, 2024 (2 & 6 quarters) |
| Add and drop classes students | August 5-9, 2024 | |
| Institutional Competency Education Day: | August 8, 2024 | August 8, 2024 |
| Attendance Verification survey 1 (course directors) | August 12, 2024 | August 13, 2024 (1 & 5 quarters)<br>November 5, 2024 (2 & 6 quarters) |
| Last day for removal of Incomplete temporary grades | August 12, 2024 | Before the 2nd week (after the first day of classes) |
| Mid-term Examination | September 16-20, 2024[2]**<br>October 7-11, 2024[3]*** | September 3-6, 2024 (1& 5 quarters)<br>November 26-28, 2024 (2 & 6 quarters) |
| Attendance Verification survey 2 (course directors) | September 23, 2024 | September 9, 2024 (1 & 5 quarters)<br>December 2, 2024 (2 & 6 quarters) |
| Online Pre-Registration (second term) | October 28-November 1, 2024 | October 15-17, 2024 (2 & 6 quarters) |
| Last day of classes<br>Last date to apply for authorized withdrawal, reclassification, and Re-entry | November 8, 2024**<br>December 13, 2024*** | October 17, 2024 (1 & 5 quarters)<br>January 31, 2025 (2 & 6 quarters) |
| Assembly of the General Student Body Council and Faculty Retreat | November 7, 2024 | November 7, 2024 |
| Last day to apply for an authorized Leave of Absence (LOA), Spring semester | November 15, 2024 | November 15, 2024 |
| Online Registration (second term) | November 18-22, 2024 | October 21-22, 2024 (2 & 6 quarters) |
| Online Late Registration | December 4-6, 2024 | October 29, 2024 (2 & 6 quarters) |
| Application for graduation | December 6, 2024 | December 6, 2024 |
| Attendance Verification survey 3 (course directors) | November 12, 2024<br>December 13, 2024 | October 21, 2024 (1 & 5 quarters) |
| Final examination period | November 12-15, 2024**<br>December 16-18, 2024*** | October 22-24, 2024 (1 & 5 quarters) |
| Last date to submit official grades | December 19, 2024 | October 28, 2024 (1 & 5 quarters) |
| Graduation date | December 20, 2024 | December 20, 2024 |

### Observed Holidays and Academic Breaks (Fall Semester)

- July 4th, 2024 (Thursday-Observed July 26, 2024) — USA Independence Day
- July 25th, 2024 (Thursday) — PR's Constitution Day
- September 2, 2024 (Monday) — Labor Day
- October 14, 2024 (Monday) — Columbus Day
- November 5, 2024(Tuesday) — Elections day
- November 11, 2024 (Monday) — Veterans day
- November 19, 2024 (Tuesday) — "Descubrimiento de Puerto Rico"
- November 25-29, 2024 (Monday-Friday) — Fall break for the students at campus
  (Students assigned to a clinical or research duty must observe the clinical/research facility labor rules)
- December 23, 2024-January 7, 2025 — Winter break

[1] *Quarterly courses that observe a holiday must reschedule classes to comply with the credit hour definition.
[2] **for a 15-week semester (comply with the minimum definition of semester)
[3] ***for a 19-week semester

## SPRING SEMESTER

### 2024-2025 Academic Calendar

| Activity | Period per term | |
|---|---|---|
| | Semester | Quarter[4]* |
| First day of classes | January 7, 2025 | February 4 2025 (3 & 7 quarters) |
| | | April 29, 2025 (4 quarter) |
| Add and Drop Classes (students) | January 8-10, 2025 | |
| Attendance Verification survey 1 (course directors) | January 13, 2025 | February 10, 2025 (3 & 7 quarters)<br>May 5, 2025 (4 quarter) |
| Last date for removal of Incomplete temporary grades | January 10, 2025 | Before the 2nd week (after the first day of classes) |
| Mid-term Examination | February 18-21, 2025[5]**<br>March 3-7, 2025[6]*** | March 17-20, 2025 (3 & 7 quarters) |
| | | June 3-6, 2025 (4 quarter) |
| Attendance Verification survey 2 (course directors) | March 10, 2025 | March 24, 2025 (3 & 7 quarters) |
| | | June 17, 2025 (4 quarter) |
| Assembly of the General Student Body Council and Faculty Retreat | May 8, 2025 | May 8, 2025 |
| Family Day | April 5, 2025<br>No summative assessments will be scheduled on the next Monday | |
| Last day of classes<br>Last date to apply for authorized withdrawal | April 11, 2025** | April 15, 2025 (3 & 7 quarters) |
| | May 9, 2025*** | July 10, 2025 (4 quarter) |
| Attendance Verification survey 3 (course directors) | April 14, 2025** | January 27, 2025 (2 & 6 quarters) |
| | May 12, 2025*** | April 16, 2025 (3 & 7 quarters) |
| | | July 14, 2025 |
| Final examination period | April 7-11, 2025** | January 28-30, 2025 (2 & 6 quarter) |
| | May 12-16, 2025*** | April 21-24, 2025 (3 & 7 quarters) |
| | | July 15-17, 2025 (4 quarter) |
| Last date to submit official grades | May 28, 2025 | February 3, 2025 (2 & 6 quarter) |
| | | May 1, 2025 (3 & 7 quarters) |
| | | July 18, 2025 |
| Online Registration for Summer | May 19-22, 2025 | |
| First Day of Classes for Summer Period | June 2, 2025 | |
| Commencement Exercises | June 5, 2025 | June 5, 2025 |
| Last day of Class for Summer Period | July 11, 2025 | |
| Last day to submit official grades (summer period) | July 24, 2025 | |

### Observed Holidays and Academic Breaks (Spring semester)

- January 20, 2025 (Monday) — Dr. Martin Luther King Day
- February 17, 2025 (Monday) — President 's Day
- April 17-18, 2025 (Thursday to Friday) — Spring break
- May 26, 2025 (Monday) — Memorial Day

*--Subject to change--*

Every Thursday, from 12:00 to 2:00 PM, the "Universal Hour" will be observed for extracurricular purposes.
UCC faculty can determine if during any holiday an exam must be administered.
Prepared on March 24, 2022

[4] *Quarterly courses observe a holiday must reschedule to comply with the credit definition
[5] **for a 15-week semester (comply with the minimum definition of semester)
[6] ***for a 19-week semester

# FALL SEMESTER

## 2025-2026 Academic Calendar

| Activity | Period per term | |
|---|---|---|
| | **Semester** | **Quarter[7]*** |
| Online Pre-Registration | June 9-13, 2025 (current students) | June 9-13, 2025 (current students) |
| Last day to apply for an authorized Leave of Absence (LOA), Fall semester | July 11, 2025 (current students) | July 11, 2025 (current students) |
| Online Registration | June 23-26, 2025 (current students) | June 23-26, 2025 (current students) |
| | July 21-25, 2025 (prospective students) | July 22-26, 2025 (prospective students) |
| First day of classes<br>Online Late registration | July 28, 2025 | July 29, 2025 (1 & 5 quarters) |
| | | October 21, 2025 (2 & 6 quarters) |
| Add and drop classes students | July 28-August 1, 2025 | |
| Institutional Competency Education Day | | |
| Attendance Verification survey 1 (course directors) | August 4, 2025 | August 4, 2025 (1 & 5 quarters) |
| | | October 27, 2025 (2 & 6 quarters) |
| Last day for removal of Incomplete temporary grades | August 1, 2025 | Before the 2nd week (after the first day of classes) |
| Mid-term Examination | September 15-19, 2025[8]***<br>October 7-11, 2025[9]*** | September 2-4, 2025 (1& 5 quarters) |
| | | November 25-27, 2025 (2 & 6 quarters) |
| Attendance Verification survey 2 (course directors) | September 22, 2025 | September 8, 2025 (1 & 5 quarters) |
| | | December 1, 2025 (2 & 6 quarters) |
| Online Pre-Registration (second term) | October 27-31, 2025 | October 7-8, 2025 (2 & 6 quarters) |
| Last day of classes<br>Last date to apply for authorized withdrawal, reclassification, and Re-entry | November 5, 2025** | October 17, 2025 (1 & 5 quarters)<br>January 31, 2025 (2 & 6 quarters) |
| | December 5, 2025*** | |
| Assembly of the General Student Body Council and Faculty Retreat | November 6, 2025 | November 6, 2025 |
| Last day to apply for an authorized Leave of Absence (LOA), Spring semester | November 21, 2025 | October10, 2025 |
| Online Registration (second term) | November 24-28, 2025 | October 13-14, 2025 (2 & 6 quarters) |
| Online Late Registration | December 4-5, 2025 | October 21, 2025 (2 & 6 quarters) |
| Application for graduation | December 5, 2025 | December 5, 2025 |
| Attendance Verification survey 3 (course directors) | November 10-11, 2025** | October 13, 2025 (1 & 5 quarters) |
| | December 5, 2025*** | |
| Final examination period | November 12-15, 2025** | October 14-16, 2025 (1 & 5 quarters) |
| | December 16-18, 2025*** | |
| Last date to submit official grades | December 17, 2025 | October 24, 2025 (1 & 5 quarters) |
| Graduation date | December 18, 2025 | December 18, 2025 |

## Observed Holidays and Academic Breaks (Fall Semester)

- July 4, 2025 (Friday) — USA Independence Day
- July 25, 2025 (Friday) — PR's Constitution Day
- September 1, 2025 (Monday) — Labor Day
- October 10, 2025 (Monday) — Columbus Day
- November 11, 2025 (Monday) — Veterans Day
- November 19, 2025 (Wednesday) — "Descubrimiento de Puerto Rico"
- November 25-29, 2025 (Monday-Friday) — Fall break for the students at campus

(Students assigned to a clinical or research duty must observe the clinical/research facility labor rules)

- December 23, 2025-January 7, 2026 — Winter break

[7] *Quarterly courses that observe a holiday must reschedule classes to comply with the credit hour definition.
[8] **for a 15-week semester (comply with the minimum definition of semester)
[9] ***for a 19-week semester

## SPRING SEMETER

### 2025-2026 Academic Calendar

| Activity | Period per term | |
|---|---|---|
| | **Semester** | **Quarter[10]*** |
| First day of classes | January 7, 2026 | February 4 2026 (3 & 7 quarters) |
| | | April 29, 2026 (4 quarter) |
| Add and Drop Classes (students) | January 8-10, 2026 | |
| Attendance Verification survey 1 (course directors) | January 13, 2026 | February 10, 2026 (3 & 7 quarters)<br>May 5, 2026 (4 quarter) |
| Last date for removal of Incomplete temporary grades | January 10, 2026 | Before the 2nd week (after the first day of classes) |
| Mid-term Examination | February 18-21, 2026[11]**<br>March 3-7, 2026[12]*** | March 17-20, 2026 (3 & 7 quarters) |
| | | June 3-6, 2026 (4 quarter) |
| Attendance Verification survey 2 (course directors) | March 10, 2026 | March 24, 2026 (3 & 7 quarters) |
| | | June 17, 2026 (4 quarter) |
| Assembly of the General Student Body Council and Faculty Retreat | May 8, 2026 | May 8, 2026 |
| Family Day | April 5, 2026<br>No summative assessments will be scheduled on the next Monday | |
| Last day of classes<br>Last date to apply for authorized withdrawal | April 11, 2026** | April 15, 2026 (3 & 7 quarters) |
| | May 9, 2026*** | July 10, 2026 (4 quarter) |
| Attendance Verification survey 3 (course directors) | April 14, 2026** | January 27, 2026 (2 & 6 quarters) |
| | May 12, 2026*** | April 16, 2026 (3 & 7 quarters) |
| | | July 14, 2026 |
| Final examination period | April 7-11, 2026** | January 28-30, 2026 (2 & 6 quarter) |
| | May 12-16, 2026*** | April 21-24, 2026 (3 & 7 quarters) |
| | | July 15-17, 2026 (4 quarter) |
| Last date to submit official grades | May 28, 2026 | February 3, 2026 (2 & 6 quarter) |
| | | May 1, 2026 (3 & 7 quarters) |
| | | July 18, 2026 |
| Online Registration for Summer | May 19-22, 2026 | |
| First Day of Classes for Summer Period | June 2, 2026 | |
| Commencement Exercises | June X, 2026 | June X, 2026 |
| Last day of Class for Summer Period | July 11, 2026 | |
| Last day to submit official grades (summer period) | July 24, 2026 | |

### Observed Holidays and Academic Breaks (Spring semester)

- January 20, 2026 (Monday) — Dr. Martin Luther King Day
- February 17, 2026 (Monday) — President 's Day
- April 17-18, 2026 (Thursday to Friday) — Spring break
- May 26, 2026 (Monday) — Memorial Day

*--Subject to change--*
Every Thursday, from 12:00 to 2:00 PM, the "Universal Hour" will be observed for extracurricular purposes.
UCC faculty can determine if during any holiday an exam must be administered.
Prepared on March 25, 2022

[10] *Quarterly courses observe a holiday must reschedule to comply with the credit definition
[11] **for a 15-week semester (comply with the minimum definition of semester)
[12] ***for a 19-week semester

# FALL SEMESTER

## 2026-2027 Academic Calendar

| Activity | Period per term | |
|---|---|---|
| | **Semester** | **Quarter[13]*** |
| Online Pre-Registration | June 9-13, 2026 (current students) | June 9-13, 2026 (current students) |
| Last day to apply for an authorized Leave of Absence (LOA), Fall semester | July 11, 2026 (current students) | July 11, 2026 (current students) |
| Online Registration | June 23-26, 2026 (current students) | June 23-26, 2026 (current students) |
| | July 21-25, 2026 (prospective students) | July 22-26, 2026 (prospective students) |
| First day of classes<br>Online Late registration | July 28, 2026 | July 29, 2026 (1 & 5 quarters)<br>October 21, 2026 (2 & 6 quarters) |
| Add and drop classes students | July 28-August 1, 2026 | |
| Institutional Competency Education Day | | |
| Attendance Verification survey 1 (course directors) | August 4, 2026 | August 4, 2026 (1 & 5 quarters)<br>October 27, 2026 (2 & 6 quarters) |
| Last day for removal of Incomplete temporary grades | August 1, 2026 | Before the 2nd week (after the first day of classes) |
| Mid-term Examination | September 15-19, 2026[14]**<br>October 7-11, 2026[15]*** | September 2-4, 2026 (1& 5 quarters)<br>November 25-27, 2026 (2 & 6 quarters) |
| Attendance Verification survey 2 (course directors) | September 22, 2026 | September 8, 2026 (1 & 5 quarters)<br>December 1, 2026 (2 & 6 quarters) |
| Online Pre-Registration (second term) | October 27-31, 2026 | October 7-8, 2026 (2 & 6 quarters) |
| Last day of classes<br>Last date to apply for authorized withdrawal, reclassification, and Re-entry | November 5, 2026**<br>December 5, 2026*** | October 17, 2026 (1 & 5 quarters)<br>January 31, 2026 (2 & 6 quarters) |
| Assembly of the General Student Body Council and Faculty Retreat | November 6, 2026 | November 6, 2026 |
| Last day to apply for an authorized Leave of Absence (LOA), Spring semester | November 21, 2026 | October10, 2026 |
| Online Registration (second term) | November 24-28, 2026 | October 13-14, 2026 (2 & 6 quarters) |
| Online Late Registration | December 4-5, 2026 | October 21, 2026 (2 & 6 quarters) |
| Application for graduation | December 5, 2026 | December 5, 2026 |
| Attendance Verification survey 3 (course directors) | November 10-11, 2026**<br>December 5, 2026*** | October 13, 2026 (1 & 5 quarters) |
| Final examination period | November 12-15, 2026**<br>December 16-18, 2026*** | October 14-16, 2026 (1 & 5 quarters) |
| Last date to submit official grades | December 17, 2026 | October 24, 2026 (1 & 5 quarters) |
| Graduation date | December 18, 2026 | December 18, 2026 |

## Observed Holidays and Academic Breaks (Fall Semester)

- July 4, 2026 (Friday) — USA Independence Day
- July 25, 2026 (Friday) — PR's Constitution Day
- September 1, 2026 (Monday) — Labor Day
- October 10, 2026 (Monday) — Columbus Day
- November 11, 2026 (Monday) — Veterans Day
- November 19, 2026 (Wednesday) — "Descubrimiento de Puerto Rico"
- November 25-29, 2026 (Monday-Friday) — Fall break for the students at campus

(Students assigned to a clinical or research duty must observe the clinical/research facility labor rules)

- December 23, 2026-January 7, 2026 — Winter break

[13] *Quarterly courses that observe a holiday must reschedule classes to comply with the credit hour definition.
[14] **for a 15-week semester (comply with the minimum definition of semester)
[15] ***for a 19-week semester

## SPRING SEMETER

### 2026-2027 Academic Calendar

| Activity | Period per term | |
|---|---|---|
| | **Semester** | **Quarter[16]*** |
| First day of classes | January 7, 2027 | February 4 2027 (3 & 7 quarters) |
| | | April 29, 2027 (4 quarter) |
| Add and Drop Classes (students) | January 8-10, 2027 | |
| Attendance Verification survey 1 (course directors) | January 13, 2027 | February 10, 2027 (3 & 7 quarters)<br>May 5, 2027 (4 quarter) |
| Last date for removal of Incomplete temporary grades | January 10, 2027 | Before the 2nd week (after the first day of classes) |
| Mid-term Examination | February 18-21, 2027[17]**<br>March 3-7, 2027[18]*** | March 17-20, 2027 (3 & 7 quarters) |
| | | June 3-6, 2027 (4 quarter) |
| Attendance Verification survey 2 (course directors) | March 10, 2027 | March 24, 2027 (3 & 7 quarters) |
| | | June 17, 2027 (4 quarter) |
| Assembly of the General Student Body Council and Faculty Retreat | May 8, 2027 | May 8, 2027 |
| Family Day | April 5, 2027<br>No summative assessments will be scheduled on the next Monday | |
| Last day of classes<br>Last date to apply for authorized withdrawal | April 11, 2027** | April 15, 2027 (3 & 7 quarters) |
| | May 9, 2027*** | July 10, 2027 (4 quarter) |
| Attendance Verification survey 3 (course directors) | April 14, 2027** | January 27, 2027 (2 & 6 quarters) |
| | May 12, 2027*** | April 16, 2027 (3 & 7 quarters) |
| | | July 14, 2027 |
| Final examination period | April 7-11, 2027** | January 28-30, 2027 (2 & 6 quarter) |
| | May 12-16, 2027*** | April 21-24, 2027 (3 & 7 quarters) |
| | | July 15-17, 2027 (4 quarter) |
| Last date to submit official grades | May 28, 2027 | February 3, 2027 (2 & 6 quarter) |
| | | May 1, 2027 (3 & 7 quarters) |
| | | July 18, 2027 |
| Online Registration for Summer | May 19-22, 2027 | |
| First Day of Classes for Summer Period | June 2, 2027 | |
| Commencement Exercises | June X, 2027 | June X, 2027 |
| Last day of Class for Summer Period | July 11, 2027 | |
| Last day to submit official grades (summer period) | July 24, 2027 | |

### Observed Holidays and Academic Breaks (Spring semester)

- January 20, 2027 (Monday) — Dr. Martin Luther King Day
- February 17, 2027 (Monday) — President 's Day
- April 17-18, 2027 (Thursday to Friday) — Spring break
- May 26, 2027 (Monday) — Memorial Day

*--Subject to change--*
Every Thursday, from 12:00 to 2:00 PM, the "Universal Hour" will be observed for extracurricular purposes.
The **UCC** faculty can determine whether during any holiday an exam must be administered.

* Prepared for the December 2024 Institutional Catalog Revision. Revised Academic calendars will be provided on a yearly basis where information may vary.

[16] *Quarterly courses observe a holiday must reschedule to comply with the credit definition
[17] **for a 15-week semester (comply with the minimum definition of semester)
[18] ***for a 19-week semester

# FALL SEMESTER

## 2027-2028 Academic Calendar

| Activity | Period per term | |
|---|---|---|
| | **Semester** | **Quarter[1]*** |
| Online Pre-Registration | June 9-13, 2027 (current students) | June 9-13, 2027 (current students) |
| Last day to apply for an authorized Leave of Absence (LOA), Fall semester | July 11, 2027 (current students) | July 11, 2027 (current students) |
| Online Registration | June 23-26, 2027 (current students) | June 23-26, 2027 (current students) |
| | July 21-25, 2027 (prospective students) | July 22-26, 2027 (prospective students) |
| First day of classes<br>Online Late registration | July 28, 2027 | July 29, 2027 (1 & 5 quarters) |
| | | October 21, 2027 (2 & 6 quarters) |
| Add and drop classes students | July 28-August 1, 2027 | |
| Institutional Competency Education Day | | |
| Attendance Verification survey 1 (course directors) | August 4, 2027 | August 4, 2027 (1 & 5 quarters) |
| | | October 27, 2027 (2 & 6 quarters) |
| Last day for removal of Incomplete temporary grades | August 1, 2027 | Before the 2nd week (after the first day of classes) |
| Mid-term Examination | September 15-19, 2027[2]**<br>October 7-11, 2027[3]*** | September 2-4, 2027 (1& 5 quarters) |
| | | November 25-27, 2027 (2 & 6 quarters) |
| Attendance Verification survey 2 (course directors) | September 22, 2027 | September 8, 2027 (1 & 5 quarters) |
| | | December 1, 2027 (2 & 6 quarters) |
| Online Pre-Registration (second term) | October 27-31, 2027 | October 7-8, 2027 (2 & 6 quarters) |
| Last day of classes<br>Last date to apply for authorized withdrawal, reclassification, and Re-entry | November 5, 2027** | October 17, 2027 (1 & 5 quarters)<br>January 31, 2027 (2 & 6 quarters) |
| | December 5, 2027*** | |
| Assembly of the General Student Body Council and Faculty Retreat | November 6, 2027 | November 6, 2027 |
| Last day to apply for an authorized Leave of Absence (LOA), Spring semester | November 21, 2027 | October10, 2027 |
| Online Registration (second term) | November 24-28, 2027 | October 13-14, 2027 (2 & 6 quarters) |
| Online Late Registration | December 4-5, 2027 | October 21, 2027 (2 & 6 quarters) |
| Application for graduation | December 5, 2027 | December 5, 2027 |
| Attendance Verification survey 3 (course directors) | November 10-11, 2027** | October 13, 2027 (1 & 5 quarters) |
| | December 5, 2027*** | |
| Final examination period | November 12-15, 2027** | October 14-16, 2027 (1 & 5 quarters) |
| | December 16-18, 2027*** | |
| Last date to submit official grades | December 17, 2027 | October 24, 2027 (1 & 5 quarters) |
| Graduation date | December 18, 2027 | December 18, 2027 |

## Observed Holidays and Academic Breaks (Fall Semester)

- July 4, 2027 (Friday) — USA Independence Day
- July 25, 2027 (Friday) — PR's Constitution Day
- September 1, 2027 (Monday) — Labor Day
- October 10, 2027 (Monday) — Columbus Day
- November 11, 2027 (Monday) — Veterans Day
- November 19, 2027 (Wednesday) — "Descubrimiento de Puerto Rico"
- November 25-29, 2027 (Monday-Friday) — Fall break for the students at campus

(Students assigned to a clinical or research duty must observe the clinical/research facility labor rules)

- December 23, 2027-January 7, 2027 — Winter break

[1] *Quarterly courses that observe a holiday must reschedule classes to comply with the credit hour definition.
[2] **for a 15-week semester (comply with the minimum definition of semester)
[3] ***for a 19-week semester

## SPRING SEMETER

### 2027-2028 Academic Calendar

| Activity | Period per term | |
|---|---|---|
| | **Semester** | **Quarter[4]*** |
| First day of classes | January 7, 2028 | February 4 2028 (3 & 7 quarters) |
| | | April 29, 2028 (4 quarter) |
| Add and Drop Classes (students) | January 8-10, 2028 | |
| Attendance Verification survey 1 (course directors) | January 13, 2028 | February 10, 2028 (3 & 7 quarters)<br>May 5, 2028 (4 quarter) |
| Last date for removal of Incomplete temporary grades | January 10, 2028 | Before the 2nd week (after the first day of classes) |
| Mid-term Examination | February 18-21, 2028[5]**<br>March 3-7, 2028[6]*** | March 17-20, 2028 (3 & 7 quarters) |
| | | June 3-6, 2028 (4 quarter) |
| Attendance Verification survey 2 (course directors) | March 10, 2028 | March 24, 2028 (3 & 7 quarters) |
| | | June 17, 2028 (4 quarter) |
| Assembly of the General Student Body Council and Faculty Retreat | May 8, 2028 | May 8, 2028 |
| Family Day | April 5, 2028<br>No summative assessments will be scheduled on the next Monday | |
| Last day of classes<br>Last date to apply for authorized withdrawal | April 11, 2028** | April 15, 2028 (3 & 7 quarters) |
| | May 9, 2028*** | July 10, 2028 (4 quarter) |
| Attendance Verification survey 3 (course directors) | April 14, 2028** | January 27, 2028 (2 & 6 quarters) |
| | May 12, 2028*** | April 16, 2028 (3 & 7 quarters) |
| | | July 14, 2028 |
| Final examination period | April 7-11, 2028** | January 28-30, 2028 (2 & 6 quarter) |
| | May 12-16, 2028*** | April 21-24, 2028 (3 & 7 quarters) |
| | | July 15-17, 2028 (4 quarter) |
| Last date to submit official grades | May 28, 2028 | February 3, 2028 (2 & 6 quarter) |
| | | May 1, 2028 (3 & 7 quarters) |
| | | July 18, 2028 |
| Online Registration for Summer | May 19-22, 2028 | |
| First Day of Classes for Summer Period | June 2, 2028 | |
| Commencement Exercises | June X, 2028 | June X, 2028 |
| Last day of Class for Summer Period | July 11, 2028 | |
| Last day to submit official grades (summer period) | July 24, 2028 | |

### Observed Holidays and Academic Breaks (Spring semester)

- January 20, 2028 (Monday) — Dr. Martin Luther King Day
- February 17, 2028 (Monday) — President 's Day
- April 17-18, 2028 (Thursday to Friday) — Spring break
- May 26, 2028 (Monday) — Memorial Day

*--Subject to change--*

Every Thursday, from 12:00 to 2:00 PM, the "Universal Hour" will be observed for extracurricular purposes.
UCC faculty can determine if during any holiday an exam must be administered.
Prepared on March 25, 2022

[4] *Quarterly courses observe a holiday must reschedule to comply with the credit definition
[5] **for a 15-week semester (comply with the minimum definition of semester)
[6] ***for a 19-week semester

# FALL SEMESTER

## 2028-2029 Academic Calendar

| Activity | Period per term | |
|---|---|---|
| | **Semester** | **Quarter[1]*** |
| Online Pre-Registration | June 9-13, 2028 (current students) | June 9-13, 2028 (current students) |
| Last day to apply for an authorized Leave of Absence (LOA), Fall semester | July 11, 2028 (current students) | July 11, 2028 (current students) |
| Online Registration | June 23-26, 2028 (current students) | June 23-26, 2028 (current students) |
| | July 21-25, 2028 (prospective students) | July 22-26, 2028 (prospective students) |
| First day of classes<br>Online Late registration | July 28, 2028 | July 29, 2028 (1 & 5 quarters) |
| | | October 21, 2028 (2 & 6 quarters) |
| Add and drop classes students | July 28-August 1, 2028 | |
| Institutional Competency Education Day | | |
| Attendance Verification survey 1 (course directors) | August 4, 2028 | August 4, 2028 (1 & 5 quarters) |
| | | October 27, 2028 (2 & 6 quarters) |
| Last day for removal of Incomplete temporary grades | August 1, 2028 | Before the 2nd week (after the first day of classes) |
| Mid-term Examination | September 15-19, 2028[2]**<br>October 7-11, 2028[3]*** | September 2-4, 2028 (1& 5 quarters) |
| | | November 25-27, 2028 (2 & 6 quarters) |
| Attendance Verification survey 2 (course directors) | September 22, 2028 | September 8, 2028 (1 & 5 quarters) |
| | | December 1, 2028 (2 & 6 quarters) |
| Online Pre-Registration (second term) | October 27-31, 2028 | October 7-8, 2028 (2 & 6 quarters) |
| Last day of classes<br>Last date to apply for authorized withdrawal, reclassification, and Re-entry | November 5, 2028** | October 17, 2028 (1 & 5 quarters)<br>January 31, 2028 (2 & 6 quarters) |
| | December 5, 2028*** | |
| Assembly of the General Student Body Council and Faculty Retreat | November 6, 2028 | November 6, 2028 |
| Last day to apply for an authorized Leave of Absence (LOA), Spring semester | November 21, 2028 | October10, 2028 |
| Online Registration (second term) | November 24-28, 2028 | October 13-14, 2028 (2 & 6 quarters) |
| Online Late Registration | December 4-5, 2028 | October 21, 2028 (2 & 6 quarters) |
| Application for graduation | December 5, 2028 | December 5, 2028 |
| Attendance Verification survey 3 (course directors) | November 10-11, 2028** | October 13, 2028 (1 & 5 quarters) |
| | December 5, 2028*** | |
| Final examination period | November 12-15, 2028** | October 14-16, 2028 (1 & 5 quarters) |
| | December 16-18, 2028*** | |
| Last date to submit official grades | December 17, 2028 | October 24, 2028 (1 & 5 quarters) |
| Graduation date | December 18, 2028 | December 18, 2028 |

## Observed Holidays and Academic Breaks (Fall Semester)

- July 4, 2028 (Friday) — USA Independence Day
- July 25, 2028 (Friday) — PR's Constitution Day
- September 1, 2028 (Monday) — Labor Day
- October 10, 2028 (Monday) — Columbus Day
- November 11, 2028 (Monday) — Veterans Day
- November 19, 2028 (Wednesday) — "Descubrimiento de Puerto Rico"
- November 25-29, 2028 (Monday-Friday) — Fall break for the students at campus

(Students assigned to a clinical or research duty must observe the clinical/research facility labor rules)

- December 23, 2028-January 7, 2028 — Winter break

[1] *Quarterly courses that observe a holiday must reschedule classes to comply with the credit hour definition.
[2] **for a 15-week semester (comply with the minimum definition of semester)
[3] ***for a 19-week semester

## SPRING SEMETER

### 2028-2029 Academic Calendar

| Activity | Period per term | |
|---|---|---|
| | Semester | Quarter[4]* |
| First day of classes | January 7, 2029 | February 4 2029 (3 & 7 quarters) |
| | | April 29, 2029 (4 quarter) |
| Add and Drop Classes (students) | January 8-10, 2029 | |
| Attendance Verification survey 1 (course directors) | January 13, 2029 | February 10, 2029 (3 & 7 quarters)<br>May 5, 2029 (4 quarter) |
| Last date for removal of Incomplete temporary grades | January 10, 2029 | Before the 2nd week (after the first day of classes) |
| Mid-term Examination | February 18-21, 2029[5]**<br>March 3-7, 2029[6]*** | March 17-20, 2029 (3 & 7 quarters) |
| | | June 3-6, 2029 (4 quarter) |
| Attendance Verification survey 2 (course directors) | March 10, 2029 | March 24, 2029 (3 & 7 quarters) |
| | | June 17, 2029 (4 quarter) |
| Assembly of the General Student Body Council and Faculty Retreat | May 8, 2029 | May 8, 2029 |
| Family Day | April 5, 2029<br>No summative assessments will be scheduled on the next Monday | |
| Last day of classes<br>Last date to apply for authorized withdrawal | April 11, 2029** | April 15, 2029 (3 & 7 quarters) |
| | May 9, 2029*** | July 10, 2029 (4 quarter) |
| Attendance Verification survey 3 (course directors) | April 14, 2029** | January 27, 2029 (2 & 6 quarters) |
| | May 12, 2029*** | April 16, 2029 (3 & 7 quarters) |
| | | July 14, 2029 |
| Final examination period | April 7-11, 2029** | January 28-30, 2029 (2 & 6 quarter) |
| | May 12-16, 2029*** | April 21-24, 2029 (3 & 7 quarters) |
| | | July 15-17, 2029 (4 quarter) |
| Last date to submit official grades | May 28, 2029 | February 3, 2029 (2 & 6 quarter) |
| | | May 1, 2029 (3 & 7 quarters) |
| | | July 18, 2029 |
| Online Registration for Summer | May 19-22, 2029 | |
| First Day of Classes for Summer Period | June 2, 2029 | |
| Commencement Exercises | June X, 2029 | June X, 2029 |
| Last day of Class for Summer Period | July 11, 2029 | |
| Last day to submit official grades (summer period) | July 24, 2029 | |

### Observed Holidays and Academic Breaks (Spring semester)

- January 20, 2029 (Monday) — Dr. Martin Luther King Day
- February 17, 2029 (Monday) — President 's Day
- April 17-18, 2029 (Thursday to Friday) — Spring break
- May 26, 2029 (Monday) — Memorial Day

*--Subject to change--*
Every Thursday, from 12:00 to 2:00 PM, the "Universal Hour" will be observed for extracurricular purposes.
UCC faculty can determine if during any holiday an exam must be administered.
Prepared on March 25, 2022

[4] *Quarterly courses observe a holiday must reschedule to comply with the credit definition
[5] **for a 15-week semester (comply with the minimum definition of semester)
[6] ***for a 19-week semester

# FALL SEMESTER

## 2029-2030 Academic Calendar

| Activity | Period per term | |
|---|---|---|
| | **Semester** | **Quarter[1]*** |
| Online Pre-Registration | June 9-13, 2029 (current students) | June 9-13, 2029 (current students) |
| Last day to apply for an authorized Leave of Absence (LOA), Fall semester | July 11, 2029 (current students) | July 11, 2029 (current students) |
| Online Registration | June 23-26, 2029 (current students) | June 23-26, 2029 (current students) |
| | July 21-25, 2029 (prospective students) | July 22-26, 2029 (prospective students) |
| First day of classes<br>Online Late registration | July 28, 2029 | July 29, 2029 (1 & 5 quarters) |
| | | October 21, 2029 (2 & 6 quarters) |
| Add and drop classes students | July 28-August 1, 2029 | |
| Institutional Competency Education Day | | |
| Attendance Verification survey 1 (course directors) | August 4, 2029 | August 4, 2029 (1 & 5 quarters) |
| | | October 27, 2029 (2 & 6 quarters) |
| Last day for removal of Incomplete temporary grades | August 1, 2029 | Before the 2nd week (after the first day of classes) |
| Mid-term Examination | September 15-19, 2029[2]**<br>October 7-11, 2029[3]*** | September 2-4, 2029 (1& 5 quarters) |
| | | November 25-27, 2029 (2 & 6 quarters) |
| Attendance Verification survey 2 (course directors) | September 22, 2029 | September 8, 2029 (1 & 5 quarters) |
| | | December 1, 2029 (2 & 6 quarters) |
| Online Pre-Registration (second term) | October 27-31, 2029 | October 7-8, 2029 (2 & 6 quarters) |
| Last day of classes<br>Last date to apply for authorized withdrawal, reclassification, and Re-entry | November 5, 2029** | October 17, 2029 (1 & 5 quarters)<br>January 31, 2029 (2 & 6 quarters) |
| | December 5, 2029*** | |
| Assembly of the General Student Body Council and Faculty Retreat | November 6, 2029 | November 6, 2029 |
| Last day to apply for an authorized Leave of Absence (LOA), Spring semester | November 21, 2029 | October10, 2029 |
| Online Registration (second term) | November 24-28, 2029 | October 13-14, 2029 (2 & 6 quarters) |
| Online Late Registration | December 4-5, 2029 | October 21, 2029 (2 & 6 quarters) |
| Application for graduation | December 5, 2029 | December 5, 2029 |
| Attendance Verification survey 3 (course directors) | November 10-11, 2029** | October 13, 2029 (1 & 5 quarters) |
| | December 5, 2029*** | |
| Final examination period | November 12-15, 2029** | October 14-16, 2029 (1 & 5 quarters) |
| | December 16-18, 2029*** | |
| Last date to submit official grades | December 17, 2029 | October 24, 2029 (1 & 5 quarters) |
| Graduation date | December 18, 2029 | December 18, 2029 |

## Observed Holidays and Academic Breaks (Fall Semester)

- July 4, 2029 (Friday) — USA Independence Day
- July 25, 2029 (Friday) — PR's Constitution Day
- September 1, 2029 (Monday) — Labor Day
- October 10, 2029 (Monday) — Columbus Day
- November 11, 2029 (Monday) — Veterans Day
- November 19, 2029 (Wednesday) — "Descubrimiento de Puerto Rico"
- November 25-29, 2029 (Monday-Friday) — Fall break for the students at campus

(Students assigned to a clinical or research duty must observe the clinical/research facility labor rules)

- December 23, 2029-January 7, 2029 — Winter break

[1] *Quarterly courses that observe a holiday must reschedule classes to comply with the credit hour definition.
[2] **for a 15-week semester (comply with the minimum definition of semester)
[3] ***for a 19-week semester

## SPRING SEMETER

### 2029-2030 Academic Calendar

| Activity | Period per term | |
|---|---|---|
| | **Semester** | **Quarter[4]*** |
| First day of classes | January 7, 2030 | February 4 2030 (3 & 7 quarters) |
| | | April 29, 2030 (4 quarter) |
| Add and Drop Classes (students) | January 8-10, 2030 | |
| Attendance Verification survey 1 (course directors) | January 13, 2030 | February 10, 2030 (3 & 7 quarters)<br>May 5, 2030 (4 quarter) |
| Last date for removal of Incomplete temporary grades | January 10, 2030 | Before the 2nd week (after the first day of classes) |
| Mid-term Examination | February 18-21, 2030[5]**<br>March 3-7, 2030[6]*** | March 17-20, 2030 (3 & 7 quarters) |
| | | June 3-6, 2030 (4 quarter) |
| Attendance Verification survey 2 (course directors) | March 10, 2030 | March 24, 2030 (3 & 7 quarters) |
| | | June 17, 2030 (4 quarter) |
| Assembly of the General Student Body Council and Faculty Retreat | May 8, 2030 | May 8, 2030 |
| Family Day | April 5, 2030<br>No summative assessments will be scheduled on the next Monday | |
| Last day of classes<br>Last date to apply for authorized withdrawal | April 11, 2030** | April 15, 2030 (3 & 7 quarters) |
| | May 9, 2030*** | July 10, 2030 (4 quarter) |
| Attendance Verification survey 3 (course directors) | April 14, 2030** | January 27, 2030 (2 & 6 quarters) |
| | May 12, 2030*** | April 16, 2030 (3 & 7 quarters) |
| | | July 14, 2030 |
| Final examination period | April 7-11, 2030** | January 28-30, 2030 (2 & 6 quarter) |
| | May 12-16, 2030*** | April 21-24, 2030 (3 & 7 quarters) |
| | | July 15-17, 2030 (4 quarter) |
| Last date to submit official grades | May 28, 2030 | February 3, 2030 (2 & 6 quarter) |
| | | May 1, 2030 (3 & 7 quarters) |
| | | July 18, 2030 |
| Online Registration for Summer | May 19-22, 2030 | |
| First Day of Classes for Summer Period | June 2, 2030 | |
| Commencement Exercises | June X, 2030 | June X, 2030 |
| Last day of Class for Summer Period | July 11, 2030 | |
| Last day to submit official grades (summer period) | July 24, 2030 | |

### Observed Holidays and Academic Breaks (Spring semester)

- January 20, 2030 (Monday) — Dr. Martin Luther King Day
- February 17, 2030 (Monday) — President 's Day
- April 17-18, 2030 (Thursday to Friday) — Spring break
- May 26, 2030 (Monday) — Memorial Day

*--Subject to change--*

Every Thursday, from 12:00 to 2:00 PM, the "Universal Hour" will be observed for extracurricular purposes.
UCC faculty can determine if during any holiday an exam must be administered.
Prepared on March 25, 2022

[4] *Quarterly courses observe a holiday must reschedule to comply with the credit definition
[5] **for a 15-week semester (comply with the minimum definition of semester)
[6] ***for a 19-week semester

# BURSAR'S OFFICE

The Universidad Central del Caribe reserves the right to make changes as deemed necessary in calendars, tuition and fees, policies, academic requirements, regulations, programs, and other subjects, after the publication date of this Catalog.

## General Fees

The following fees are applicable for all students and may be revised as the **UCC** deems necessary:

| | |
|---|---|
| • ID Cards and replacement | $15.00 |
| • Parking per year | $40.00 |
| • Parking label replacement | $10.00 |
| • Activity fee (per year) daytime programs | $50.00 |
| • CPR course | $50.00 |
| • Accident insurance (per year) | $12.00 |
| • Health insurance[1] | |
| • Disability insurance[2] | $180.00/per year |

## Other Fees

| | |
|---|---|
| • Transcripts paid in the Bursar's Office | $5.00 |
| • Transcripts paid by PayPal | $6.00 |
| • Dean's Letter paid in the Bursar's Office | $10.00 |
| • Dean's Letter paid by PayPal | $11.00 |
| • Study Certification paid in the Bursar's Office | $10.00 |
| • Study Certification paid by PayPal | $11.00 |
| • Grade Certification paid in the Bursar's Office | $10.00 |
| • Grade Certification paid by PayPal | $11.00 |
| • Diploma Certification paid in the Bursar's Office | $10.00 |
| • Diploma Certification paid by PayPal | $11.00 |
| • Translation of Medical School Diploma paid in the Bursar's Office | $25.00 |
| • Translation of Medical School Diploma paid by PayPal | $26.00 |
| • Certification of Payments and Costs | $5.00 |
| • Copy of diploma | $10.00 |
| • Duplicate of the Diploma for: | |
| ○ Medicine | $75.00 |
| ○ All the other programs | $50.00 |
| • MD Provisional License package (Affidavit, Transcript and Grade Certification) | $63.00 |
| • Student File Copy (per sheet) | $2.00 |
| • Graduate Medical Education Certification | $50.00 |
| • Mail: | |
| ○ Priority Mail[3] | $5.00-$7.00 |
| ○ Express Mail | $29.45 |
| • Dosimeter and replacement[4] | $50.00 |

[1] All students are required to carry a health insurance plan. If the student has no insurance, the university will provide one at market cost. These costs may change per semester.
[2] Subject to review annually
[3] Subject to USPS current charges
[4] Subject to review annually.

## Applicable Tuition and Fees for:

The **UCC** reserves the right to revise tuition and fee costs as necessary after the publication of this Catalog.

### School of Medicine

Tuition for resident medical students of Puerto Rico is $35,963.00 per year while tuition for non-resident medical students is $48,000.00 per year. Other fees are:

| | |
|---|---|
| • Admission, with application (non-refundable beginning on academic year 2016-2017) | $200.00 |
| • Construction and Maintenance of facilities (per year) | $850.00 |
| • Deposit to hold place (non-refundable) | $100.00 |
| • Endowment fee (per year) | $725.00 |
| • General fee (per year) | $700.00 |
| • Graduation fee | $500.00 |
| • Laboratory fees (per year) | $2,000.00 |
| • NBME Reposition Exam | $225.00 |
| • Orientation activity fee (First year) | $400.00 |
| • Readmission, with application | $100.00 |
| • Technology resources (per year) | $700.00 |

### Doctor of Chiropractic Program

Tuition for resident chiropractic students of Puerto Rico is $33,600.00 per year while tuition for non-resident chiropractic students is $43,793.00 per year. Other fees are:

| | |
|---|---|
| • Admission, with application (non-refundable beginning on academic year 2018-2019) | $200.00 |
| • Construction and Maintenance of facilities (per year) | $850.00 |
| • Deposit to hold place (non-refundable) | $100.00 |
| • Endowment fee (per year) | $700.00 |
| • General fee (per year) | $700.00 |
| • Graduation fee | $400.00 |
| • Laboratory fee (per year) | $2,000.00 |
| • Orientation activity fee (First year) | $400.00 |
| • Readmission, with application | $100.00 |
| • Technology resources (per year) | $700.00 |

## Biomedical Sciences Graduate Program

Tuition for the Biomedical Sciences Graduate Program of Studies is $345.00 per credit. Fees are the following:

| | |
|---|---|
| • Admission, with application (non-refundable) | $50.00 |
| • Comprehensive test | $50.00 |
| • Construction and Maintenance of facilities (per year) | $850.00 |
| • Deposit to hold place | $100.00 |
| • Endowment fee (per year) | $1,000.00 |
| • General fee (per year) | $400.00 |
| • Graduation fee | $250.00 |
| • Laboratory fee (per year) | $500.00 |
| • Late admission | $150.00 |
| • Readmission, with application | $50.00 |
| • Reclassification | $50.00 |
| • Software fee (per year) | $60.00 |
| • Technology resources (per year) | $600.00 |
| • Thesis printing | $200.00 |

## Substance Abuse Counseling Program

Tuition for the Substance Abuse Counseling Program is $285.00 per credit. Fees are the following:

| | |
|---|---|
| • Admission, with application (non-refundable) | $50.00 |
| • Construction and Maintenance of facilities (per year) | $850.00 |
| • Deposit to hold place | $100.00 |
| • General fee (per year) | $400.00 |
| • Graduation fee | $250.00 |
| • Late admission | $150.00 |
| • Readmission, with application | $50.00 |
| • Reclassification | $50.00 |
| • Technology resources (per year) | $600.00 |

### Medical Images Technology Program

(Associate Degree in Radiologic Technology, Post-Associate Certificate in Diagnostic Medical Sonography, Post-Associate Certificate in Mammography, Post-Associate Certificate in Computerized Tomography, Post-Associate Certificate in Magnetic Resonance and Bachelor of Science in Diagnostic Images)

Tuition for the Medical Images Technology Program is $190.00 per credit. Students must be responsible for all costs pertaining to uniforms, transportation, and lodging, incurred to comply with clinical practice as part of their training. Fees are the following:

- Admission, with application (non-refundable) $25.00
- Construction and Maintenance of facilities (per year) $850.00
- Deposit to hold place $100.00
- General fee (per year) $150.00
- Graduation fee $125.00
- Laboratory fee (per year) $200.00
- Late admission $100.00
- Readmission, with application $25.00
- Reclassification $25.00
- Technical resources (per year) $500.00

## Reimbursement of Tuition Fees

The university has a tuition refund policy that stipulates the amount of tuition and fees that are refunded to a student who withdraws from all classes during a term. The following chart shows the amount of tuition and fees returned to a student, depending on withdrawal date.

| Time of Withdrawal | % of Charges Refunded |
|---|---|
| Before the 1st day of class | 100% tuition; 100% fees |
| Within the first week of classes | 80% tuition; 0% fees |
| During the second week of classes | 50% tuition; 0% fees |
| After the second week of classes | 0% tuition; 0% fees |

-*The deposit to hold a place is not refundable.*

### Return of Federal (Title IV) Financial Aid

As an Institution that participates and distributes students' financial aid Title IV Funds, the Universidad Central del Caribe adheres to federal guidelines governing refunds related to said program. The return of the Title IV Funds policy applies to all registered students who qualify and participate in the federal financial aid program and later withdraw or are administratively withdrawn. The policy determines the amount of funds the student spends at the moment of withdrawal up to sixty (60) percent of the academic term; after this period refunds are not applicable.

Refunds will be made within thirty (30) days from the date that the university determines that the student had withdrawn. Requests for withdrawal must be submitted in writing to the registrar.

See the full Refund Policy in the web page.

# School of Medicine

# SCHOOL OF MEDICINE

Harry Mercado, MD
Interim Dean, School of Medicine

Zilka Ríos, MS
Associate Dean of Medical Education

Diana M. Fernández Santos, MS, EdD
Associate Dean of Research and Graduate Studies

Harry Mercado, MD
Associate Dean of Faculty and Clinical Affairs

Iván Escalante, EdD
Assistant Dean of Student Affairs

Eveneida Rodríguez, MEd
Director, Office of Curriculum

Vacant
Director of Academic Research & Assessment Office

Wined M. R. Ramírez, MPH
Director, Continuous Quality Improvement Office

Frances García, MD
Director, Bioethics and Medical Humanities Center Director of Graduate Medical Education Office

José Manuel Rivera, MD
Director, Multidisciplinary Clinical Skills Training Center

Lileana Bruno Silva, MA
Licensed Professional Counsellor

## Department Chairpersons

### Chairpersons of the Preclinical Sciences Departments

Anatomy and Cell Biology.....Sofia Jiménez, PhD
Biochemistry .....David Rivera, PhD (Interim)
Microbiology and Immunology.....Zilka Ríos, MS (Interim)
Pharmacology .....Iris Salgado, PhD (Interim)
Physiology .....Priscila Sanabria, PhD
Neurosciences ..... John Sanchez, MD, MPH (Interim)

### Chairpersons of the Clinical Sciences Departments

Family Medicine and Community Health .....Harry Mercado, MD (Interim)
Psychiatry.....José A. Franceschini, MD
Internal Medicine .....Harry Mercado, MD (Interim)
Obstetrics-Gynecology.....Alfonso Serrano Ysern, MD
Pathology and Laboratory Medicine .....Angelisa Franceschini, MD
Pediatrics.....Fermín Sánchez, MD
Surgery.....Carlos Ramírez-Tánchez, MD

## Mission, Vision, and Scope

### Mission

To form competent health professionals with excellent academic preparation within a humanistic and holistic framework. Our guiding principle is to ensure that our graduates possess a strong sense of professionalism and commitment to their social duties, respecting the dignity of all human beings.

### Vision

To be a school of medicine that pursues the highest standards of excellence in education, research, and clinical services, intrinsically committed to our community and societal needs.

### Scope

The school of medicine (**SoM**) is committed to providing our students with integrated knowledge in the sciences, basic to medicine with the skills of critical thinking and analysis, with a dedication to lifelong learning and with attitudes of compassion and respect for human dignity.

The school of medicine contributes to the enrichment and enhancement of knowledge by strengthening a creative environment that fosters the development of research in the biomedical, clinical, and psychosocial sciences oriented towards the health needs of our community.

Within the scope of its mission, the school of medicine offers quality health services at the primary care level and specialized curative and rehabilitative services in a cost-effective and accessible manner to the population that it serves.

## Educational Goals and Objectives

### Goal

Prepare qualified physicians, with a humanistic outlook, geared toward primary medicine, with a commitment to continuous education, interested in research, and capable of performing adequately in accredited postgraduate medical education programs.

The educational program of the **SoM** aims to achieve the following general objectives:

### Patient Care

- Demonstrate appropriate clinical skills to provide quality patient care.
- Demonstrate professional attitudes while providing quality patient care in a culturally sensitive manner.

### Medical Knowledge

- Demonstrate mastery of key concepts and principles in the basic sciences and clinical disciplines that are the basis of current and future medical practice.
- Apply knowledge of the biomedical, clinical, epidemiological, social-behavioral, ethics, biostatistics, and public health sciences to provide quality patient care.

## Interpersonal and Communication Skills

- Demonstrate effective interpersonal and communication skills to exchange information with patients, families, colleagues, and other members of the health team to optimize patient's welfare.
- Integrate appropriate communication skills to elicit information about the patient and the patient's life situation to optimize patient health care.

## Professionalism

- Demonstrate professional attitudes, manners, and ethical values of integrity, compassion, and respect for human dignity, dedication and social responsibility.
- Promote collaboration with peers, patients, families, and health professionals in patient management plans
- Apply basic precepts of the medical profession: altruism, respect, compassion, honesty, integrity, and confidentiality, to the needs of patients that supersede self-interest.

## Practice-based Learning and Improvement

- Demonstrate the skills and attitudes required for professional and life-long learning through appraisal and assimilation of scientific evidence, and improvement in patient care.
- Demonstrates proficiency in locating, critically appraising, and synthesizing relevant medical literature to guide patient-centered care and decision-making.
- Engage in informed self-assessment and reflective practice, identifying areas for growth in their knowledge and clinical skills through feedback.

## System-based Practice

- Demonstrate knowledge and skills of the health care system to provide optimal services in ambulatory and hospital settings.
- Understand the healthcare needs of society to contribute to the medical field and to the broader contexts of societal needs.
- Demonstrate effective work and respect with other health professionals, patients, and relatives to provide optimal health care.

## Affiliated Institutions

| | |
|---|---|
| Ashford Presbyterian Community Hospital | San Juan, Puerto Rico |
| Auxilio Mutuo Hospital | San Juan, Puerto Rico |
| Auxilio Mutuo San Pablo | Bayamón, Puerto Rico |
| Bayamón Medical Center | Bayamón, Puerto Rico |
| Hospital Ramón Ruiz Arnau | Bayamón, Puerto Rico |
| Castañer Hospital | Lares, Puerto Rico |
| De la Concepción | San Germán, Puerto Rico |
| Doctor's Center Hospital | Bayamón, Puerto Rico |
| Doctor's Center Hospital Manatí | Manatí, Puerto Rico |
| Doctor's Center Hospital | San Juan, Puerto Rico |
| First Hospital Panamericano | Hato Rey, Puerto Rico |
| Hospital **HIMA** San Pablo | Bayamón, Caguas, Cupey, Fajardo, & Humacao, Puerto Rico |
| Hospital del Maestro | Hato Rey Puerto Rico |
| Hospital **UPR** Dr. Federico Trillas | Carolina, Puerto Rico |
| Hospital Episcopal San Lucas I | Ponce, Puerto Rico |
| Hospital Metropolitano | Guaynabo, Puerto Rico |
| Hospital Metropolitano de la Montaña | Utuado, Puerto Rico |
| Hostos Medical Services Center (Ambulatory **CDT**) | Mayaguez, Puerto Rico |
| Instituto de Ojos (Specialized Clinic, Ambulatory) | Carolina, Puerto Rico |
| Manatí Medical Center Dr. Alejandro Otero López | Manatí, Puerto Rico |
| Dr. Victor Marcial Vega Integrative Medicine Center (Specialized Clinic) | San Juan, Puerto Rico |
| Mayagüez Medical Center Dr. Ramón E. Betances | Mayagüez, Puerto Rico |
| Metro Pavia Health System | Cabo Rojo, Hato Rey, & Santurce, Puerto Rico |
| Morovis Community Health Center (Ambulatory **CDT**) | Morovis, Puerto Rico |
| Centro Salud Mas Salud | San Juan, Puerto Rico |
| **NEOMED** Center Inc (Ambulatory **CDT**), | Gurabo & Trujillo Alto Puerto Rico |
| Puerto Rico Women's and Children's Hospital | Bayamón, Puerto Rico |
| San Jorge Children's and Women's Hospital | Bayamón, Puerto Rico |
| San Juan Capestrano | San Juan, Puerto Rico |
| San Juan City Hospital | San Juan, Puerto Rico |
| Veteran's Administration Hospital (**VA**) | San Juan, Puerto Rico |
| University Pediatric Hospital | Rio Piedras, Puerto Rico |
| VA Caribbean Healthcare System | San Juan, Puerto Rico |
| Professional Hospital | Guaynabo, Puerto Rico |

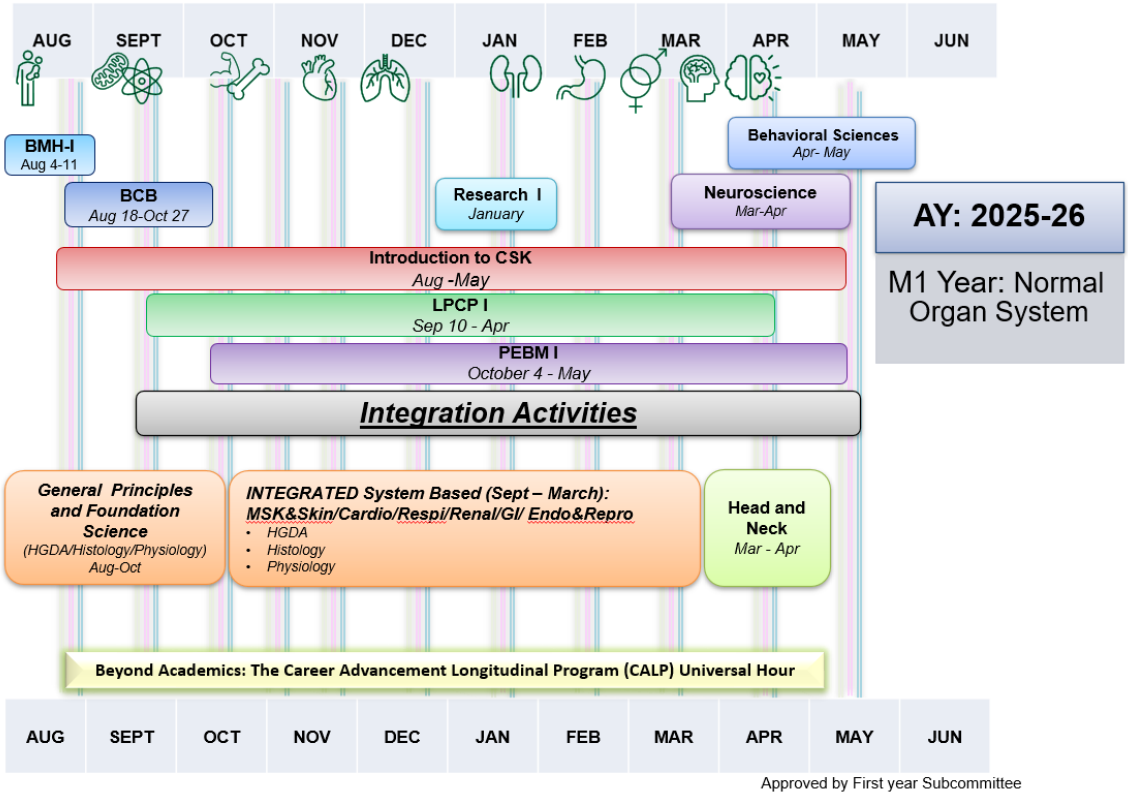
## Educational Program

The curriculum of the school of medicine consists of four years of studies. It incorporates the successful aspects of a conventional curriculum with problem-based and student-centered learning; early clinical skills learning coupled with sustained, community-based learning; the incorporation of a population and behavioral perspective into the clinical years; peer teaching; computer-assisted instruction; and biweekly seminars on professional responsibility. The curriculum also addresses the historically unmet as well as changing the health care needs of our population and changing the learning needs of future physicians.

In the first two years it provides students with a foundation in both biomedical sciences and clinical skills. The students are introduced early to standardized patients as they learn communication, observation, and examination skills. They have an opportunity to use their newly acquired skills with real patients in the Longitudinal Primary Care Preceptorship under the supervision of community preceptors. The students receive formative evaluations from the patients and faculty during the sessions in which standardized patients are used.

Figures I and II show the courses and their distribution during the first two years. The subjects are covered in separate courses, although integration of the content in all courses is closely monitored by the course coordinators who meet regularly for this purpose.

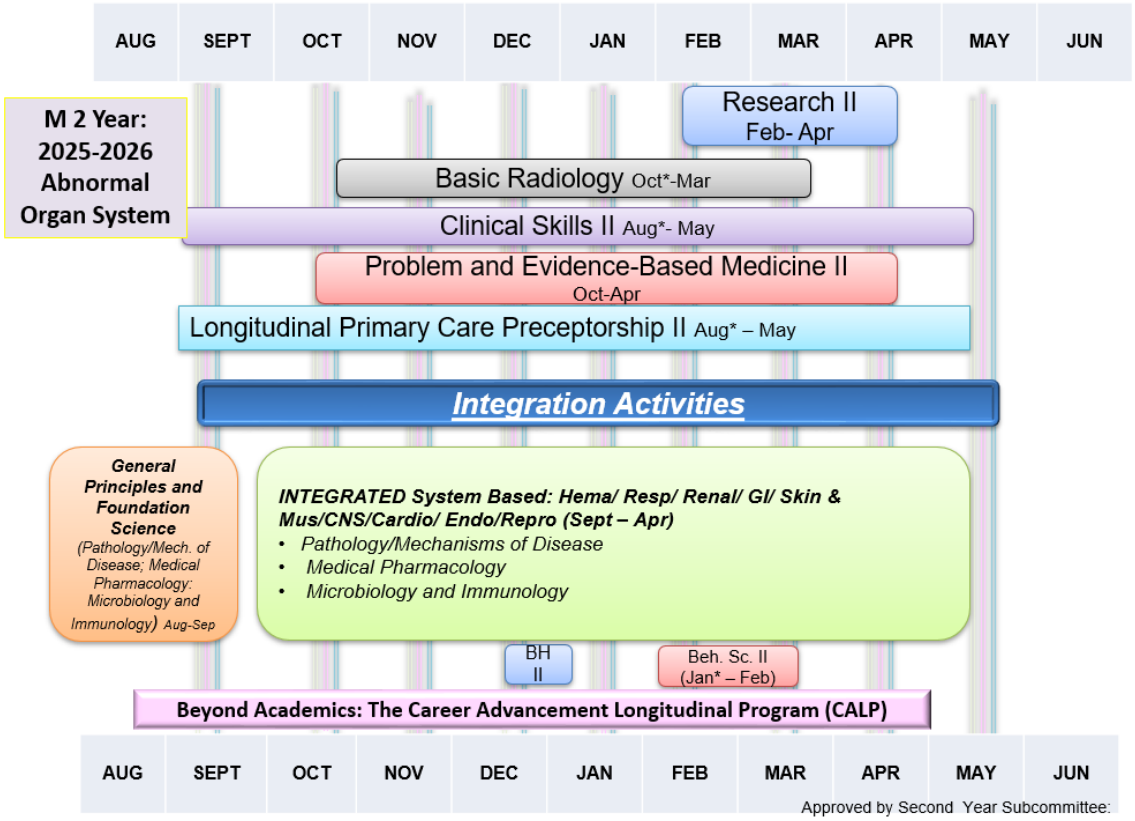
**Figure I - Year 1 Course Sequence**




Approved by First year Subcommittee

For example, the laboratory sessions of Anatomy, Histology, and the Clinical Skills experiences are given simultaneously. The class is divided into three groups of twenty students each, rotating through the Gross Anatomy laboratory session, the Histology laboratory session, and the Center for the Development of Clinical Skills to practice the corresponding organ-system of the physical examination.

**Figure II - Year 2 Course Sequence**




The general principles include topics of foundational sciences of pathology, immunology, medical microbiology and medical pharmacology. This includes topics concerning those normal and abnormal processes that are not limited to specific organ systems. The integrated system based includes topics concerning specific organ systems, approached from the disciplines of pathology, medical microbiology and medical pharmacology. Clinical Skills, Problem and Evidence-Based Medicine, and Longitudinal Primary Care Preceptorship courses provide the integration of basic and clinical sciences. Table I illustrates some of the instructional formats used in our curriculum. The problem-based learning courses in the first and second year facilitate integration of the material covered in other courses. Small-group discussions are used in courses such as Bioethics, Biochemistry, Physiology, and Anatomy, in which students interact with faculty and can receive direct feedback.

Table I illustrates some of the instructional formats used in the school of medicine curriculum. The problem and evidence-based learning courses in the first and second year facilitate integration of the material covered in other courses. Small-group discussions are used in courses such as Bioethics, Biochemistry, Physiology, and Anatomy, in which students interact with faculty and can receive direct feedback.

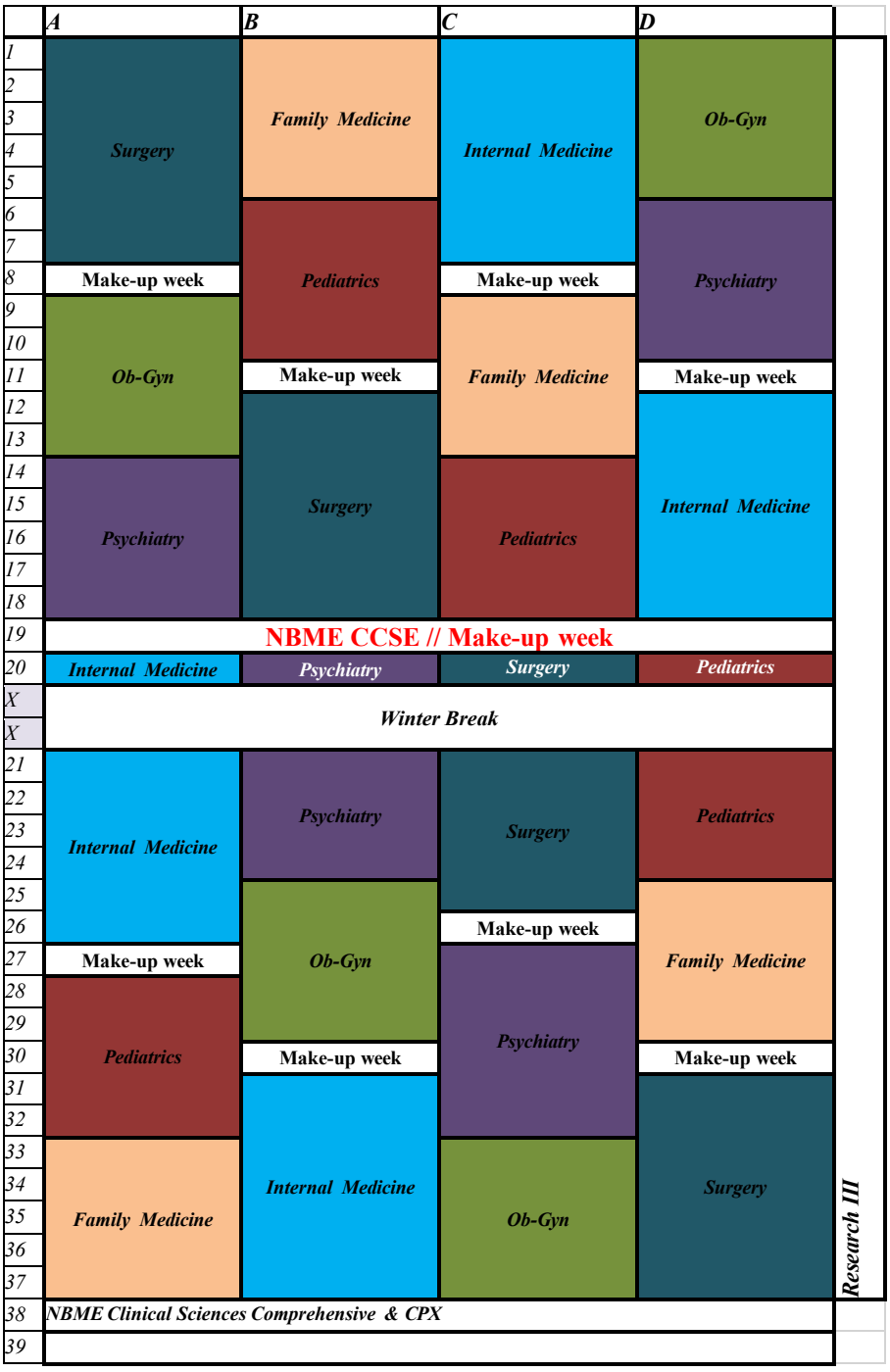
**Table 1. Basic Sciences Curriculum Instructional Methods**

| FIRST YEAR | SECOND YEAR |
|---|---|
| Case-Based Instructional/Learning<br>Clinical Correlations<br>Concept Mapping<br>Laboratory<br>Large Group Discussions (>12)<br>Lectures<br>Problem Solving<br>Preceptorship<br>Problem Evidence-Based Learning<br>Service-Learning Activity<br>Small Group Discussions (<12)<br>Structured Sessions with Anatomic Simulators<br>Team-Based Learning | Case-Based Instructional/Learning<br>Clinical Exercises<br>Concept Mapping<br>Laboratory<br>Large Group Discussions (>12)<br>Lectures<br>Problem Solving<br>Preceptorship<br>Problem Evidence-Based Learning<br>Patient-Oriented Problem Solving (**POPS**)<br>Service-Learning Activity<br>Simulations<br>Small Group Discussions (<12)<br>Structured Sessions with Anatomic Simulators<br>Team-Based Learning |

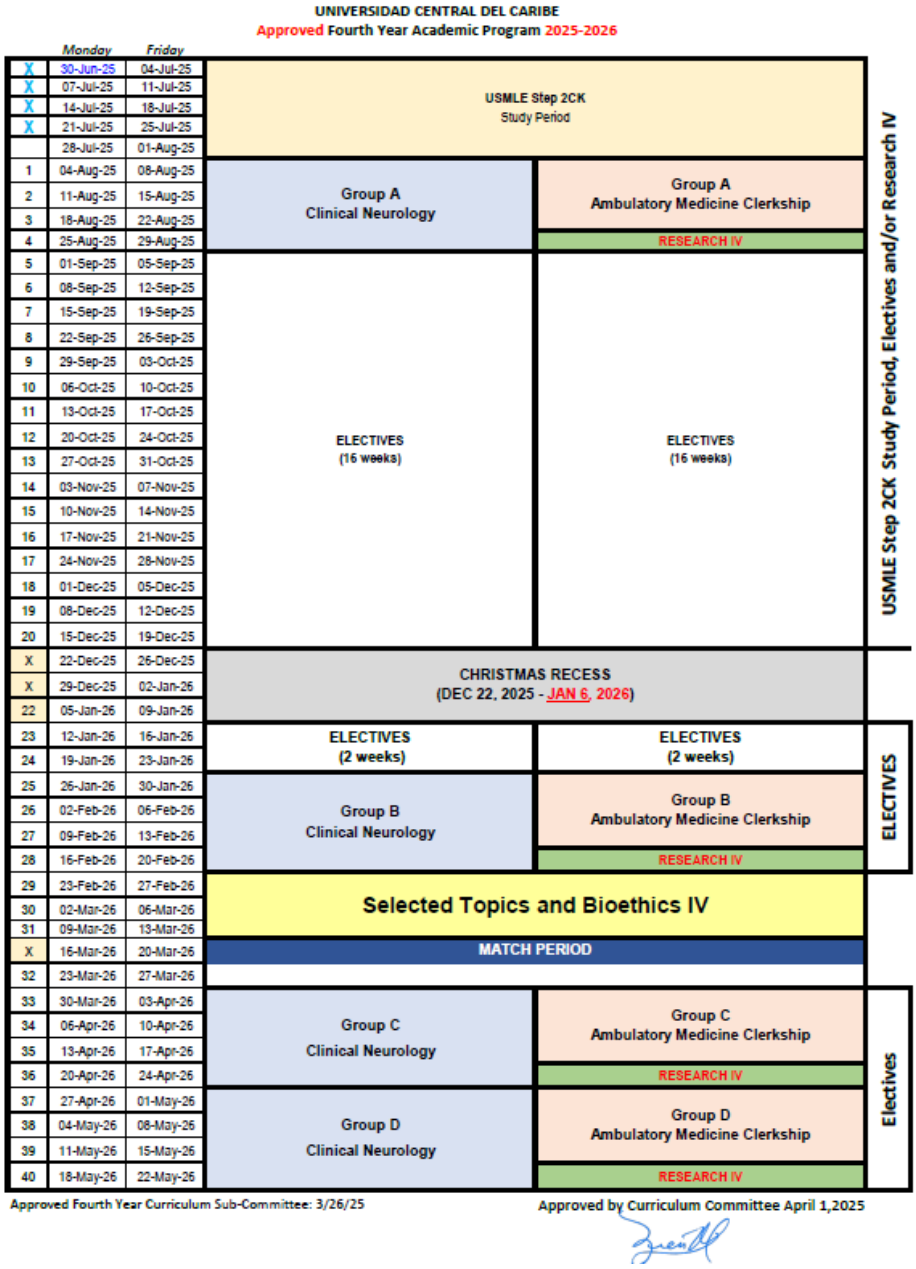
## Third and Fourth-Year Curriculum

The third year is composed of clinical rotations, where students spend most of their time at the hospitals and at different ambulatory settings. The third-year schedule is uniform for all students in terms of experience; however, students have some flexibility in terms of the order in which they take the clerkships. Students spend 7 weeks in Surgery, 7 weeks in Internal Medicine, 5 weeks in Pediatrics, 5 weeks in Psychiatry, 5 weeks in Family Medicine, 5 weeks in Obstetrics/Gynecology, and complete a Research III course. At the end of the third year, students will have a broad understanding of medicine and be ready to further develop and refine their skills in the coming year.

## Figure III - Year III course sequence



## Figure IV - Fourth Year Curriculum




Fourth-year students have required experiences that were specifically designed to address the needs of physicians to practice in the new health environment. Students spend 4 weeks in Ambulatory Medicine and Research, 4 weeks in Clinical Neurology, 2 weeks in Selected Topics and 2 weeks in Bioethics/Humanities in Medicine IV. Students must complete 18 weeks of elective experience. They have ample flexibility in designing their schedule and are encouraged to broaden their learning experiences by sampling areas in which their exposure has been limited.

## Courses of Study

### First Year

| Code | Course Title | Credits |
|---|---|---|
| UCC 635 | Behavioral Sciences I | 2 |
| UCC 510E | Biochemistry and Cell Biology | 9 |
| UCC 514B | Bioethics and Humanities in Medicine I | 1 |
| UCC 503C | Histology | 3 |
| UCC 502 | Human Gross and Developmental Anatomy | 10 |
| UCC 619A | Introduction to Clinical Skills | 2 |
| UCC 590-1C | Longitudinal Primary Care Preceptorship I[1] | 3 |
| UCC 580A | Neuroscience | 5 |
| UCC 530D | Physiology | 7 |
| UCC 515CI | Problem and Evidence Based Medicine I[1] | 2 |
| UCC 505R-II | Research I | 1 |
| | **Total of Credits First Year:** | **45** |

### Second Year

| Code | Course Title | Credits |
|---|---|---|
| UCC 635A | Behavioral Science II | 2 |
| UCC 514C | Bioethics and Humanities in Medicine II | 2 |
| UCC 620D | Clinical Skills II[1] | 3 |
| UCC 590-2A | Longitudinal Primary Care Preceptorship II[1] | 3 |
| UCC 540A | Medical Pharmacology[1] | 6 |
| UCC 520A | Medical Microbiology and Immunology[1] | 9 |
| UCC 553 | Pathology and Mechanism of Disease[1] | 13 |
| UCC 516BI | Problem and Evidence Based Medicine II[1] | 1 |
| UCC 505R-2 | Research II | 2 |
| UCC 615 | Basic Radiology | 1 |
| | **Total of Credits Second Year:** | **42** |

### Third Year

| Code | Course Title | Credits |
|---|---|---|
| UCC 505R-3 | Research III | 2 |
| UCC 670B | Family Medicine Clerkship | 4 |
| UCC 623A | Internal Medicine Clerkship | 6 |
| UCC 660B | Obstetrics-Gynecology Clerkship | 4 |
| UCC 650B | Pediatrics Clerkship | 4 |
| UCC 631B | Psychiatry Clerkship | 4 |
| UCC 640C | Surgery Clerkship | 6 |
| | **Total of Credits Third Year:** | **30** |

### Fourth Year

| Code | Course Title | Credits |
|---|---|---|
| UCC 675 C | Ambulatory Medicine Clerkship | 3 |
| UCC 518 | Bioethics and Humanities in Medicine IV | 2 |
| UCC 595 R-4 | Research IV | 1 |
| UCC 700 | Elective courses (18 weeks) | **N/C** |
| UCC 629A | Neurology | 3 |
| UCC 607 | Selected Topics | 3 |
| | **Total of Credits Fourth Year:** | **12** |
| | **Total Credits:** | **129** |

[1] One-year duration course

## Description of Courses

### First Year

UCC 635 Behavioral Sciences I
2 Credits

This course will introduce the student to key knowledge and skills to (**1**) assess the biological, psychological, and social aspects of their patient's mental health, (**2**) effectively and empathically communicate with patients and other healthcare providers, and (**3**) promote patient self-efficacy and behavior change needed for health promotion, disease prevention, and chronic disease management based on the biopsychosocial model of healthcare and a relationship-centered approach The student will be empowered to analyze and manage complex psychological and social scenarios threatening the general health and well-being of his or her patients, and to accordingly direct their care within the healthcare system.

Topics will include:

1. Normal brain development and physiology are involved in the production of human thoughts, emotions, cognition, and behavior, including sexuality and addictions.
2. Normal childhood developmental milestones.

Common biological, psychological, and social challenges to the maintenance of physical and mental health throughout the life cycle.

UCC 510E Biochemistry and Cell Biology
9 Credits

This course integrates and presents the most important concepts in the five disciplines of human biochemistry, molecular genetics, genetics, molecular cell biology and molecular nutrition. The course is conducted over the first 11 weeks of the fall semester of the first year of medical studies and is divided into three units. The course features 120 scheduled student contact hours of conferences, where the course professors present and discuss with the entire class the most important concepts in each course topic. The course also includes 9 computer-based self-instruction modules (**SIMs**) where students, through direct independent learning, acquire essential knowledge which cannot be presented and discussed at the conferences due to time constraints. The course also features 7 active-learning sessions, the Clinical Application Exercises (**CAEs**), which are clinical case-based small group discussion sessions that apply and reinforce concepts that are learned either in the conferences or in the **SIMs**.

Student knowledge is assessed with three-unit examinations, which are given at the end of each course unit, and a final comprehensive Customized National Board Subject Examination in biochemistry and cell biology at the end of the course.

UCC 514B Bioethics and Humanities in Medicine I
1 Credit

This course will introduce the first-year students to the fundamental issues of bioethics: Principles of bioethics, moral reasoning, and doctor/patient relationship, including veracity, confidentiality, informed consent, and decisional capacity. The contents of this course, along with the contents of the second-year course (bioethical issues concerning the beginning and end of life) constitute the indispensable foundations for the application of bioethical principles in the rotations that will begin on the third year. The bioethics content is complemented and supported by activities and workshops on the medical humanities.

Students participate in action writing and medical narrative workshops led by the medical humanities staff. The educational activities include the discussion of a film using a basic method for the analysis of narratives especially designed for our medical students, and exercises in creative writing and role-playing. These activities will promote in our medical students' lifelong skills such as awareness, concentration, observation, trust, teamwork, empathy, communication, critical thinking, moral reasoning, and imagination.

The student will be assessed with departmental exams, quizzes, and observations of professionalism by faculty staff.

UCC 503C Histology
3 Credits

This course provides fundamental instruction in basic body organization in such a manner as to not only limit the course to a description of the human body from the microscopic and macroscopic points of view, but also give its functional correlation. The Histology course tries to develop an appreciation of the structural organization at the cellular level of the human organism as it correlates to normal function and health. The student will learn to recognize and describe normal histology specimens as well as how to analyze, synthesize, and organize information using high level thinking.

The Histology course teaching strategies encouraged didactic discussions, special research topics, and independent study.

Student learning will be assessed with customized exams, final comprehensive Shelf Exam, clinical correlation, and a self-assessment to promote critical thinking and professionalism

UCC 502 Human Gross and Developmental Anatomy
10 Credits

This course surveys the regional, functional, and developmental anatomy of the human body with emphasis on the anatomical correlations of clinical medicine. The study and visualization of the different components of the human body is accomplished through complete dissection and prosections of the human body in the following sequence: back, upper and lower limbs, thorax, abdomen, pelvis and perineum, and head and neck.

The lecture series has been designed to enliven the descriptive and topographic aspects of the lab work by including such topics as: (**1**) the biomechanics of the locomotor apparatus; (**2**) the morphological principles of respiration, circulation, digestion, reproduction, and other physiological processes; (**3**) the clinically relevant landmarks of surface anatomy; and (**4**) case studies in clinical and surgical anatomy. Special attention is given to the principles of building a broad medical vocabulary.

Laboratory sessions include traditional prosections-dissection work correlated with the study of radiological anatomy (including modern methods of imaging), cross-sectional anatomy, surface–projection anatomy, and some principles of physical examination.

Different learning strategies are used to evaluate the performance of the students, such as written exams, laboratory exams, identifying structures in the human cadaver and computer images, and the National Board of Medical Examiners Subject Exam.

UCC 619A Introduction to Clinical Skills
2 Credits

The Clinical Skills course will focus on preparing the student to perform an organized, thorough physical examination, history, and case presentation. The student will learn to select elements of the complete examination for application in problem specific situations. Topics will be arranged as a systems basis and will parallel systems covered in the Human Gross and Developmental Anatomy course. It is important for the student to understand the relationship between material presented in this course and that covered in parallel courses. Material presented in one area should be recognized as complementary too and not apart from that presented in other areas. Educational strategies used in this course are lectures and laboratories. This course will be graded as pass or fail and the students will be assessed using the following strategies: departmental exams, conferences and laboratories attendance, and Objective Structured Clinical Examination (**OSCE**).

UCC 590-1C Longitudinal Primary Care Preceptorship I
3 Credits

This course is multidisciplinary in nature and exposes the students to innovative learning and service methods. The students will learn and apply the care concepts of primary medicine by means of 3 different approaches:

1. Lectures: Students will be exposed to basic concepts of medicine, public health, and social issues related to clinical conditions.
2. Preceptorship: Students will learn by experience the role of a primary care physician and the community factors that impact on health and delivery of health care. Students will learn by literature review and practice how to communicate successfully with varied groups of people; to work in a multidisciplinary team; and to understand different health care delivery systems.
3. Community Intervention: We will introduce students to the field of urban and community medicine. Our students will develop knowledge, professional skills, and strategies in health promotion, disease prevention and public health issues, to modify unhealthy lifestyles that affect their performance and the relation with the community.

Student learning will be assessed with departmental exams, community interventions, quizzes, portfolio, and professional behavior.

UCC 580A Neuroscience
5 Credits

Neuroscience is a multidisciplinary course integrating the areas of anatomy, biochemistry, physiology, pharmacology, neurology, neuroradiology, neurosurgery and neuropathology. All these areas have been experiencing a revolution due to the conceptual and technological advancements of cellular and molecular biology, imaging of the living brain, and other advances. These new approaches, together with classical ones, have allowed us to develop a more comprehensive view of the overall complex interaction of the peripheral and central nervous tissue.

In the development of the topics, the students will discuss information ranging from the basic ultrastructural level to establishing neurophysiological and cellular correlations of behavior. The order of presentation of the topics is intended to provide the student with the morphological information required to understand the physiological and pathological processes related to the nervous system. The clinical correlation sessions, presented by neurologists and neuroradiologists, will serve the latter goal. At the end the student will also be introduced to a new avenue in neuroscience delineated by the development of non-invasive approaches and instruments for the in vivo study and analysis of brain tissue, such as: magnetic resonance imaging (**MRI**); computer assisted tomography (**CT**); proton emission tomography (**PET**) scans, electro-encephalogram (**EEG**), polysomnograms, **EMG** and evoked potentials.

The educational strategies include lectures, laboratories, and small and large group discussions. Student learning assessment is based on partial and practical computer-based examinations using the **LXR** testing program. In addition, written and oral quizzes, sometimes including “Clickers”, are incorporated both as formative as well as summative strategies.

UCC 530D Physiology
7 Credits

This course will present the current biological, chemical, and physical concepts underlying the normal function of organ systems. The topics to be presented during the lectures will include the physiology of muscle tissues and that pertaining to the process of hemostasis and cardiovascular, respiratory, renal, gastrointestinal, endocrine, and reproductive systems. A short review of basic concepts of cellular physiology and the foundations of acid/base disorders will also be discussed.

The educational activities will include the use of lectures, small group discussion sessions, clinical correlations, and group discussions. The course will also include small group discussion sessions in which a stronger student-faculty interaction will be established.

Student learning assessment will include partial examinations plus bonus questions, **NBME** subject exam, and extra work points.

UCC 515CI Problem and Evidence Based Medicine I
2 Credits

This course will expose students to patient simulations in a problem and evidence- based, student-centered approach. The content of the cases will be based on the topics covered in the other first-year courses, thus helping to integrate knowledge from basic and clinical sciences.

This educational methodology will help students develop more responsibility for their own learning, for it is the group of students who determine what they need to learn to understand the patient's problems. The class will be divided into groups of 8-9 students, and a format of small group discussion will be followed. There will also be a facilitator who is a member of the faculty. Sequential simulations of patients' problems will be presented. Three sessions will be spent on each simulation. The students will take responsibility for the discussion of the problem, identifying what they need to know to better understand and manage the problem, and determining what resources they will use to acquire new information. Each student will be responsible for looking up some part of the information needed and will prepare a report on it. This report will be presented to the rest of the group in the next session.

At the end of each course session, students will evaluate the day's dynamic using the **PEBM** Session Evaluation Form. Students will reflect on the group's as well as their own participation, collaboration, and overall contribution to the analysis of the case. The facilitator will provide formative written feedback to each student after the first, third, fifth and sixth case. Students will receive summative written feedback at the end of the course, with the final grade.

UCC 505R-II Research I
1 Credit

The Research I course is a fifteen-hour course designed to provide first-year medical students with basic principles of clinical and translational research. The course topics include how research is conducted, evaluated, explained to participants, and applied to patient care. Students are expected to discuss ethical and legal issues of research as well. Lectures by invited faculty and other teaching strategies are used in the course. This is a pass or fail course, evaluated with quizzes, classroom exercises, and a concept map.

## Second Year

UCC 635A Behavioral Sciences II
2 Credits

The course will provide the medical student with the necessary knowledge and clinical skills to perform a complete psychiatric evaluation, including mental status exam, and to identify the main pathological manifestations of mental health, and initiate standard-of-care somatic and psychological treatments. The course will feature experienced faculty specialized in the conditions and therapies to be covered, using as reference the course's primary textbook, Kaplan & Sadock's *Synopsis of Psychiatry*, 10th edition, and the NBME Behavioral Science Review Series. We will also organize the course sections and chapters, as well as study the most recent principal diagnostic changes, in accordance with the *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (**DSM-5**).

Each faculty member will utilize the necessary teaching strategies to promote the acquisition of the stated course goals and objectives, choosing among the following methods: lectures, textbook and handouts (readings), vignettes (case discussions), role playing (simulated experiences), **PRS** questions and answers (problem solving and practice exam questions), and discussion board, deemed most appropriate.

Student assessment will depend upon the teaching strategies chosen by the faculty member.

UCC 514C Bioethics and Humanities in Medicine II
2 Credits

This course is devoted to the beginning and the end of life. The following topics are presented and discussed during the second year of Bioethics and Medical Humanities:

1. Bioethical issues concerning the beginning and the end of life.
2. Bioethical issues concerning the treatment of fetus, newborns, infants, and children.
3. Bioethical issues concerning end of life care.
4. Bioethical issues concerning euthanasia and assisted suicide.

The teaching strategies include lectures, reading assignments, large group discussions, and individualized learning.

Student learning will be assessed using written examinations, summative quizzes, attendance, and participation in humanities workshops, and demonstrating professionalism in activities.

UCC 620D Clinical Skills II
3 Credits

The emphasis on this course is to provide students with rational, effective, practice-based/systems-based learning, and thorough approach to history and physical examination. Topics are arranged as a system-based and parallel systems covered in other concurrent courses. Structured observation using real and standardized patients are used for formative as well as summative evaluations. An Objective Structured Clinical Examination (**OSCE**) is given as a final practical exam.

UCC 590-2A Longitudinal Primary Care Preceptorship II
3 Credits

This course is multidisciplinary in nature and exposes the students to innovative learning and service methods. We use lectures and case presentations as learning strategies. The cases presentations will be organized in a manner that the topic correlates clearly with the ones discussed in the year's courses. It serves as an integration activity of the different concepts related to the discussed themes in these presentations. In this course the student will be exposed to several medical conditions throughout the academic year. It will be organized as experiences obtained in the case presentations and community interventions as well as through longitudinal experience in the preceptorship. In this activity the student will have as a guide a list of medical topics which correlate with the most common conditions seen in the clinical primary scenario. The student would be assigned as well: family medicine, internal medicine, pediatrics, and ob-gyn. In this course the student will also be exposed to fundamental concepts of epidemiology and biostatistics, which will introduce them to an important area of the medical investigation and research.

The students' assessments will include case presentations, written homework and quizzes, evaluations and portfolio, community interventions, **OSCE**, comprehensive basic science exam, and observed professionalism.

UCC 540A Medical Pharmacology
6 Credits

In this course, students in the second year of the Medicine Program will acquire comprehensive knowledge of pharmacodynamics, pharmacokinetics, and pharmacogenetics principles, as well as the clinical applications, adverse effects, toxicities, and drug interactions relevant to the diagnosis, prevention, and treatment of diseases. The curriculum covers general pharmacological principles, drug effects on human organ systems, treatment of infectious diseases, cancer chemotherapy, immunopharmacology principles, and clinical toxicology. The course teaching methods include lectures, independent study, and group discussions. The student's learning will be assessed through written exams, quizzes, case presentations, discussions, a final **NBME** subject exam, and an evaluation of professionalism.

UCC 520A Medical Microbiology and Immunology
9 Credits

Medical Microbiology and Immunology is a full academic year course in pathogenic microbiology and immunology designed to provide the basic concepts required for all subsequent pre-clinical and clinical studies dealing with infectious diseases. The course is divided into medical immunology, virology, cell & molecular microbiology, bacteriology, including bacterial physiology and genetics, mycology, and parasitology. Teaching/ learning methods/strategies used to enable the achievement of learning outcomes are lectures, laboratory practices, small/large group discussions, and clinical correlations.

The faculty makes appropriate correlations between fundamental principles of medical microbiology and infectious processes, although emphasis is placed on the understanding of basic principles needed now as a student and in the future as a practicing physician. Assessment methods, which enable students to demonstrate the learning outcomes, are surveys/polls in Microsoft TEAMS, learning check assessments, and quizzes using **FORMS**.

The course integrates microbiology, infectious diseases, and antimicrobial pharmacology. Content covers pathogenic microorganisms (**bacteria, viruses, fungi, and parasites**), host-pathogen interactions, microbial virulence determinants, host immune responses, signs and symptoms of disease presentation, epidemiology, laboratory diagnosis, prevention (vaccines), and therapy (**antimicrobials**). An essential component of the course is the relationship between substance abuse and the impact on infectious diseases (e.g., **HIV/AIDS, STDs, hepatitis, tuberculosis, endocarditis, and skin infections**).

Assessment strategies include **NBME** Subject examination, laboratory quizzes, collaborative case discussion, outside classroom assessment, clinical case discussion board, and professionalism.

UCC 553 Pathology and Mechanism of Disease
13 Credits

This course presents all aspects of the development of disease, with special reference to the causes and their development, as well as the structural and functional changes in cells and organs that result from the disease process. It is offered longitudinally throughout the academic year. It consists of lectures, as well as large and small group discussions. It also includes activities with interactive computer programs and clinical correlation. The grading methodology will include integrated partial exams, formative and summative quizzes, small group clinical case discussions, professionalism, active participation, and a final exam (**NBST**).

UCC 516 B I Problem and Evidence Based Medicine II
1 Credit

In this course, the students will be exposed to patient simulations in a problem-based, student-centered, and evidence-based approach. This educational methodology will help students develop more responsibility for their own learning, for it is the group of students who determines what they need to learn to better understand the patient's problems. The content of the simulations will be based on the topics covered in the second-year courses (**Pathology/ Mechanism of Disease, Microbiology, Psychopathology, Behavioral Sciences and Clinical Skills**) as well as content from the first-year courses (**Anatomy, Neuroscience, Physiology**). The simulations are designed to promote the integration of knowledge from clinical and basic sciences disciplines.

Educational strategy: The class will be divided into groups of eight to nine students, and a format of small group discussion will be followed. There will also be a facilitator who is a member of the faculty. Sequential simulations of patient problems will be presented. Three sessions will be spent on each simulation. The students will take responsibility for the discussion of the problem, identifying what they need to know to better understand and manage the problem, and determining what resources they will use to acquire new information. Each student will be responsible for looking up some part of the information needed and will prepare a report on it. This report will be presented to the rest of the group in the next session. The course will incorporate the concepts of **PICO** questions as well as the searching of empirical evidence from peer- reviewed sources.

The students will be evaluated by participating in the discussion, development of skills, attitudes, and attendance.

UCC 505R-2 Research II
2 Credits

The Research II course is a course designed to provide second-year medical students with basic principles of clinical and translational research, including research article evaluation through journal clubs. These exercises include developing critical thinking skills to critically read, understand, and discuss scientific literature. These activities are intended to promote a high degree of preparation for discussion of specific papers, their results, and the implications. Journal club presentations about each system are presented by the students. Lectures by invited faculty and other teaching strategies are used in the course. This is a pass or fail course, evaluated with quizzes, classroom exercises, and journal club presentation.

UCC 615 Basic Radiology
1 Credit

The course will offer the student an opportunity to observe how radiology contributes to patient care. It is hoped that the student will acquire an appreciation for the various imaging modalities and their application to the evaluation of multiple diseases. In medicine, the discipline of radiology plays a crucial role in the diagnosis and treatment of disease. Imaging and image-guided therapy will play an integral role in medical practice. In addition to learning about the strengths and limitations of different imaging studies, students will be able to relate abnormal radiologic findings to pathophysiology with logic and confidence. This will lead to a more efficient imaging work-up of the patient.

The course provides, through slide presentations, plain films of the chest, abdomen, skull, and extremities. In addition, computerized tomography, sonogram, **MRI**, and contrast studies: **IVP**, **UGIS**, **ERCP**, oral cholecystogram, etc., will be presented as part of the diagnostic option in the medical field. Special attention is given to correlate film interpretation with clinical finding appropriateness criteria.

The student learning will be assessed using lectures, film interpretations, and discussion, and partial and summative examinations.

## Third Year

UCC 505R-3 Research III
2 Credits
Research III is a 24-hour course designed to refresh third-year medicine students' research knowledge and skills including: (**1**) principles of problem definition and hypothesis construction; (**2**) how to review the literature; (**3**) logic of research design and statistics; (**4**) rationale and procedures for generating and documenting data; (**5**) fundamentals of writing a protocol; and (**6**) guidelines for assembling and interpreting results. The course will require 4 face-to-face encounters with mentors to enhance students' critical thinking skills. The course is a Pass (**P**) or Fail (**F**) course; it is evaluated with the development of a research project and an oral presentation.

UCC 650B Pediatrics Clerkship
4 Credits
The pediatric clerkship experience introduces the student to a unique, complex, and challenging field of medicine. It emphasizes those aspects of general pediatrics important for all medical students and will provide a foundation for those students who elect to further study the health care of infants, children, and adolescents. Students have the opportunity to participate in the clinical activities of both general and subspecialty pediatric services, but the emphasis in all services is placed on basic general pediatrics, common illnesses, and professional, ethical, and cultural issues. Subspecialists have the opportunity to emphasize aspects of their particular area of focus that are important for the education of the general physician. As one of the core clerkships during the third year of medical school, pediatrics shares with family medicine, internal medicine, obstetrics/gynecology, psychiatry, and surgery the common responsibility to teach the knowledge, skills, and attitudes basic to the development of a competent general physician.

Educational strategies developed in this course are lectures, morning reports, and teaching rounds and rotations.

The students will be evaluated using the following strategies: clinical skills, departmental exams, and National Board Subject Examination.

UCC 660B Obstetrics and Gynecology Clerkship
4 Credits
Students will be exposed to obstetrical and gynecological experiences under supervision. The class is divided into small groups assigned to the gynecology service, the normal and complicated obstetrics service, the labor room and emergency service, and the outpatient clinics. At these stations, they will rotate for a period of four (**4**) weeks with responsibility for admission of patient, history and physical examination, daily rounds, follow-up of patients, attendance at surgical procedures, post-operative care, and discharge summary. Notably, at these stations, the daily work will be supervised by full-time instructors. The students should read and be familiar with the material related to their cases, and be able to present and discuss their cases in daily rounds as well as with the assigned attending.

Educational strategies developed in this course are lectures, morning reports, and teaching rounds and rotations.

The students will be evaluated using the following strategies: clinical skills, departmental exams, and National Board Subject Examination.

UCC 623A Internal Medicine Clerkship
6 Credits

The Internal Medicine Clinical clerkship is designed to provide for students to obtain the knowledge, skills, and attitudes that will enable them to recognize, diagnose, prevent and either manage or recommend courses of management in the most frequently encountered problems and disease entities related to the field of internal medicine. In this clerkship, the student will: (**1**) Describe and explain etiology, pathogenesis, symptoms, and signs, likely diagnoses, prognosis, and treatment of the medical problems in the field of medicine, (**2**) Establish a reasonable differential diagnosis as well as identify and interpret the essential laboratory test and other procedures necessary to compliments his/her clinical observations, for the management of and to make recommendations concerning management of a condition, (**3**) Perform laboratory tests done by physicians, and (**4**) Analyze all the data collected on the record and outline the salient features for the establishment of a reasonable management program.

The student will acquire the knowledge, clinical skills, and professional behavior necessary to evaluate and care for patients in a comprehensive manner. The students participate in outpatient clinics, direct patient care, group discussion sessions, and clinical procedures.

Educational strategies developed in this course are lectures, morning reports, and teaching rounds and rotations.

The students will be evaluated using the following strategies: clinical skills, departmental exams, and National Board Subject Examination.

UCC 640C Surgery Clerkship
6 Credits

The surgical clerkship introduces the medical student to the complex, unique and demanding world of general surgery and its subspecialties. General surgical principles, the evaluation and initial analysis and management concepts of the patient are explored. This course is designed to familiarize medical students with the clinical presentation (**history and physical examination**), diagnostic process, and management of medical-surgical problems. Students will go through the process of learning theoretical aspects of surgery and their practical application in this rapidly evolving field of medicine. This course will aid in the development of the behavioral, professional, and ethical traits expected of a complete, culturally aware and competent physician. These include but are not limited to reliability, trust, worthiness, perseverance, intellectual honesty, self-evaluation, punctuality, efficiency, organization of time, appropriate appearance, good habits, neatness, and appropriate interaction with staff, patients, and peers.

The students will have scheduled conferences by selected general and subspecialty surgeons. These will be supplemented by audiovisual, computer assisted teaching, suture technique laboratory exercises, clinical skills laboratory, clinical case exposures, and electronic internet database programs. Students will also have clinical rotations through the clinics, wards, operating rooms, peer review sessions, and doctor practices in which they will get involved with the diagnostic process at every level (**initial evaluations, consultations, pre-op, intra-op and post-op care of patients**).

The clerks will meet with the coordinator and proctors for feedback and feedback on the progress of the clerkship, deficiency corrections, evaluations, case analysis and presentations, log reviews, on-call log reviews, and **OSCE** deficiency reviews

UCC 631B Psychiatry Clerkship
4 Credits

This clerkship provides the third-year medical student with a review of 27 topics in clinical psychiatry as well as the opportunity to evaluate patients for diagnosis and treatment both in the general hospital and psychiatric hospital setting; 24 hours of group discussion and 24 hours in patient contact complete the course work.

Educational strategies developed in this course are lectures, morning reports, and teaching rounds and rotations.

The students will be evaluated using the following strategies: clinical skills, departmental exams, and National Board Subject Examination.

UCC 670B Family Medicine Clerkship
4 Credits

This clerkship gives the third-year medical students an opportunity to practice under the supervision of a family physician in outpatient settings mostly located in the metropolitan area or in adjacent towns in Puerto Rico. The main emphasis is on acquiring knowledge and skills in assessing and managing common health problems (**listed below**) among both adults and children. The students provide continuous care for families, emphasizing prevention, patient education, and health promotion.

During this experience, the student is exposed to the main procedures performed in primary care. Close attention is given to clinical experiences to assure consistency in meeting the educational objectives of the clerkship. Every preceptor has a copy of the syllabus, which contains the clerkship objectives and evaluation forms (**Clinical Tool Kit**). The educational strategies developed in this course are lectures, daily case presentations, clinical discussions, ethics group case discussion, and home visits.

The students are evaluated using the following strategies: oral presentations, clinical case presentations, **OSCE**, departmental examinations, patient encounter, one exam, one quiz, and the daily performance evaluation given by the preceptor, as well as the National Board Subject Examination.

All student work-up is supervised, discussed, and countersigned by the attending physician. Patient logbooks are evaluated at mid rotation to identify the diagnoses that the students need to be exposed to guarantee the clerkship requirements were accomplished. Written feedback is obtained from the students about the various clinical sites and the preceptors. Each student must provide evidence of at least fifty (**50**) different outpatient encounter evaluations.

## Fourth Year

UCC 518 Bioethics and Humanities in Medicine IV
2 Credits

This course focuses on the discussion of the following topics: bioethical issues concerning the clinical encounter between the patient and the physician: virtuosity in the physician, veracity, confidentiality, patient's autonomy, informed consent, communicating bad news, understanding culture in health and disease, and the physician's role as advocate.

The presentation and discussion of these bioethical issues will be done through introductory lectures and the production of a short video (**5 minutes**) by the students, about a conflictive ethical situation in the clinical setting.

Through this exercise, the students will engage in a different and unusual kind of approach to the application of ethical principles. They will exercise their creativity as they search for ways to express themselves in a non-traditional form of communication in their professional environment. Students will also exercise their sensibility by identifying and thoroughly understanding the ethical conflict of the case they choose to create, to translate the conflict from words to flesh by giving life to a set of characters in a particular situation. They will also learn about assuming responsibilities as part of a team in unusual settings. Finally, they will exercise their sense of responsibility and commitment to medical education, contributing to the development of educational materials that will be used by new students.

UCC 675A Ambulatory Medicine
3 Credits

The duration of the rotation is three weeks. This clerkship emphasizes training in ambulatory care knowledge and skills in medical offices or outpatient clinics. A major part of the student's time is spent in clinical practice with a faculty preceptor in pediatrics, internal medicine, family medicine, or other non-primary specialties that offer ambulatory care. Students also attend teaching sessions for workshops and topic presentations on a variety of themes relevant to the ambulatory practice. The student will emphasize and be familiar with the ICD-10 codes associated with the most common diagnoses evaluated at clinics. The outpatient encounters' progress notes need to be discussed to align their content with the established CPT codes for visits. Also, the student must be familiar with cases of main and secondary diagnoses to make an adequate order of laboratories and studies to be ordered in a case and document its justification according to the established CPT codes.

UCC 700 Electives
18 weeks required

Elective courses are offered in scheduled periods throughout the student's fourth year. These electives are available for students who have satisfactorily completed the specific prerequisites. Students at the **UCC** School of Medicine are required to complete 18 weeks in elective courses. At the **UCC**, elective courses are available in a 4-week period, unless otherwise specified.

To take electives outside the **UCC**, at any school of medicine's affiliated institutions, either in Puerto Rico or in the United States, the student must be in good academic standing and have the approval of the **UCC** department's chairperson. A catalogue with a full description of the elective courses offered is available at the **UCC** Library.

UCC 629A Neurology
3 Credits

The Clinical Neurology clerkship integrates those experiences learned during these past three medical years. It exposes students to a broader gamut of neurological disorders, foremost those apt to be seen in the outpatient setting. Students evaluate neurological patients under the supervision of neurologists in clinical practice. This represents an enriching and invaluable experience for the students, regardless of the medical specialty they eventually pursue.

Learning clinical neurology can be real fun – provided the proper techniques are applied. This course comprises several educational workshops, such as: The Clinical Lectures, the Ambulatory Neurology Rotations, and three Competencies (**1**) Lumbar Puncture and Spinal Fluid Dynamics, (**2**) Patient with Impaired State of Consciousness and Patient with Acute Neuromuscular Weakness, and (**3**) **S.O.A.P.R**. and Diagnostic Work-Up.

Students will be evaluated on their performance, lumbar puncture skills, evaluation of the unresponsive patient, and **S.O.A.P.R**. diagnostic work-up.

UCC 607 Selected Topics
3 Credits

This course was designed for fourth-year medical students with the purpose of presenting those topics necessary to fulfill his/her professional training in accordance with the new tendencies or modalities in medicine. This required three-week experience aims to expose medical students to the most prevalent forms of medical care. This is a student-centered course focusing on preparing the student for successful postgraduate training. Topics to be discussed will be presented by a guest speaker and the students will then participate in an active educational experience.

# School of Chiropractic

# DOCTOR OF CHIROPRACTIC PROGRAM

Eugene C. Spilker, DC, DHPE
Dean, School of Chiropractic

Kimberleve Rolón, PhD, MHA
Director of Academic Affairs and Basic Sciences

Lyliana Crespo Nazario, DHSc, MAES
Director of Clinical Research

Noelia Ortiz, DC, MBA
Clinical Director

María García, DC
Director Clinical Years Curriculum

Fernanda Bonilla, DC
Year Director, Basic Sciences Curriculum 1

Vacant
Year Director, Basic Sciences Curriculum 2

Janisse Salas Luciano, MEd
Student Learning Outcomes Assessment Coordinator

Minerva Morales, MOC
Licensed Professional Counselor

# Mission, Vision and Scope

## Mission

To educate highly qualified, caring, and committed Doctor of Chiropractic (**DC**) to serve as primary wellness healthcare providers and promoters of evidence-based integrative practices.

## Vision

**UCCSOC** will be recognized as the gold standard institution for interprofessional collaboration in allopathic and integrative medicine, with the finest education and training of healthcare professionals, through innovative teaching methods and clinical experience in preventive medicine, chiropractic treatment, and wellness healthcare.

*Core Values*

- Excellence
- Integrity and Leadership
- Evidence-Based Driven
- Innovation
- Patient-Focused
- Respect and Collegiality
- Respect for the Dignity of All Human Beings

# Educational Goals and Objectives

## Program Objectives

1. Students will demonstrate appropriate knowledge of the history and principles of chiropractic as a separate and distinct health care specialty profession.
2. Students will demonstrate an understanding of the principles of the synergetic relationship between the musculoskeletal structures and neurological and physiological functions of the human body.
3. Students will demonstrate the ability to critically appraise scientific information to document and improve chiropractic healthcare practices.
4. Students will demonstrate competence in clinical skills eliciting patient history, performing examination procedures, and ordering pertinent laboratory/imaging tests to elaborate a diagnosis and assess the need for chiropractic care and/or further appropriate interprofessional management plans with the proper health record documentation.
5. Students will demonstrate the ability to guide patients and communities appropriately regarding healthy lifestyles, as well as the maintenance and promotion of health.
6. Students will show understanding and rigorous implementation of all standards of professional ethics and jurisprudence as well as further professional development.
7. Students will understand the research design and methodologies to further develop research protocols to contribute positively to the chiropractic profession, healthcare knowledge and practices, and patient and community wellbeing.
8. Students will demonstrate an understanding of the role of the community in the individual health status by actively participating in outreach activities.
9. Students will demonstrate clinical confidence in evaluating, treating, and co-managing the most frequent musculoskeletal pain pathologies.

# Educational Program

## DC Program Description

The academic program conducive to a Doctor of Chiropractic (**DC**) degree of the Universidad Central del Caribe, combines a solid foundation in basic sciences and clinical skills, together with an in-depth immersion into the evidence-based chiropractic field. The student will have access to cutting edge biomechanic laboratories, a state-of-the-art manipulation instructional setting, a clinical skills development center including high fidelity simulators and standardized patients, and experiences in different healthcare facilities that support teamwork among the health professionals. The **DC** program is a rigorous eight academic semester doctoral program that can be completed in eight semesters or four years.

Throughout the basic science courses, the curriculum has been organized to allow the student to integrate all disciplines' content around organ systems and in the context of a patient case scenario. The clinical experiences combine hospital, ambulatory healthcare and community settings where the student can build up the sense of being part of the healthcare team.

**UCC** Doctor of Chiropractic students are educated in a holistic approach to health care and wellness, which includes clinical reasoning, adjusting skills and therapeutics, rehabilitation, community support, functional nutrition, and lifestyle management.

Research and critical appraisal of evidence bring a solid base to the modern chiropractic professional, thus the **UCC** Doctor of Chiropractic program utilizes strong courses that support this practice with incorporation of evidence-based practice skills among all other learning experiences. The student will be capable of developing a research proposal or collaborating with other professionals in the bench, clinical, or community environment.

The **UCC** Doctor of Chiropractic program emphasizes the preventive role of the profession in maintaining the individual and community health status through emphasis on public health, functional nutrition, and lifestyle, where the students learn while providing community service to different populations.

The program highlights the role of the chiropractor as a spine care expert contributing to the initiatives to ease the pain killer crisis in the national scenario.

The **DC** program is oriented to develop a professional dedicated to the patient and the community, offering the best chiropractic evidence-based healthcare in an interprofessional collaboration with the highest standards of professional ethics.

## Doctor of Chiropractic Program Meta-Competencies

1. Assessment and diagnosis
2. Management
3. Health promotion and disease prevention
4. Communication and record keeping
5. Professional ethics and jurisprudence
6. Cultural competency
7. Chiropractic adjustment/manipulation
8. Interprofessional education
9. Knowledge for practice
10. Systems-based practice and professional development

## Courses of Study

### First Year

| Code | Course Title | Credits |
|---|---|---|
| DCAN101 | Human Gross and Developmental Anatomy | 11 |
| DCBC101 | Biochemistry and Cell Biology | 11 |
| DCCH101 | Principles of Chiropractic I : History, Philosophy, and Theory | 2 |
| DCCH112 | Principles of Chiropractic II: Static and Motion Palpation | 3 |
| DCCH113 | Principles of Chiropractic III: Spinal Manipulation Thoracic Region | 3 |
| DCDI101 | Diagnostic Imaging I: Normal Anatomy and Patient Positioning | 1 |
| DCET101 | Bioethics and Humanities I | 1 |
| DCHI101 | Histology | 4 |
| DCCS101 | Introduction to Clinical Skills | 2 |
| DCNE101 | Neurosciences | 5 |
| DCPB101 | Problem Based Learning I | 1 |
| DCPH101 | Public Health & Wellness | 2 |
| DCPY101 | Physiology | 5 |
| DCRE101 | Introduction to Research | 1 |
| DCRE102 | Translational Research | 1 |
| | **Total of Credits First Year:** | **53** |

### Second Year

| Code | Course Title | Credits |
|---|---|---|
| DCAN202 | Advanced Anatomy | 10 |
| DCBE201 | Behavioral Medicine | 2 |
| DCCC201 | Chiropractic Preceptorship I | 1 |
| DCCC202 | Chiropractic Preceptorship II | 1 |
| DCCD201 | Clinical Diagnosis I | 3 |
| DCCH214 | Principles of Chiropractic IV: Spinal Manipulation Lumbar and Lumbo-Pelvic Region | 3 |
| DCCH215 | Principles of Chiropractic V: Manipulation Occiput, Cervical, CT and TMJ | 3 |
| DCCH216 | Principles of Chiropractic VI: Spine, Pelvis, and Extremities | 3 |
| DCDI202 | Diagnostic Imaging II | 1 |
| DCET202 | Bioethics and Humanities II | 1 |
| DCMI201 | Microbiology and Immunology | 8 |
| DCPB202 | Problem Based Learning II | 1 |
| DCPR201 | Pharmacology | 4 |
| DCPH202 | Lifestyle Diseases and Risk Reduction | 1 |
| DCPM201 | Pathology and Mechanism of Disease | 12 |
| DCRE203 | Research in Complementary/ Alternative Healthcare | 1 |
| DCDD201 | Differential Diagnosis | 4 |
| | **Total of Credits Second Year:** | **59** |

## Third Year

| Code | Course Title | Credits |
|---|---|---|
| DCCC303 | Chiropractic Clinic I | 2 |
| DCCC313 | Chiropractic Clinic II | 2 |
| DCCH307 | Principles of Chiropractic VII: Physiotherapy and Exercise in Chiropractic Rehabilitation | 5 |
| DCCC304 | Pediatrics and OBGYN | 4 |
| DCCC305 | Family Medicine | 4 |
| DCCC306 | Neurology | 4 |
| DCCC307 | Physical Medicine & Rehabilitation | 4 |
| DCCC308 | Spine Surgery | 4 |
| DCCD302 | Clinical Diagnosis II: Orthopedics and Neurology | 5 |
| DCCH308 | Principles of Chiropractic VIII: Advanced Chiropractic Techniques | 3 |
| DCDI303 | Diagnostic Imaging III: Bone and Joint | 3 |
| DCDI304 | Diagnostic Imaging IV: Advanced Imaging | 3 |
| DCEB301 | Evidence Based Chiropractic Care I | 1 |
| DCEB302 | Evidence Based Chiropractic Care II | 1 |
| DCFU311 | Functional Approach to Basic Nutrition Therapy | 3 |
| DCPH303 | Wellness in the Community | 1 |
| DCFU312 | Nutritional Therapy in the Chiropractic Practice | 2 |
| | **Total of Credits Third Year:** | **51** |

## Fourth Year

| Code | Course Title | Credits |
|---|---|---|
| DCBU401 | Mastering Your Business | 4 |
| DCCC409 | Patient Safety and Continuous Quality Improvement | 2 |
| DCCC410 | Integrative Approach to Pain Management | 2 |
| DCCC401 | Clinical Rotation I | 9 |
| DCCC402 | Clinical Rotations II | 14 |
| DCCC403 | Electives | 4 |
| DCCH409 | Principles of Chiropractic IX | 4 |
| DCCH410 | Functional Chiropractic Neurorehabilitation | 3 |
| DCEB403 | Evidence Based Chiropractic Care III | 1 |
| DCSM 401 | Chiropractic Sports Medicine, and Fitness Counseling | 3 |
| | **Total of Credits Fourth Year:** | **46** |
| | **Total Credits:** | **209** |

## Description of Courses

### First Year

DCBC101 Biochemistry and Cell Biology
11 Credits

The Biochemistry and Cell Biology for Chiropractic Students course integrates the five disciplines of biochemistry, molecular genetics, genetics, molecular cell biology and molecular nutrition and presents the most important concepts of each. The course is conducted over 10 weeks in the Fall semester of the first year of chiropractic studies and is divided into 3 units. The course features 198 scheduled student contact hours of conferences. In these classes, the course professors present important concepts and include case study correlations chosen to illustrate these concepts. The presenting professors are encouraged to promote student interaction so that these conferences are not overly didactic in nature. The course includes active-learning sessions and independent learning study sessions. The active learning sessions are case-based small group discussions to apply and reinforce concepts that are learned in the conferences. As part of the independent study sessions students must read articles or any assigned reading material. Student knowledge is evaluated with 3-unit examinations and a comprehensive final examination.

DCAN101 Human Gross and Developmental Anatomy
11 Credits

This course will survey the regional, functional, and developmental anatomy of the human body with emphasis on clinical correlations. This course will incorporate lectures, dissection, case studies, self-study, and peer study. You will also receive some exposure to medical imaging and will have use of a virtual dissection program (**VH Dissector Pro**, **SECTRA**) in the lab. In addition, the course will be paired with concurrent histology and physiology courses, as well as chiropractic and clinically oriented courses, so that you obtain an integrated understanding of anatomical function.

DCCH101 Principles of Chiropractic I: History, Philosophy, and Theory
2 Credits

This course will introduce the student to the historical background, the philosophy of its foundation and the theories of the vertebral subluxation complex (**VSC**). The course will follow a chronological succession of the events following the invention by **DD** Palmer of the concept known as chiropractic and the follow up progression to legitimize it. A historical overview of the profession will be taught to ensure that the students understand the myths, prejudice, and future of our young profession. The course will also cover in detail the philosophical view, which has distinguished us from the allopathic community, and how it has been challenged lately. An overview will be given of the challenges that we have as health providers, the socioeconomic impact of our profession in Puerto Rico and its background history, from the pioneers to the present, and how it has developed in the last decades. The VSC will be discussed from a philosophical, research, and medical standpoint to create a cognitive and critical interpretation, for the student to follow in his/her own career. Assessment and evaluation strategies of this course include MCQ exams, oral presentations and written homework.

DCCH112 Principles of Chiropractic II: Static and Motion Palpation
3 Credit

This course is conducted in an active learning environment to develop the palpation and psychomotor skills which serve as the motor and sensory abilities of the chiropractic evaluation. These abilities will be taught with exercises that focus on core strengthening, core stability, eye hand coordination, and proprioceptive skills. A comprehensive discussion in parallel to the basic sciences courses of the evaluation of soft tissues, tissue pull, joint range of motion, joint play, and joint dysfunction will be approached synergistically. The course will also serve as an introduction to chiropractic nomenclature and listings with the respective manipulative procedures to correct them. A thorough demonstration of the proper biomechanical and ergonomic postures and patient positioning will be taught utilizing the quantitative and qualitative measures acquired through the utilization of the **FSTT**. It will be a practicum application of the biomechanical concepts and dynamic palpation of spinal joint dysfunction, palpation, and soft tissues. The course will also introduce the students to spinal normal biomechanics, assessment of joint integrity and will emphasize spinal listings nomenclature, as well as development of record keeping skills and proper documentation of the components of a health examination. Assessment and evaluation strategies for this course include: **MCQ** exams, a criterion-based rating scale will be utilized to assess the student's accomplishments and identify areas of improvement, **FSTT** performance quantitative values, clinical performance ratings, practical examinations, **O.S.C.E**. and workshops.

DCCH113 Principles of Chiropractic III: Spinal Manipulation Thoracic Region
3 Credits

This course will serve as an introduction to the art, science, and research evidence of spinal manipulation, a practicum application of the biomechanical concepts of spinal joint dysfunction, palpation, and psychomotor skills through spinal manipulative procedures. The course will focus on demonstrating the physiological characteristics and biomechanical functions of the thoracic spinal region and its associated structures, complemented by the various manipulative chiropractic procedures applicable for the correction, stimuli, and rehabilitation of this region. In addition, the course will teach the student chiropractic biomechanical nomenclature listings, the contact points of delivering the thrust, ergonomics of doctor-patient positioning, professional and communicative terminology, and technical skills. A specific educational resource (Force Sensing Table Technology) will be utilized for teaching purposes allowing the faculty instructor to perform quantitative and qualitative assessments of the student, enhancing, therefore, the feedback and academic experience. Use of this instrument has been proven in research to produce highly skilled prospects and validates the standardization of the manipulative procedure. Assessment and evaluation strategies for this course include **MCQ** exams, performance rubric evaluations, **FSTT** performance, practical examinations, **O.S.C.E**., and workshops.

DCDI101 Diagnostic Imaging I: Normal Anatomy and patient positioning
1 Credit

This course will be taught together with Human Gross and Developmental Anatomy to maximize the student’s anatomic knowledge and is designed to delineate the normal radiographic anatomy of the human body. The course will discuss the history and development of X-ray, X-ray physics, ionizing radiation, basic physical science, X-ray machine and generator, units of radiation, and patient positioning. Workshops will include visualization of radiographic, normal anatomical variants and spinal patient positioning. Assessment and evaluation strategies will include quizzes and performance checklist.

DCET101 Bioethics and Humanities I
1 Credit

The first year of the Bioethics and Humanities course is devoted to the fundamental issues of bioethics: principles of bioethics, moral reasoning, and doctor/patient relationship, including integrity, confidentiality, informed consent, and decisional capacity. The contents of this course, along with the materials of the second- year course (bioethical issues concerning the beginning and end of life), constitute the indispensable foundations for the application of bioethical principles in the rotations that will begin on the third year. The bioethics content is complemented and supported by activities and workshops on medical humanities. In this course, students will participate in action writing and medical narrative workshops led by the medical humanities staff. The educational activities include discussion of a film, using a primary method for the analysis of narratives primarily designed for our chiropractic students, and exercises in creative writing and role-playing. These activities will promote in our chiropractic students' lifelong skills such as awareness, concentration, observation, trust, teamwork, empathy, communication, critical thinking, moral reasoning, and imagination. In this program, the student begins his/her chiropractic education with this course. It is not by accident. In this way, we seek to underline the importance of the material covered in the overall training (in contrast to instruction) of the chiropractic student, the future primary care physician. Assessment and evaluation strategies for this course consist of departmental exams, 2 quizzes, group discussions and role playing.

DCHI101 Histology
4 Credits

This course has been designed to provide fundamental instruction in basic body organization in such a manner as to not only limit the course to a description of the human body from the microscopic point of view but also give its functional correlation. The primary concern in teaching a functional Histology course is to develop in the student a sense of inquiry, understanding and an appreciation of the structural organization at the cellular level of the human organism as it correlates to normal function and health. The Histology course meets the educational mission/curriculum requirements of the Universidad Central del Caribe by offering a solid background in modern molecular and cellular biology, tissue, organ systems, and clinical correlations, which are the basis for the pathology course and the biological understanding of medicine. The student will learn to recognize and describe normal histology specimens as well as how to analyze, synthesize and organize information using high-level thinking. The Histology course encourages attendance to correlated clinical lectures, case discussion sessions, and textbook independent study, in addition to library research. Students will be evaluated through MCQ exams and formative quizzes.

DCCS101 Introduction to Clinical Skills
2 Credits

The Introduction to the Clinical Skills course will focus on preparing the student to perform an organized, thorough physical examination, history, and case presentation. The student will learn to select elements of the complete examination for application in problem specific situations. Topics will be arranged as a systems basis and will parallel topics covered in the Human Gross and Developmental Anatomy course. It is important for the student to understand the relationship between material presented in this course and that covered in parallel courses. An emphasis on the neuro-musculoskeletal system is reinforced, exposing students to posture analysis, gait locomotion analysis, and neurological examination. Educational strategies used on this course are: lectures, workshops, demonstration and simulations. This course will be graded, and the students will be evaluated using the following strategies: departmental exams, conferences and laboratories attendance and the Objective Structured Clinical Examination (**OSCE**).

DCNE101 Neurosciences
5 Credits

Neuroscience is a multidisciplinary course integrating the areas of anatomy, biochemistry, physiology, pharmacology, neurology, neuroradiology, neurosurgery and neuropathology. These areas have been experiencing a revolution due to the conceptual and technological improvements of cellular and molecular biology, imaging of the live brain, and other advancements. These new approaches, together with classical ones, have allowed us to develop a more comprehensive view of the overall complex interaction of the peripheral and central nervous tissue. In the development of the topics, the students will discuss information ranging from the basic ultrastructural level to establishing neurophysiological and cellular correlations of behavior. The order of presentation of the topics is intended to provide the student with the morphological information required to understand the physiological and pathological processes related to the nervous system. The clinical correlation sessions, presented by neurologists and neuroradiologists, will serve that goal. In the end, the student will also be introduced to a new avenue of neuroscience delineated by the development of non-invasive approaches and instruments for the in vivo study and analysis of brain tissue. These are some examples: magnetic resonance imaging (**MRI**); computer assisted tomography (**CT**); proton emission tomography (**PET**) scans; electro-encephalogram (**EEG**); polysomnograms; **EMG**; and evoked potentials. The Neuroscience course goals are reached through various educational strategies such as lectures, laboratories, and small and large group discussions. Evaluation is based on partial and practical computer-based examinations using the **LXR** testing program. In addition, written and oral quizzes sometimes including "Clickers," are incorporated both as formative as well as summative strategies.

DCPB101 Problem Based Learning I
1 Credit

The class will be divided into groups, and a format of small group discussion will be followed. There will also be a facilitator who is a member of the faculty.

Sequential simulations of patients' problems will be presented. Two to three sessions will be spent on each simulation. The students will take responsibility for the discussion of the problem, identifying what they need to know to better understand and manage the problem, and determining what resources they will use to acquire new information. Each student will be responsible for looking up some part of the information needed and will prepare a report on it. This report will be presented to the rest of the group in the next session.

Self-study skills as well as the evaluation of the levels of evidence from the information gathered will be promoted with this course. Students are encouraged to look for information from a variety of sources such as: Learning Resources Center (books, journals, Internet sites, etc.); Clinical Skills Center (models, videos), private and government agencies, as well as faculty members (as experts on a given matter).

DCPH101 Public Health & Wellness
2 Credits

This course is designed to give the chiropractic student a sound educational foundation in the issues of public health topics. Some topics included a historical perspective of public health, the purpose of public health organizations, structure and functions, social and behavioral factors affecting public health, injuries as a community health problem, safety and health in the workplace, environmental factors in disease transmission and inhibition of disease and epidemiology. It will also present the basic concepts of wellness applied to public health. The educational strategy of this course consists of lectures focused on the topics previously mentioned. Student assessment and evaluation strategies will include **MCQ** exams, oral presentation, and a community awareness project.

DCPY101 Physiology
5 Credits

The Physiology course will present the current biological, chemical, and physical concepts underlying the normal function of organ systems. The objectives will be attained using lectures, clinical correlations, and group discussions. The topics to be presented during the lectures will include the physiology of muscle tissues and the process of hemostasis and the cardiovascular, respiratory, renal, gastrointestinal, endocrine, and reproductive systems. A short review of basic concepts of cellular physiology and the foundations of acid/base disorders will also be discussed. The course will also include small group discussion sessions in which a stronger student-faculty interaction will be established. These activities are designed to help students understand the material presented in the course, clarify doubts, increase their interest for further knowledge and help them integrate the concepts and principles of physiology into other basic sciences. Students will be evaluated through the following assessment strategies: seven partial examinations, summative quizzes, and a final subject exam.

DCRE101 Introduction to Research
1 Credit

The course in Introduction to Research will give the graduate student a practical introduction to the theory and practice of research and biostatistics from the scope of chiropractic science. This course will give insight into how to construct and validate research questions, aims and hypotheses, build a robust research methodology, summarize data, conduct statistical tests, collect results, and interpret them using raw data via a frequentist approach. Topics include construction of research questions, validation of hypotheses, research design, data visualization techniques (graphs, central tendency measures, dispersion measures and statistical inference techniques) and probability models (one sample t or z test, two independent samples t test, paired samples t test, chi-square difference among proportions, linear correlation models, basic linear regression models, and sample size calculation). Students are expected to discuss ethical and legal issues of research as well. Lectures by invited faculty and workshops are the main teaching strategies used in the course. This course is evaluated using portfolio, written exam, and oral presentation.

DCRE102 Translational Research
1 Credit

This course is an introduction to the process of clinical research, defined broadly as patient-oriented, translational, epidemiologic, comparative effectiveness, behavioral, outcomes, or health services research (i.e., any research that has individual human beings or groups of human beings as its unit of observation), in addition to a comprehensive introduction to the clinical trials design and analysis and protection of human subjects in research and privacy of information (**HIPAA**).

## Second Year

DCAN202 Advanced Anatomy
10 Credits
This course will focus on the functional anatomy of the vertebral column, vertebrae, joints, ligaments, relevant neurovascular structures, and the spinal cord. It presents the basic biomechanical principles necessary to understand and apply chiropractic adjustive procedures as well as the effects of loads on all forms of connective tissue as well as the relationship between forces applied to the body and the consequences of those forces on human motion.

An academic picture of the applied anatomy and clinical biomechanics of the musculoskeletal system should present a mathematical and nonmathematical approach to defining clinically useful biomechanical concepts necessary to describe and interpret changes in joint function. Students will also learn about osteology, joint articulations, and biomechanics of the upper and lower extremities. Emphasis will be placed on clinical considerations and its integration with chiropractic. This course includes hands on cadaver lab and biomechanics lab.

DCBE201 Behavioral Medicine
2 Credits
As implied by the course name, the course will provide the student with the necessary knowledge and clinical skills to perform a complete psychiatric evaluation, including mental status exam, and to identify the primary pathological manifestations of mental health, and initiate standard-of-care somatic and psychological treatments. The course will feature experienced faculty specialized in the conditions and therapies to be covered, using as reference the course's primary textbook, Kaplan & Sadock's Synopsis of Psychiatry, 10th edition, and the **NBME** Behavioral Science Review Series. We will also organize the course sections and chapters, as well as study the most recent principal diagnostic changes, as referenced by the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (**DSM**-5). Each faculty member will utilize the necessary teaching strategies to promote the acquisition of the stated course goals and objectives. These are the available methods: lectures, textbook, and handouts (readings), vignettes (case discussions), role-playing (simulated experiences), **PRS** questions and answers (problem solving and practice exam questions), and discussion board deemed most appropriate. The student will be evaluated using four (4) quizzes, two (2) partial departmental exams, and one (1) final exam consisting of the National Board of Medical Examiners' Behavioral Science Subject Exam.

DCCC201 Chiropractic Preceptorship I
1 Credit
This course exposes the students to innovative learning and service methods. The students will learn and apply professional standards of a primary chiropractor using two different approaches:

1. Lectures. Students will be taught the roles of a chiropractor, the code of ethics, professional behavior, laws and jurisprudence, scope of practice, professional associations, and an introduction to the health care systems.
2. Preceptorship. Students will learn by experiencing the role of a chiropractor in a clinical setting. Assessment and evaluation strategies consist of preceptorship evaluations (criterion-based rating scales), and case presentations.

DCCC202 Chiropractic Preceptorship II
1 Credit

This course exposes the students to innovative learning and service methods. The students will learn and apply professional standards of a primary chiropractor using two different approaches:

1. Teaching Methods. Students will participate in workshops, role-play, case discussions, covering sensitive professional misconduct, legal connotations, and preventive measures.
2. Preceptorship. Students will be exposed to chiropractic specialists in the fields of pediatrics, sports, neurology, or family practice and may participate actively in the history interview of an assigned patient in the clinical setting. The chiropractic faculty preceptors will be chosen and align with varied specialties to enhance the preceptorship experience.

Assessment and evaluation strategies consist of preceptorship evaluations (criterion-based rating scales), and case presentations.

DCCD201 Clinical Diagnosis I
3 Credits

The emphasis of this course is on providing students with rational, efficient, practice based/systems-based learning, and a thorough approach to history and physical examination. Topics are arranged as systems-based with parallel systems covered in other concurrent courses. Structured observation using real and standardized patients are used for formative as well as summative evaluations. A conference and hands-on workshop will be taught to students on the application of **CRISP**® Protocols. An Objective Structured Clinical Examination (**OSCE**) is given as a final practical exam. With this goal in mind, we invite the students to approach with enthusiasm this course, because the history and physical examination are the building blocks of clinical medicine.

DCCH214 Principles of Chiropractic IV: Spinal Manipulation Lumbar and Lumbo-Pelvic Region
3 Credits

It will be a practicum application of the biomechanical concepts of spinal joint dysfunction (subluxation), palpation, and psychomotor skills through spinal manipulative procedures. The course will focus on demonstrating the physiological characteristics and biomechanical functions of the lumbar and lumbo-pelvic spinal region and its associated structures. The course will cover various chiropractic techniques (e.g., **HVLA, LVLA**, gravity assisted table technique) applicable for the correction and rehabilitation of these regions. In addition, the course will teach the student chiropractic biomechanical nomenclature listings, the contact points of delivering the thrust, ergonomics of doctor-patient positioning, professional, communicative terminology, and technical skills. A specific educational resource (Force Sensing Table Technology) will be utilized for teaching purposes allowing the faculty instructor to quantitative and qualitatively assess the student, enhancing, therefore, the feedback and academic experience. Use of this instrument has been proven in research to produce highly skilled prospects and validates the standardization of the manipulative procedure. Assessment and evaluation strategies for this course include **MCQ** exams, clinical performance ratings, **FSTT** performance, practical examinations, **O.S.C.E**., and workshops.

DCCH215 Principles of Chiropractic V: Manipulation Occiput, Cervical, CT and TMJ
3 Credits

It is an advanced practicum application of the biomechanical concepts of spinal joint dysfunction (subluxation), palpation, and psychomotor skills through spinal manipulative procedures. The course will focus on demonstrating the physiological characteristics and biomechanical functions of the cervical spine, occiput, and temporomandibular joint region and its associated structures, and complemented by various chiropractic techniques (e.g., **HVLA, LVLA**, gravity assisted table technique, among others) applicable for the correction and rehabilitation of this region. Also, the course will teach the student chiropractic biomechanical nomenclature listings, the contact points of delivering the thrust, ergonomics of doctor-patient positioning, professional and communicative terminology, and technical skills. A specific educational resource (Force Sensing Table Technology) will be utilized for teaching purposes allowing the faculty instructor to perform quantitative and qualitative assessments to the student, enhancing, therefore, the feedback and academic experience. Use of this instrument has been proven in research to produce highly skilled prospects and validates the standardization of the manipulative procedure. Assessment and evaluation strategies for this course include **MCQ** exams, **FSTT** performance, practical examinations, **O.S.C.E**., and workshops.

DCCH216 Principles of Chiropractic VI: Manipulation Upper and Lower Extremities
3 Credits

This course is designed to study the upper and lower extremity function not produced by voluntary muscles. It will emphasize the identification and management of global proprioceptive deficits and advanced techniques of extremity adjusting, as an adjunct to spinal manipulative procedures. The course will discuss the interrelationship of the upper and lower extremities and the spine from a biomechanical and neurological point of view. It is a practicum application of the biomechanical concepts of spinal joint dysfunction, palpation and psychomotor skills through spinal manipulative procedures. The course will focus on demonstrating the physiological characteristics and biomechanical functions of the upper and lower extremities and extra spinal region and its associated structures and complemented by the various chiropractic techniques applicable for the correction and rehabilitation of this area. In addition, the course will teach the student chiropractic biomechanical nomenclature listings, the contact points of delivering the thrust, ergonomics of doctor-patient positioning, professional, communicative terminology and technical skills. A specific educational resource (Force Sensing Table Technology) will be utilized for teaching purposes allowing the faculty instructor to perform quantitative and qualitative assessments of the student, enhancing, therefore, the feedback and academic experience. Use of this instrument has been proven in research to produce highly skilled prospects and validates the standardization of the manipulative procedure. Assessment and evaluation strategies for this course include **MCQ** Exams, Performance Rubric Evaluations, **FSTT** Performance, Practical Examinations, **O.S.C.E.** and Workshops.

DCDI202 Diagnostic Imaging II: Spine, Pelvis, and Extremities
1 Credit

Following a brief discussion of basic physical principles of x-ray production, film exposure, and advanced imaging modalities (including but not limited to diagnostic ultrasound, magnetic resonance imaging, and computed tomography), the student learns to recognize/identify radiological appearance of normal axial and appendicular musculoskeletal anatomy, lines of mensuration, common normal variants, common congenital anomalies, and normal anatomy that might simulate pathology of the musculoskeletal system. Additionally, the student will be introduced to multiple general common pathological conditions seen in practice. The student will develop the skills to formulate differential diagnosis supported by the information gathered from history, physical examination, and diagnostic studies as well as determining the need for emergency care, referral and/or collaborative care. Assessment and evaluation strategies will include quizzes, **MCQ** exams, and self-assessment.

DCET202 Bioethics and Humanities II
1 Credit

The second year of the Bioethics and Humanities course is devoted to the beginning and the end of life. The contents of this course, along with the materials of the first-year curriculum, constitute the indispensable foundations for the application of bioethical principles in the rotations that will begin in the third year. The following topics are presented and discussed during the second year of Bioethics and Medical Humanities: a) bioethical issues concerning the beginning and the end of life; b) bioethical matters concerning the treatment of fetus, newborns, infants, and children; c) bioethical issues concerning end of life care; and d) bioethical issues concerning euthanasia and assisted suicide. During the academic year, the presentation and discussion of these bioethical matters will be complemented with the analysis of the movie *Mar Adentro* (The Sea Inside) and role-playing exercises. Assessment and evaluation strategies for this course consist of written exams, summative quizzes, group discussions and Humanities workshop.

DCMI201 Microbiology and Immunology
8 Credits

Microbiology and Immunology is a full academic year course in pathogenic microbiology and immunology designed to provide the necessary concepts required for all subsequent pre-clinical and clinical studies dealing with infectious diseases. This course includes many etiological agents responsible for global infectious diseases. Since the territory covered by infections and the immune response expands each year, we focus on pathogenic mechanisms to foster students' ability to solve problems in their future clinical career.

Repeatedly throughout the course, the faculty makes appropriate correlations between fundamental principles of medical microbiology and infectious processes, although the emphasis is placed on the understanding of fundamental principles needed now as a student and in the future as a practicing primary care physician. Moreover, it is the department's responsibility to acquaint the student with enough information that enables him/her to follow the scientific advances in medicine and medical related sciences. The course is divided into immunology, virology, cell and molecular microbiology, bacteriology, mycology, and parasitology. Content covers pathogenic microorganisms (**bacteria, viruses, fungi, and parasites**), host- pathogen interactions, microbial virulence determinants, host immune responses, signs and symptoms of disease presentation, epidemiology, laboratory diagnosis, prevention (**vaccines**), and therapy (**antimicrobials**).

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes are lectures, laboratory practices, small/large group discussions and clinical correlations. Assessment methods, which would allow students to demonstrate the learning outcomes, are surveys in Blackboard, Patient-Oriented Problem Solving (**POPS**) and quizzes, among others.

DCPB202 Problem Based Learning II
1 Credit

In this course, the students will be exposed to patient simulations in a problem-based, student-centered, and evidence-based approach. This educational methodology will help students develop more responsibility for their learning since it is the students who determine what they need to learn to better understand the patients' problems better. The content of the simulations will be based on the topics covered in the second-year courses (**Pathology/ Mechanism of Disease, LPCP, Microbiology, Psychopathology, Behavioral Sciences, and Clinical Skills**) as well as content from the first-year courses (**Anatomy, Neuroscience, Physiology**). The simulations are designed to promote the integration of knowledge from the clinical and basic sciences disciplines.

The class will be divided into groups of eight to nine students, and a format of small group discussion will be followed. There will also be a facilitator, who is a member of the faculty. Sequential simulations of patient's problems will be presented. Three sessions will be spent on each simulation. The students will take responsibility for the discussion of the issue, identifying what they need to know to understand better and manage the problem, and determining what resources they will use to acquire new information. Each student will be responsible for looking up some part of the information needed and will prepare a report on it. This report will be presented to the rest of the group in the next session.

Self-study skills are promoted with this course, and students are encouraged to look for information from a variety of sources. Among those, there are Learning Resources Center (**books, journals, practice guidelines, Internet sites, etc**.), Clinical Skills Center (**models, videos**), private and government agencies, as well as faculty members (as experts on a given matter). The course will incorporate the concepts of **PICO** questions as well as the searching of empirical evidence from peer-reviewed sources.

DCPR201 Pharmacology
4 Credits

This course encompasses the presentation and discussion of the chemistry and activity of drugs, pharmacokinetics and pharmaco-genetic principles, pharmacological effects, mechanisms of actions, clinical uses, adverse side effects, toxicities, and interactions of medications used in the diagnosis, prevention, and treatment of disease. As far as it is possible, it also emphasizes the physiological and pharmacological effects of both endogenous and exogenous substances at the cellular level. The course involves the discussion and presentation of such topics as general pharmacological principles, pharmacological aspects of drugs affecting the autonomic and the central nervous system, the cardiovascular, respiratory, renal, gastrointestinal, and the endocrine systems. It also includes the discussion and presentation of the agents used in the treatment of infectious diseases such as antibiotics, antiviral and antifungal drugs, anthelminthics, and antimalarials. Cancer chemotherapy, principles of immune-pharmacology, and the study of the autacoids are also presented in detail. Finally, a section on clinical toxicology is also shown where the essential aspects of environmental, industrial, agricultural and household toxic agents are discussed. Student assessment strategies for this course will include **MCQ** exams and summative quizzes.

DCPH202 Lifestyle Diseases and Risk Reduction
1 Credit

This course examines the etiology and development of significant lifestyle diseases such as cardiovascular diseases, cancer, obesity, nutritional disorders, and selected infectious diseases. Lectures will emphasize identifying risk factors and examination of successful risk-reduction programs. The educational strategy utilized in this course consists of lectures and group discussions. This course will also discuss lifestyle medicine, which is the evidence-based therapeutic approach to prevent, treat, and reverse lifestyle-related chronic diseases, as well as comprehensive lifestyle interventions (including nutrition, physical activity, stress management, sleep, social support, and environmental exposures) that address underlying disease risks, thereby decreasing illness burden and improving clinical outcomes within value-based medicine. Students will be evaluated through the following strategies: **MCQ** exams, written and oral presentation, and a final project/portfolio.

DCPM201 Pathology and Mechanisms of Disease
12 Credits

This course presents all aspects of the development of disease, with reference to the causes and their development, as well as the structural and functional changes in cells and organs that result from the disease process. It is offered longitudinally throughout the academic year. It consists of lectures, as well as discussion, large and small groups, case-based learning, independent learning, team-based learning, and tutorials. The grading methodology will include integrated partial institutionally developed, computer-based exams, summative quizzes, participation, self-assessment, and final exam (**NBST**). This course has as the prerequisite of the first-year curriculum of Doctor of Chiropractic, computer literacy, and the basics of evidence-based (research, appraisal of validity and reliability of information, and fundamentals of statistical analysis of such data).

DCRE203 Research in Complementary and Alternative Healthcare
1 Credit

This course will discuss and critically analyze complementary and alternative medicine (**CAM**) from various perspectives: historical, philosophical, scientific, and clinical, and will allow the student to be familiar with many research areas related to **CAM**. Educational strategies utilized in this course consist of lectures, small and large group discussions, workshops, case-based learning, and independent learning. Students will be evaluated through the following strategies: **MCQ** exams, quizzes, written and oral presentation, and a research proposal. As part of the final evaluation of this course, students will develop a research paper/proposal with a topic related to chiropractic.

DCDD201 Differential Diagnosis
4 credits

This course introduces a logical and systematic approach to clinical critical thinking. Using the foundations of health education, the student will learn to identify, assess, analyze, and interpret information from the patient's history, and guide them toward an effective assessment strategy. This course is designed to refine and develop clinical intuition concurrent with and evidence informed practice. Students continue to apply critical thinking and differential diagnosis toward effective examination strategies and predict the outcome based on the Subjective and Objective data. Final diagnosis is analyzed and strategies for treatment options, co-management, or advanced testing are discussed. Guided discussions, explanatory lectures, and workshops will be the main methods of instruction. Students will be evaluated with **MCQ** exams, quizzes, written and oral presentation and class assignments.

## Third Year

DCCC303 Chiropractic Clinic I
2 Credits

This course will serve as a practicum for students to implement several techniques learned during the previous classes. Students will use the model of peer assessment and will take advantage of the feedback provided by their peers. The student must show the clinical competency of medical history taking, evaluation, treatment, clinical reasoning, and proper documentation of encounters. These duties will be evaluated, overseen, and measured quantitatively and qualitatively by the faculty clinician. A rubric criterion-based rating scale will be utilized to assess the students' accomplishments and identify areas for improvement.

A clinical supervisor will oversee the students, provide observations checklists, and progress reports as a means of evaluation. This course will be a practicum application of the biomechanical concepts of spinal joint dysfunction, palpation, and psychomotor skills through spinal manipulative procedures.

DCCC313 Chiropractic Clinic II
2 Credits

This course will serve as a continuation of the practicum for students. Students will continue to apply their evaluation and treatment strategies and improve their documentation and communication skills. Assessment will consist of direct observation and feedback from peers, clinical evaluators, and self. An **OSCE** will serve as the final course examination and a passage into the outpatient facility, Year 4.

DCCH307 Principles of Chiropractic VII: Physiotherapy and Exercise in Chiropractic Rehabilitation
5 Credits

To complement the educational proficiency of the **DC** student, the active and passive chiropractic care course will introduce the protocols, management, and fundamentals of physical rehabilitation and prevention in a hands-on practical setting. This course design will give the student the skills and critical thought process of preparing a tailored exercise and physiotherapeutic program according to their patients' particular goals and neuromusculoskeletal health status. The course objective is to develop the clinical experience of the student to integrate different techniques of stretching, core strengthening, and balance programs; instrument assisted soft tissue techniques; active and passive ranges of motion; myofascial trigger point release techniques; and related matters. Moreover, this course will also engage the student in acquiring critical clinicians' applications of innovative, evidence-based therapeutic modalities to modulate pain levels and speed recovery times quantitatively. Students will learn about the benefits and contraindications of specific modalities applied during passive care protocols, such as angular spinal decompression, electrical stimulation, ultrasound, phototherapy laser therapy, pulsed electromagnetic fields, hyperbaric oxygen therapy, vibro-therapy, Kinesio-taping, biphasic electrical stimulation, Russian stimulation, microcurrent, paraffin, cryotherapy, and athletic taping. The set of skills learned in this course will complement the set of tools that the clinician will be able to apply to a comprehensive patient treatment plan. Assessment and evaluation strategies for this course include **MCQ** exams, written and oral presentations, clinical performance ratings, practical examinations, **O.S.C.E**., and workshops.

DCCC304 Pediatrics and OBGYN
4 Credits

The Pediatric and Gynecology clerkship experience introduces the chiropractic student to a unique, sophisticated, and challenging field of medicine. In chiropractic, the pregnant woman and pediatric patient are covered by a combination of medical specialties: pediatrics and **OBGYN**. This clerkship provides the student with a mix of patient and clinical experiences both in outpatient and inpatient settings. Students will be divided into two groups: group A will go the first two weeks in pediatrics, and the remaining 2 in **OBGYN**; group B will alternate the schedule. Half of the day will happen in a clinical site for inpatient experience with allopathic attending physicians and the other half of the day in an outpatient clinic with a chiropractic with a fellow on **PED/OBG**. Students are evaluated using the following strategies: oral presentations, clinical case presentations, **O.S.C.E**., departmental examinations, patient encounter, one exam, and the daily performance evaluation given by the preceptor, as well as the National Board Subject Examination. Pediatric components emphasize those aspects of general pediatrics essential for the chiropractic students and will provide a foundation for those students who elect to further study the health care of infants, children, and adolescents. Students will have the opportunity to participate in the clinical activities of general pediatric services, with emphasis placed on essential general pediatrics, common illnesses, and professional, ethical, and cultural issues. The clerkship has the responsibility to teach knowledge, skills, and attitudes fundamental to the development of a competent general physician/chiropractic. Educational strategies developed in this course are lectures, morning reports, teaching rounds and rotations. The students will be evaluated using the following strategies: clinical skills and departmental exams. The primary learning site for students to developing knowledge, skills, and attitudes are at the Puerto Rico Children's Hospital and San Jorge Children's Hospital.

**OBGYN** component: Students will be exposed to obstetrical and gynecological experiences under supervision. The class is divided into small groups assigned to the gynecology service, the ordinary and complicated obstetrics service, the labor room and emergency service, and outpatient clinics. At these stations, they will rotate for three (3) days with the responsibility to shadow the process of admission of patients, history and physical examination, daily rounds, follow up of patients, post operative care, and discharge summaries. At these stations, the daily work will be supervised by full-time instructors. The students should read and be familiar with material related to their cases and be able to present and discuss their cases in daily rounds as well as with the assigned attending. The primary learning sites are San Juan City Hospital, **HIMA**, and chiropractic offices. The primary learning sites for students for developing knowledge, skills, and attitudes are at the Puerto Rico Children's Hospital and the Ramon Ruiz Arnau University Hospital.

DCCC305 Family Medicine
4 Credits

This six-week clerkship allows the third-year chiropractic students to practice under the supervision of a family physician in outpatient settings, mostly located in the metropolitan area or adjacent towns in Puerto Rico. Many sites were identified and evaluated, but the chosen ones were carefully selected because they have outstanding family physicians who offer broad and high-quality experience in family practice. The primary emphasis is on acquiring knowledge and skills in assessing and managing common health problems (listed below) among both adults and children. The students provide continuous care for families, emphasizing prevention, patient education, and health promotion. During this experience, the student is exposed to the primary procedures performed in primary care. Close attention is given to clinical skills to ensure consistency in meeting the educational objectives of the clerkship. Every preceptor has a copy of the syllabus, which contains the clerkship objectives and evaluation forms (Clinical Tool Kit). The educational strategies developed in this course are lectures, daily case presentations, clinical discussions, ethics group case discussion, and home visits. The students are evaluated using the following strategies: oral presentations, clinical case presentations, **O.S.C.E**., departmental examinations, patient encounter, one exam and the daily performance evaluation given by the preceptor and the National Board Subject Examination. All student work-up is supervised, discussed, and countersigned by the attending physician. The patient logbook is evaluated at mid-rotation to identify the diagnoses to which the students need to be exposed to guarantee the clerkship requirements were accomplished. Written feedback is obtained from students about the various clinical sites and the preceptors. Each student must work for up to four to five new patients and follow twenty patients per week.

DCCC306 Neurology
4 Credits

This clerkship/course will expose 3rd-year chiropractic students to the diagnosis and treatments of various neurological conditions that are commonly encountered in practice. The student must show proficiency in proposing a chiropractic intervention if feasible or the correct pathway of care according to the evidence in research. It comprises several educational workshops, such as the following: clinical conferences, ambulatory rotations, recaps and reviews sessions, and competences. We will also be evaluating the performance of each of the different teams in which this neurology clerkship will be divided. The global group grade will be assigned ten percent of the total course/clerkship grade. Each team will be complying with those tasks assigned during the four-week duration of this course. Participation of every team member will be considered in the global group grade.

DCCC307 Physical Medicine and Rehabilitation
4 Credits

This course offers hands-on exposure to the practice of physical medicine and rehabilitation (**PMR**,) with an emphasis on musculoskeletal and neurological rehabilitation. Patients may have an acute illness, trauma, surgical procedures, and hospitalization, and the student will have an opportunity to follow the patients' post- acute care. The primary responsibility is the care of these patients with spinal cord injury, stroke, amputations/complex fractures, multiple trauma, traumatic brain injury, and general debilitation. The faculty will define participation in patient care. The student will be expected to: [1] participate in the evaluation, functional diagnosis, and treatment of individuals with significant impairment and disability who require long- term hospitalization to achieve maximal independence, and [2] integrate medical and surgical knowledge in the care of patients in the hospital for rehabilitation and the outpatient clinic. Additionally, adult and pediatric outpatient clinics are available to expose students to the long-term problems that these patients encounter. The students are evaluated using the following strategies: oral presentations, clinical case presentations, **OSCE**, departmental examinations, patient encounter, one exam, and the daily performance evaluation given by the preceptor and the National Board Subject Examination. All student work-up is supervised, discussed, and countersigned by the attending physician. The patient logbook is evaluated at mid-rotation to identify the diagnoses to which the students need to be exposed to guarantee the clerkship requirements were accomplished. Written feedback is obtained from students about the various clinical sites and the preceptors.

DCCC308 Spine Surgery
4 Credits

This course will expose 3rd-year chiropractic students to observational roles of surgical interventions of the spine and the standard guidelines of rehabilitation for post-operative care. Students will shadow orthopedic surgeons and neurosurgeons who are actively engaged in the practice of spinal surgery. Students will participate in patient care based on their level of competency and at the discretion of their surgeon attending. The students are evaluated using the following strategies: oral presentations, clinical case presentations, **O.S.C.E**., departmental examinations, patient encounter, one exam, and the daily performance evaluation given by the preceptor and the National Board Subject Examination. All student work-up is supervised, discussed, and countersigned by the attending physician. The patient logbook is evaluated at mid-rotation to identify the diagnoses to which the students need to be exposed to guarantee the clerkship requirements were accomplished. Written feedback is obtained from students about the various clinical sites and the preceptors.

DCCD302 Clinical Diagnosis II: Orthopedics and Neurology
5 Credits

The Orthopedic and Neurology course will form a **DC** student that will be proficient in applying the proper evaluation of the patient to work a diagnosis according to the patient's specific presentation. The student will sharpen the skills of performing, communicating, and applying clinical rationale to the orthopedic and neurological examination to accurately understand the pathological references of each exam and its results. This course will cover the orthopedic and neurological examination and testing of the spinal column, upper and lower extremities, vascular disorders, space-occupying lesions, and spinal cord injury, with case studies to develop the diagnostic criteria, resulting in a capacitated clinician with the cognitive development to correctly apply the evidence-based examination to the proper working diagnosis. The clinical management, chiropractic relevance, and the rehabilitation considerations will also be explained to the students during this course and emphasized accordingly. Structured observation using real and standardized patients are used for formative as well as summative evaluations. An objective structured clinical examination (**OSCE**) is given as a final practical exam.

DCCH308 Principles of Chiropractic VIII: Advanced Chiropractic Techniques
3 Credits

This course is intended to provide a practicum workshop overview of full spine and various techniques and will proceed to teach and integrate advanced chiropractic techniques such as flexion/distraction (Cox Protocols), gravity assisted table techniques, instrument assisted technique, Gonstead, and **CBP**, among other techniques in patient management. This course is designed to expose the chiropractic student to various chiropractic techniques and their respective research with the goal of broadening the students' knowledge and adjustive skills, as well as serve as motivation to be actively involved in research. Assessment and evaluation strategies for this course include **MCQ** exams, written and oral presentations, performance evaluations, practical examinations, **O.S.C.E**., and workshops.

DCDI303 Diagnostic Imaging III: Bone and Joint
3 Credits

The Bone and Joint extensive imaging course consists of lectures covering the most common musculoskeletal pathologies from various etiologies. Among those pathologies are, but are not limited to, congenital malformations of the spine and skeletal systems; endocrine disorders of the musculoskeletal system; tumor and tumor-like processes of the spine and extremities; arthritic pathologies in the spine and extremities; traumatic imaging studies; and degenerative changes of the spine and joints. A digital imaging library will serve as a database for the student to access the reviews and develop the clinical skills necessary for diagnostic imaging. Each pathology will be described in depth with demographic details, various locations, and recent evidence-based etiologies. Assessment and evaluation strategies will include quizzes, digital imaging identification exams, **MCQ** exams, and self-assessment.

DCDI304 Diagnostic Imaging IV: Advanced Imaging
3 Credits

The advanced imaging course consists of lectures on identifying spinal, **CNS**, and **CNS** vascular pathologies most observed in a clinical setting. This course will teach the student the differences between advanced imaging studies, their clinical applications, the radiological nomenclature of the pathologies, and case studies to optimize their clinical judgment. It will also focus on chiropractic management and future technological developments of advanced imaging in research. This course will cover topics of **MRI** nomenclature, **MRI T1/T2** weighted significance, radiolucency and radiopacities and their applications according to the location and imaging characteristics. It will discuss in detail the intervertebral disc pathologies, radiological findings, and terminology of the various findings. It will also cover the pathologies most encountered that can mimic musculoskeletal pain, such as neoplastic processes, vascular diseases, and neurological pathologies. Assessment and evaluation strategies will include quizzes, written homework, **MCQ** exams, clinical vignettes, and self-assessment.

DCEB301 Evidence-Based Chiropractic Care I
1 Credit

An introduction to the practice of implementing scientific evidence into the clinical decision-making process. The student will develop expertise in the creation of relevant clinical questions, searching the literature databases, critical appraisal of scientific articles, applying the evidence, and the evaluation of the process that was involved, combining scientific evidence with clinical experience and patient values. The course will review specific research designs that are commonly encountered in chiropractic-related literature as well as properties and use of clinical outcome measures, bias, validity, reliability, sensitivity, specificity, and concepts in statistics. Through case-based instructional learning and small group discussion, the student will be able to acquire the knowledge of **EBP** and put into practice case-based learning. The assessment strategies of this course include written short exams, portfolio-based assessment, clinical documentation review, peer assessment, and literature search performance.

DCEB302 Evidence Based Chiropractic Care II
1 Credit

This course is intended to be a sequel to Evidence-Based Chiropractic Care I. It is expected to continue the development of expertise in clinical questioning, demonstrating how to use the literature databases, critical appraisal of scientific articles, applying the evidence, and the evaluation of the process, combining scientific evidence with clinical experience and patient values. The student will be able to analyze research designs that are commonly encountered in chiropractic-related literature and be able to use clinical outcome measures, bias, validity, reliability, sensitivity, specificity, and concepts in statistics. Through case-based instructional learning and small group discussion, the student will be able to enhance the knowledge of **EBP** and put in practice case-based learning. The assessment strategies of this course include written short exams, portfolio-based assessment, clinical documentation review, peer assessment and literature search performance.

DCFU311 Functional Approach to Basic Nutrition Therapy
3 Credits

Basic Nutrition for the primary health care practitioner focuses on gaining mastery over the concepts essential to understanding health and nutrition from a holistic perspective. This course consists of lectures covering the following topics: an overview of general principles about carbohydrates, lipids, proteins, vitamins and minerals, water, macronutrients and micronutrients, dietary assessment, and controversies in nutritional therapy. Additional topics focus on nutrition, environment, and common dietary problems. This course's approach improves patients' outcomes across a wide range of chronic health conditions by carefully analyzing common underlying pathways that interact to produce disease and dysfunction or health and vitality. Students will be able to fully integrate an understanding of the underlying functional mechanisms of disease with therapeutics and prevention, utilizing food and nutraceuticals as the first line of therapy when applying clinical nutrition in the patient's care plan. The course is organized to cover from the essential topics of functional medicine, through the most related disorders, to the hands-on practice of formulating nutraceuticals. The course will be delivered using lectures, case discussions, oral presentations, assignments and **VLOGs**, and assessed through **MCQ** exams, oral presentations, and a final project.

DCFU312 Nutritional Therapy in the Chiropractic Practice
2 Credits

Nutrition is the sum of all the processes and functions by which growth, development, maintenance, and repair of the body occur and by which reproduction is accomplished. This course presents the principles and practice of scientifically based clinical nutrition. Lecture topics include nutritional assessment (nutritional implications of the physical exam, laboratory studies, etc.), macronutrients, micronutrients, phytonutrients, enzymes, and other factors. Various conditions are discussed with emphasis on the understanding that they are a different expression of imbalances and dysfunctions that are preventable and correctable and cover the role of nutrition in the prevention and treatment of disease. This course will pay attention to individual nutritional requirements by organ system of the body. Emphasis will be given to gut lining, dysbiosis, and microbiome, including pre- and probiotics usage to repopulate. It will also cover the basic concepts of clinical detoxification processes with special mention of tonic water fasting and whole food plant-based diet as a chronic disease reversal therapy. Assessment and evaluation strategies for this course include Summative **MCQ** exams, oral presentation, and a terminology project.

DCPH303 Wellness in the Community
1 Credit

The Wellness in the Community course reviews the 15 core competencies for prescribing, recommending, and sustaining healthy lifestyle practices for the community to attempt lifestyle change, make improvements, and achieve lifestyle goals. Case studies and community activities highlight the management of a typical patient with chronic disease conditions and risk factors (including hypertension, pre-diabetes, obesity, sedentary lifestyle, and social isolation with a complicated mood disorder), to demonstrate the application of these skills in clinical practice. Students will be evaluated through the following strategies: summative **MCQ** exams, oral presentation, a final project and participation in community activities.

## Fourth Year

DCBU401 Mastering your business
4 Credits

This business course emphasizes the skills necessary for a rewarding and successful private practice. The curriculum topics are personal assessment, career assessment, professional skills development, employment preparation, business preparation, practice management, marketing, and entrepreneurship ecosystem awareness. Course delivery methods include lectures and workshops using active learning techniques and guest speakers addressing specialized topics when needed (i.e., federal and state business permits and regulations, government tax system, financing mechanisms, entrepreneurship ecosystems). Assessment and evaluation strategies will consist of small/large group discussions, workshops, clinical application exercises (**CAEs**), and quizzes.

DCCC409 Patient Safety and Continuous Quality Improvement
2 Credits

The Patient Safety and Quality Care Improvement course will introduce the fundamentals of patient safety, evaluation of quality and quality measures and principles of quality improvement to a student working in any aspect of healthcare or health services research. The course will examine the importance, background, and implications of patient safety in healthcare today as well as the central concepts, recommendations, and practices required to be part of a skilled multidisciplinary team. A combination of methodologies and carefully selected resources will facilitate the learning process and active student engagement.

The course will be organized into these three overlapping topic areas and will consist of lectures, group activities, and project work. We will survey essential topic areas in patient safety. We will explore the components of quality measures and their construction and evaluation in the current healthcare milieu. Students will review and create quality measures within their chosen field and develop a quality improvement project to improve a process or outcome.

DCCC410 Integrative Approach to Pain Management
2 Credits

This course focuses on etiology, chiropractic care management, nutrition, medical procedures, and pain management case studies. The course will broaden the spectrum of co-management of the most common neuro-musculoskeletal complaints seen in chiropractic settings through research, protocols, and integrative care. Students will apply the clinical critical thinking skills developed in previous courses to manage appropriately and maintain best practices protocols in evaluating, treating, and co-managing painful neuromuscular skeletal conditions. Assessment and evaluation strategies include **MCQ** exams, case presentations, written homework, and a final project.

DCCC401 Clinical Rotation 1
9 Credits

The Clinical Rotation 1 course is a clinical clerkship internship where the student will be able to evaluate, assess, order studies, diagnose, and perform treatment with continuous supervision of the mentor or attending faculty clinician. By this stage of the educational development program, the student will be capable of sharpening the functions of a chiropractic practitioner with confidence and skill to deliver adequate care. The clinical rotation will be performed at multisite outpatient clinical environments where integrative care is rendered, and collaborative management is encouraged and facilitated. The students are evaluated using the following strategies: oral presentations, clinical case presentations, **O.S.C.E**., departmental examinations, patient encounter, one exam, and the daily performance evaluation given by the preceptor and the National Board Subject Examination. All student work-up is supervised, discussed, and countersigned by the faculty clinician. The patient logbook is evaluated at mid-rotation to identify the diagnoses to which the students need to be exposed to guarantee that the clerkship requirements are met. Written feedback is obtained from the students about the various clinical sites and the preceptors.

DCCC402 Clinical Rotation II
14 Credits

The Clinical Rotation 2 course is a clinical clerkship internship where the student will be able to evaluate, assess, order studies, diagnose, and perform treatment with continuous supervision of the mentor or attending faculty clinician. By this stage of the educational development program, the student will be capable of sharpening the functions of a chiropractic practitioner with confidence and skills to deliver adequate care. The clinical rotation will be performed at multisite outpatient clinical environment where integrative care is rendered, and collaborative management is encouraged and facilitated. The students are evaluated using the following strategies: oral presentations, clinical case presentations, **O.S.C.E.**, departmental examinations, patient encounter, one exam, and the daily performance evaluation given by the preceptor and the National Board Subject Examination. All student work-up is supervised, discussed, and countersigned by the faculty clinician. The patient logbook is evaluated at mid-rotation to identify the diagnoses to which the students need to be exposed to guarantee the clerkship requirements were accomplished. Written feedback is obtained from the students about the various clinical sites and the preceptors.

DCCC403 Electives
4 Credits

The elective course is a three-module component where the student can choose the track of his/her choice within the chiropractic sports sciences, functional nutrition, and pediatrics. This module will expand the knowledge and clinical experience of the student to enhance and motivate them to pursue specific career opportunities. Students are evaluated using the following strategies: oral presentations, clinical case presentations, patient encounter, one exam and the daily performance evaluation given by the preceptor. All student work-up is supervised, discussed, and countersigned by the faculty clinician. The patient logbook is evaluated at mid-rotation to identify the diagnoses to which the students need to be exposed to guarantee the clerkship requirements were accomplished. Written feedback is obtained from the students about the various clinical sites and the preceptors.

DCCH409 Principles of Chiropractic IX: Special Populations
4 Credits

This course is focused on group populations who can benefit from chiropractic care as coadjutants to help them overcome their chronic poor health status. People with diagnosis of **HIV/AIDS**, cancer, stroke, drug abuse, and disabilities, among others, are the focus of this course, and the student will have the opportunity to learn through lectures, workshops, and direct care to patients in outpatient clinics. The focus is far away from controversies and directed at providing relief and creating an opportunity to educate patients on a wellness- based lifestyle that involves chiropractic care making a daily difference in the lives of people living with chronic conditions. Chiropractic interns will render care under the mentorship and continuous observation of the faculty clinician to impact these populations through wellness education, prescribed exercises, and self-care advice. People with chronic conditions are often given pain medications and muscle relaxants to deal with chronic pain, and a chiropractor can offer them long-term, corrective care alternatives so they can be proactive in their health versus reactive to their suffering. The student will be evaluated using **MCQ** exams, the clinical experience rubric criterion-based rating scale will be utilized to assess the student's accomplishments and identify areas for improvement, **OSCE**, and workshops.

DCCH410 Functional Chiropractic Neurorehabilitation
3 Credits

Recent advances in brain imaging have allowed researchers to observe previously unknown dynamic properties of the brain. Once regarded as being fixed or static, brain cells were now proven otherwise. Mature neurons were shown to be capable of increasing their communication with other nerve cells and promoting further growth. The adult brain is currently perceived as having a capacity to reorganize itself, maximize its efficiency, and compensate for the loss of functions. These observations gave rise to the concept of neuroplasticity, developed from chiropractic, neuromechanical, and neurophysiological perspectives, methods of patient evaluation to localize and subsequently correct central nervous system weakness. Neuro-ophthalmic pathways have allowed further **CNS** evaluations and synergistic therapeutic stimulation. Therefore, this course will review the appropriate integration of brain-based assessments and therapies to allow the chiropractor to develop optimal neurorehabilitation protocols, and for athletic equilibrium and balance enhancement. Assessment and evaluation strategies for this course include **MCQ** exams, written and oral presentations, performance evaluations, practical examinations, and workshops.

DCEB403 Evidence-Based Chiropractic Care III
1 Credit

This course is intended to be a sequel to Evidence-Based Chiropractic Care 2. It is expected to master the student competency in the clinical questioning and patient management, demonstrating how to use the literature databases, critical appraisal of scientific articles, applying the evidence and the evaluation of the process, combining scientific evidence with clinical experience and patient values. The student will be able to analyze research designs commonly encountered in chiropractic-related literature and use clinical outcome measures, bias, validity, reliability, sensitivity, specificity, and concepts in statistics. Through case-based instructional learning and small group discussion, the student will be able to enhance their knowledge of **EBP** and put into practice case-based learning. The assessment strategies of this course include portfolio-based assessment, case reports/presentations, professional development plan, clinical documentation review, and peer assessment.

DCSM401 Chiropractic Sports Medicine and Fitness Counseling
3 Credits

This course is designed to expose the student to various areas of action of the chiropractor, inside the specialty of sports chiropractic physicians, combining scientific knowledge from biomechanics, kinesiology, and physiology with practical experience with athletes at the laboratory of biomechanics, and in the sports field. Additionally, students will have the opportunity to be involved in the evaluation and design of rehabilitation programs through specific workshops and group discussions. Student assessment and evaluation strategies include **MCQ** exams, written and oral presentations, practical exams, and on-field performance exams.

# Graduate Program in Biomedical Sciences

# Important Notice – Program Not Accepting New Applicants

The Graduate Program in Biomedical Sciences is currently reviewing its curriculum. Therefore, it is not accepting new applications at this time for the following offerings:

1. Master of Science (**MS**) in Biomedical Sciences
    - Anatomy and Cellular Biology*
    - Biochemistry
    - Microbiology and Immunology*
    - Pharmacology
    - Physiology
2. Master of Science in Neuroscience
3. Master of Arts (**MA**) in Biomedical Sciences
4. Master of Arts (**MA**) in Biomedical Sciences
    - Anatomy and Cellular Biology[1]
    - Physiology
    - Microbiology and Immunology[1]

Students who are already enrolled will continue their studies as planned and will receive the necessary academic support to ensure they successfully complete their program.

[1] *These programs will not be accepting applications for the 2025-2026 academic year due to an active curricular revision process.*

# GRADUATE PROGRAM IN BIOMEDICAL SCIENCES

## Mission

The mission of the Graduate Program in Biomedical Sciences is to develop highly trained, independent, and ethically oriented scientists through interdisciplinary research, academic training and community outreach activities to advance the current knowledge in biomedical sciences, contributing to the development of a scientific workforce for the benefit of human health.

## Educational Program Objectives

### Program Objectives

1. Advance interdisciplinary research in biomedical sciences committed to sound scientific practices and rigor.
2. Increase the availability of resources geared to provide continuous support to students toward good academic standing.
3. Foster an environment that provides an adequate physical infrastructure and the fiscal and human resources needed for high-quality teaching, research, and service.
4. Provide an interdisciplinary curriculum that is aligned with current field standards, as well as institutional and program missions.
5. Engage students and faculty in promoting, developing, and implementing community outreach activities to create awareness of biomedical sciences.
6. Provide the resources necessary for faculty development to guarantee a solid and continuous research agenda.

## Study Programs

### Description

The Graduate Program in Biomedical Sciences offers six different study programs:

5. Doctor of Philosophy in Cellular and Molecular Biology
6. Doctor of Philosophy in Neurosciences
7. Master of Science (**MS**) in Biomedical Sciences
    - Anatomy and Cellular Biology*
    - Biochemistry
    - Microbiology and Immunology*
    - Pharmacology
    - Physiology
8. Master of Science in Neuroscience
9. Master of Arts (**MA**) in Biomedical Sciences
10. Master of Arts (**MA**) in Biomedical Sciences
    - Anatomy and Cellular Biology[1]
    - Physiology
    - Microbiology and Immunology[1]

[1] *These programs will not be accepting applications for the 2025-2026 academic year due to an active curricular revision process.*

## Requirements for the Doctor of Philosophy Degrees, Master of Science (MS) and Master of Arts (MA)

### Residence Requirements

**PhD** Student Residence: A minimum of 36 credits must be completed at the **UCC**. **MS/MA** Student Residence: A minimum of two years of full-time work must be completed at the **UCC**

## Maintenance of Active Status

### Student Course Load and Enrollment Status Policy (approved December 1, 2022)

#### Ph.D. Students

1. Full-Time Student: A full-time load consists of at least 9 credits of course registration in the fall and spring semesters, eighteen (18) per year. Students must register every term; failure to do so will automatically result in the student being withdrawn from the program. However, students may be certified full-time with less than nine credits of registration under the following conditions:
    a. May be certified full-time with one credit of graduate research if they have completed all required courses and have passed the candidacy examination.
2. Part-Time Student: All students registering for eight credit hours or fewer are defined as part-time with the program director's approval. They are required to register as such and to pay the corresponding tuition.

#### Master Students

1. Full-Time Student (semester calendar): Full-time master's students are enrolled in at least nine credits per academic year (fall and spring) and two courses by semester. However, students may be certified full-time with less than nine credits of registration in the following cases:
    a. May be certified **FT** with one credit of thesis work or internship if they have completed all required courses.
2. Part-Time Student: All students registering for eight credit hours or fewer are defined as part-time with the program director's approval. They are required to register as such and to pay the corresponding tuition.

## PhD/MS Research Mentor

Students must select a mentor by the end of the first academic year. The mentor will be the chair of the Thesis / Dissertation Committee and will be chosen by the student. The mentor must have a doctoral degree and be actively engaged in research for **Ph.D**. and **M.S**. students. The mentor will be responsible for direct supervision of the student's study and will coordinate the comprehensive / candidacy exam. The mentor must have an academic appointment at **UCC**.

It is the student's responsibility to find an advisor. If the student has not succeeded within three full semesters after being admitted, they must leave the **GPBS** or change their status to that of a master's degree (non-thesis option) student.

## MA Mentor

**MA** students must select a mentor by the end of the first year. The mentor will oversee the organization of evaluation committees for the students' biographical reports according to the reports' discipline. The students will select the mentor with the advice of the department's chairperson. The mentor will be responsible for direct supervision of the student's academic work and will coordinate the comprehensive exam. The mentor must hold an academic appointment at the **UCC**.

## Dissertation/Thesis Committee

After selecting their research advisor, the student, in consultation with the advisor, will choose a committee no later than the first semester of the second academic year. The committee will comprise three (3) or five (5) members, including the research advisor, who will chair the committee. The members must have doctoral degrees. The members of the committee will be **UCC** faculty members. Faculty from other institutions with similar programs can be part of the committee, but most of the committee must be **UCC** faculty members. One (1) committee member must be a graduate faculty member from outside the advisor's department. The advisor will keep written records of all committee meetings. The committee and the program of study must be approved by the Graduate Program in Biomedical Sciences Office and should be on file at that Office by the end of the first semester of the second year.

An intensive period of full-time research is the central element of the PhD/MS degrees. It is the dissertation committee's responsibility to provide an objective evaluation of the project and contribute to selecting specific research directions. While the dissertation committee often has helpful suggestions on specific approaches to a particular protocol, a more vital function is to help focus and limit the scope of the research so that the student has, as early as possible, a clear concept of the overall design of the dissertation proposal. Although this concept will change in response to specific experimental findings, the student must be guided to define, both in scope and quality, an appropriate research project.

The dissertation committee will regularly monitor the students' research progress, meeting at least once per academic semester. A week before each meeting, the student will present a written summary of research progress to the committee for review.

## Bibliographical Reports Committee

For those students enrolled in the **MA** Program in Biomedical Sciences, the associate dean of research and graduate studies, together with the student, will select the biographical reports and their mentor.

## Seminars

This course allows graduate students to prepare and present a scientific seminar on a relevant topic within their academic program. All faculty members present during the workshop may evaluate the student's seminar presentation. At least three faculty members must be present for a grade to be awarded for the seminar presentation. The seminar will be announced and open to the academic community. The **GPBSF** 14 Seminar Presentation Evaluation Form will be used to evaluate students' presentations.

## Dissertation/Thesis

Under the supervision of his/her mentor and of the Dissertation / Thesis Committee, the candidate shall prepare a thesis embodying the results of his/her investigative efforts in his/her selected major field or area of expertise. The candidate will submit a draft to the mentor and the members of the Committee at least ten (10) weeks prior to the thesis defense date.

1. The members of the committee will revise the draft to propose in writing any changes, deletions, corrections, and criticisms to the draft.
2. The Committee and the students will meet to discuss the recommendations.
3. The candidate will prepare the final draft of the thesis based on the changes, corrections, etc., submitted by each member of the Committee.
4. The Committee will reexamine the thesis and determine the acceptability of the thesis and the date of the thesis defense. Following the public defense, the student will have 10 days to make changes his committee requires.
5. The committee will have 2 weeks to reexamine and approve or disapprove the thesis.
6. The student must deliver the approved thesis electronically, according to the Thesis/ Dissertation Manual, to complete the graduation requirements and receive their diploma.

The Graduate Programs in Biomedical Sciences Office will print and bind three (3) copies of the thesis (one for the student, one for the mentor, and one for the library). Make sure that the Graduate School has your current contact information so you can be notified when the bound copies arrive at the Graduate School.

## Dissertation / Thesis Defense

To qualify for the Dissertation/Thesis defense, the candidate should have fulfilled all graduation prerequisites (including authorship conditions for Ph.D. students) except for submitting the final version of their Dissertation/Thesis. Additionally, the candidate must have received confirmation from the Dissertation/Thesis Committee that their Dissertation/Thesis is ready for defense.

The defense will consist of a public presentation of the results and conclusions of the dissertation/ thesis research. The defense will take place at **UCC**. The defense is an oral defense, and the candidate will be examined on the content of the thesis by the Dissertation/Thesis Committee. Other academic community members may attend the final examination and participate in the questioning. Once the public portion of the defense is completed, the Dissertation / Thesis Committee will meet privately with the candidate for further evaluation of the student's knowledge of the dissertation/thesis. The Associate Dean will appoint a Graduate Program in Biomedical Sciences representative and act as an evaluator of the process. This representative will be from outside the Students' Thesis Committee. The result of the defense will be notified orally and in writing to the candidate. In case of failure, the panel may recommend that the candidate be dismissed from the program or that a second opportunity to defend the thesis be allowed, no later than six (6) months from the date of the first defense. A student may defend only twice.

The Graduate Program in Biomedical Sciences Office will officially announce the defense after prior notification; the notification must be received no later than fourteen (14) days before the intended thesis defense date.

## Dissertation / Thesis Defense Approval Form

The Request for Permission for Dissertation / Thesis Defense form must be completed and submitted to the Graduate Programs in Biomedical Sciences at least two weeks before the final defense. A ballot for the final examination will be sent to the research advisor. After the defense, the original signed ballot must be returned to the Graduate Programs in Biomedical Sciences.

### Specific Requirements for the PhD Degree Candidacy Examination

**Ph.D**. students in good standing can take the candidacy examination at the end of their required courses. All **Ph.D.** students must take a candidacy examination by the end of their third year. If students do not comply, they must choose between the **M.S., M.A**., or leave the Graduate Program in Biomedical Sciences.

The goal of the candidacy examination is for the faculty to assess the adequacy of the students' background knowledge in their chosen field and their problem-solving ability and interpretation of important concepts before formally permitting them to continue their doctoral research.

Successful completion of the candidacy examination is required for advancement to doctoral candidacy and must be accomplished at least twelve (12) months before the dissertation defense. The dissertation committee recommends advancement to candidacy to the Graduate Program in Biomedical Sciences Office.

The Associate Dean will appoint a representative of the Graduate Program in Biomedical Sciences to attend the candidacy examination, record the approval of the dissertation committee, and ensure all Program regulations are followed. This representative cannot be a member of the students' department (**MS/MA**), nor is it a part of the student committee.

### Exam Format

The candidacy exam will consist of a written research proposal. The student presentation must be between 40 and 60 minutes. A closed question session between the dissertation committee and the student will follow this. The candidate must submit the proposal to the mentor and the members of the Committee at least two (2) weeks before the candidacy exam. The written research proposal must follow the National Institutes of Health F31 guidelines.

A student in good academic standing who fails the examination is allowed one (1) opportunity to retake the exam. In case of failure, the student will be reexamined no later than two (2) months from the first examination date. In case of a second failure, the student will be awarded an M.A. degree. The student will not be allowed to reenter the **Ph.D**. Program.

In case of conditional approval, the student must meet the conditions no later than two (2) months from the first examination date.

**Ph.D**. students who complete the candidacy examination and cannot complete the **Ph.D**. graduation requirements will be awarded an **M.S.** degree.

## Requirements for the Master's Degree

### Comprehensive Examinations

All students enrolled in the **MS** and **MA** programs must pass a written examination covering the student specialization subjects described in their program of study. In case of failure, the student will be re-examined no later than six months from the first examination date. In the event of a second failure, the department's faculty may recommend that the candidate be dismissed from the program or re-examined for a third and final time. The comprehensive examination is usually given near the end of the student's second year of graduate studies, or after the satisfactory completion of the scheduled courses. The student's mentor is responsible for coordinating and administering the comprehensive examination.

## Specific Requirements for the Master of Science (MS) Degree with Departmental Specialization

### Course Requirements

All candidates for the **MS** degree must approve their program of study with a minimum grade point average of 3.0 (scale of 4.0). Each department will approve any specific course requirements or minimum passing grades.

## Research Proposal

All MS candidates will be required to write and give an oral research proposal presentation. In preparing the written proposal, the student should follow the F31 guidelines set forth by the National Institutes of Health. The thesis committee must approve the proposal.

The candidate will submit a draft to the mentor and the committee members at least two (2) weeks before the defense date.

## Specific Requirements for the Master of Arts (MA) Degree with Departmental Specialization Course Requirements

All candidates for the **MA** degree with departmental specialization must approve their program of study with a minimum grade point average of 3.0 (scale of 4.0). Written bibliographic reports included in their program of study will be assigned, supervised, and evaluated by a faculty member appointed by the mentor. Each bibliographic report will not carry a value of more than one (1) credit hour. Bibliographic reports will be evaluated with **GPBSF** 19. Each department will determine specific course requirements, minimum passing grades, and programs of study.

## Specific Requirements for the Master of Arts in Biomedical Sciences

The Universidad Central del Caribe offers the Master of Arts in Biomedical Sciences to those students who wish to obtain general knowledge but do not want to specialize in any area of the biomedical sciences.

## Course Requirements

All candidates for the Master of Arts in Biomedical Sciences must complete the program with a minimum grade point average of 3.0 (scale of 4.0). Written bibliographic reports included in their program of study will be assigned, supervised, and evaluated by a faculty member appointed by the mentor. Each bibliographic report will carry a value of no more than one (1) credit hour. Bibliographic reports will be evaluated with **GPBSF** 19.

# Evaluation and Promotion

## Grading Policy

Grades at the end of each term are assigned according to the following letter system:

| Grade | Points | Description |
|---|---|---|
| A | 4 | Excellent |
| B | 3 | Good |
| C | 2 | Satisfactory |
| F | 0 | Failure |
| H | -- | Passed with honors |
| I | -- | Incomplete coursework |
| IP | -- | In Progress |
| N | -- | Non-reported |
| NC | -- | Noncredit course |
| P | -- | Passed[2] |
| W | -- | Withdrawal |

## Incomplete Coursework (I)

A grade of "I" indicates assigned work yet to be completed in the term.

a. Requirements and conditions
   i. All coursework must be completed no later than the final examination date. If this is not possible due to illness or other valid reasons, the student may request a temporary grade of Incomplete (I). The minimum requirements and conditions for eligibility to receive a temporary grade of Incomplete are:
      a) A written request from the student to the course director, accompanied by supporting evidence of illness or another serious event that prevented the completion of the coursework.
      b) The student must have completed at least 75% of the required coursework and its corresponding evaluations with a cumulative passing grade up to that point.

b. Incomplete grade removal
   i. If the grade of "I" is not removed by the deadline set in the official academic calendar, it will automatically become an F (Failure).
   ii. An "I" grade cannot be changed to a W (authorized withdrawal) under any circumstances.
   iii. The registration of any student with incomplete coursework will be provisional and conditional upon removing the incomplete grade before the stated deadline.

[2] Each department may propose through the Graduate Program in Biomedical Sciences Committee graduate courses for pass/fail (P/F) designation.

## Student Satisfactory Academic Progress

The Graduate Program in Biomedical Sciences Committee will review students' records by the time all grades are submitted at the end of each academic semester to determine the student's status in the program. At the end of each academic year, at the end of the spring term, this evaluation must include a decision on whether the student complied with all academic requirements and responsibilities and is eligible for promotion to the following year in the program.

The resulting action depends upon the grade point average (**GPA**) on a four-point scale, as follows:

1. To be in good academic standing, the student must have a GPA of 3.0 or higher.
2. If the grade index is below 3.0 but above 2.5, the student will be placed on probation for the following academic year; ultimately, they will be dismissed if their grade index has not improved to 3.0. Students on probation are not eligible for financial aid. Students will be referred to the Student Affairs Deanship for support.
3. Students attaining a GPA below 2.5 will be dismissed from the Program.
4. A student may repeat a course once, after withdrawing. The student must retake the course the next time it is offered. If the student does not pass the course during their second attempt, they will be dismissed from the program.
5. Students who obtain a grade of C may repeat the course once. The student must retake the course the next time it is offered. The higher grades received will be used to calculate the GPA. Students may not repeat more than three courses in total.
6. A student has only one opportunity to retake a failed (F) or withdrawn (W) course to achieve a grade of C or better. Students who obtain a C on the second attempt cannot retake the course. Failure to pass the BMS 899: Graduate Research course on the first attempt and any other course on the second attempt will result in dismissal from the program.

For grade appeal procedures, refer to the section **Formal Grades Appeal Procedure.**

Once dismissed from the program, a student will not enroll in graduate courses under any student classification, for example, a non-degree student. A certified letter is mailed to each student placed on probation or dismissed.

All grades on courses not offered at the institution but approved by the thesis committee as part of the program of study will also be included in the **GPA** calculation. Withdrawals, pass/fail credit, and transfer courses are not included in the calculation of the **GPA**. Transferred courses are defined as those completed while not enrolled at the **UCC**.

A certified letter is mailed to each student placed on probation or dismissed.

## Withdrawal Procedures

1. The deadline for withdrawal from a course with a grade of "W" may be any date before 50% of completion of the course; afterward, the student will be assigned a grade of WF or WP (if evaluated).
2. The deadline for withdrawal without "W" will be 10% after the beginning of the course.
3. The procedure for withdrawal is as follows:
    i. Students must notify the graduate program coordinator in writing of their intention to withdraw from which course(s).
    ii. Students should file the withdrawal application at the Registrar's Office.
4. Authorized withdrawals will be allowed before the final course exam.
5. Not following the withdrawal procedures constitutes grounds for dismissal from the Program.
6. According to the **UCC** Rules and Regulations, attendance at classes and all other academic activities is compulsory. The Registrar's Office will monitor course attendance in compliance with the Federal Department of Education. Students who do not attend class will be considered to have made an unauthorized withdrawal.

## Language Requirements

Knowledge of English and Spanish is a basic requirement for study in the program. The student is expected to possess verbal and written proficiency in both languages.

Seminars, bibliographic reports, dissertations/theses, proposal defenses, and candidacy exams will be in English.

## Graduation

Students must apply and pay the corresponding graduation fee no later than the date set in the academic calendar. Application forms for this purpose are obtained from the Registrar's Office. They must be mailed or delivered with a copy of the receipt of payment of the $200.00 non-refundable graduation fee to the Bursar's Office. Noncompliance with these requirements may postpone the conferring of the degree.

## Time Limitations for a PhD Degree

Doctoral students must complete the degree requirements in at least four years and a maximum of seven. Refer to the "Extension Request Procedure" section.

## MS/MA Degree

Master's students will be allowed a maximum of four years to complete the degree requirements.

The student must complete all requirements by June 30 of his fourth year, the last day of the academic year. Under exceptional circumstances, the Graduate Program in Biomedical Sciences Committee may extend these periods for one (1) year.

## Extension Request Procedure

Under exceptional circumstances, the Graduate Program in Biomedical Sciences Committee may extend the specific program time limits for a maximum of two semesters. The student must direct a letter to the Academic Director of Graduate Studies requesting the extension at most six months before the start of the extended period. The letter must include the reasons why they could not complete the degree in the allowed time. The mentor will write a letter agreeing to continue being the student's mentor and will submit a detailed plan for the student to complete the graduation requirements in the requested period. The student's thesis committee members should have previously approved the proposed plan. The Graduate Program in Biomedical Sciences Committee will examine the documents presented and render a decision.

The student can request a time extension under the following circumstances:

1. Students' studies or research were interrupted and/or delayed because of a natural disaster (hurricanes, earthquakes, pandemic, etc.).
2. Student's studies or research were interrupted and/or delayed due to unexpected events associated with the student's personal life, such as a disabling disease, accident, injury, and/or death of a close relative.
3. Students' studies or research were interrupted and/or delayed due to pregnancy, maternity or paternity care, or care for a family member.
4. Student's studies or research were interrupted and/or delayed due to mentor illness, separation from the institution, or death.
5. Other exceptional circumstances.

If the student does not finish the proposed plan during the extended period, the student's progress will be evaluated by the Graduate Program Committee.

## Curricular programs for the PhD, MS, and MA degrees

The program of study must be filed with the Graduate Program in Biomedical Sciences Office. Students may enroll in the courses they understand are relevant to their degree, with their mentor's approval, within the time limit to complete the program. These programs of study are designed to meet the specific requirements of each student. Once the designated program of study is approved, a student must comply with the course requirements established in their program to graduate.

## Courses of Study

### Doctor of Philosophy in Cellular and Molecular Biology[3]

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 500A | Responsible Conduct of Research | 2 |
| BMS 501 | Introduction to Experimental Design | 1 |
| BMS 505 | Introduction to Education and Teaching | 1 |
| BMS 510G | Biochemistry and Cell Biology | 6 |
| BMS 512A | Critical Thinking | 2 |
| BMS 860 | Scientific Methodology | 2 |
| BMS 861A | Biostatistics | 3 |
| BMS 862A | Research Laboratory Rotations | 1 |
| | **Total of Credits First Year:** | **18** |

**Second Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 523B | Molecular Biology | 6 |
| BMS 899 | Graduate Research | 5 |
| BMS 879A | Seminar in Cellular and Molecular Biology | 1 |
| BMS | Electives | 6 |
| | **Total of Credits Second Year:** | **18** |

**Third Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 899 | Graduate Research | 10 |
| BMS 909 | Research Seminar | 1 |
| BMS | Electives | 7 |
| | **Total of Credits Third Year:** | **18** |

**Fourth Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 899 | Graduate Research | 17 |
| BMS 909 | Research Seminar | 1 |
| | **Total of Credits Fourth Year:** | **18** |
| | **Total Credits:** | **72** |

*Note: Students in the PhD in Cellular and Molecular Biology may select and organize elective courses according to their research interests and in coordination with their academic advisor or mentor.*

[3] Current students enrolled.

## Doctor of Philosophy in Cellular and Molecular Biology[4]

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 500A | Responsible Conduct of Research | 2 |
| BMS 506 | Career Skills for Biomedical Sciences | 2 |
| BMS 511 | Biochemistry | 3 |
| BMS 523C | Molecular Biology | 5 |
| BMS 860 | Scientific Methodology | 1 |
| BMS 861A | Biostatistics | 3 |
| BMS 862A | Research Rotations | 1 |
| BMS 901 | Graduate Research I | 1 |
| | **Total of Credits First Year:** | **18** |

**Second Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS | Electives | 3 |
| BMS 513 | Cell Biology | 3 |
| BMS 817 | Signal Transduction | 2 |
| BMS 900 | Proposal Writing | 3 |
| BMS 898 | Interprofessional Scientific Seminar | 1 |
| BMS 902 | Graduate Research II | 2 |
| BMS 903 | Graduate Research III | 4 |
| | **Total of Credits Second Year:** | **18** |

**Third Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 904 | Graduate Research IV | 8 |
| BMS 905 | Graduate Research V | 9 |
| BMS 910 | Research Seminar I | 1 |
| | **Total of Credits Third Year:** | **18** |

**Fourth Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 906 | Graduate Research VI | 8 |
| BMS 907 | Graduate Research VII | 9 |
| BMS 911 | Research Seminar II | 1 |
| | **Total of Credits Fourth Year:** | **18** |
| | **Total Credits:** | **72** |

*Note: Students in the PhD in Cellular and Molecular Biology may select and organize elective courses according to their research interests and in coordination with their academic advisor or mentor.*

[4] Curricular design in effect for the cohort beginning in academic year 2025-2026

## Doctor of Philosophy in Neurosciences[5]

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 500A | Responsible Conduct of Research | 2 |
| BMS 501 | Introduction to Experimental Design | 1 |
| BMS 505 | Introduction to Education and Teaching | 1 |
| BMS 510G | Biochemistry and Cell Biology | 6 |
| BMS 512A | Critical Thinking | 2 |
| BMS 860 | Scientific Methodology | 2 |
| BMS 861A | Biostatistics | 3 |
| BMS 862A | Research Laboratory Rotations | 1 |
| | **Total of Credits First Year:** | **18** |

**Second Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 580A | Neuroscience | 6 |
| BMS 889 | Seminar in Neuroscience | 1 |
| BMS 899 | Graduate Research | 5 |
| BMS | Electives | 6 |
| | **Total of Credits Second Year:** | **18** |

**Third Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 580B | Advance Neuroscience | 3 |
| BMS 899 | Graduate Research | 10 |
| BMS 909 | Research Seminar | 1 |
| BMS | Electives | 4 |
| | **Total of Credits Third Year:** | **18** |

**Fourth Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 899 | Graduate Research | 17 |
| BMS 909 | Research Seminar | 1 |
| | **Total of Credits Fourth Year:** | **18** |
| | **Total Credits:** | **72** |

*Note: Students in the PhD in Cellular and Molecular Biology may select and organize elective courses according to their research interests and in coordination with their academic advisor or mentor.*

[5] Current students enrolled.

## Doctor of Philosophy in Neurosciences[6]

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 500A | Responsible Conduct of Research | 2 |
| BMS 506 | Career Skills for Biomedical Sciences | 2 |
| BMS 581 | Cellular and Molecular Neuroscience | 3 |
| BMS 582 | Neuroanatomy and Neurophysiology | 5 |
| BMS 860 | Scientific Methodology | 1 |
| BMS 861A | Biostatistics | 3 |
| BMS 862A | Research Rotations | 1 |
| BMS 901 | Graduate Research I | 1 |
| | **Total of Credits First Year:** | **18** |

**Second Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS | Electives | 4 |
| BMS 583 | Neural Disease and Neuropharmacology | 4 |
| BMS 900 | Proposal Writing | 3 |
| BMS 898 | Interprofessional Scientific Seminar | 1 |
| BMS 902 | Graduate Research II | 2 |
| BMS 903 | Graduate Research III | 4 |
| | **Total of Credits Second Year:** | **18** |

**Third Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 904 | Graduate Research IV | 8 |
| BMS 905 | Graduate Research V | 9 |
| BMS 910 | Research Seminar I | 1 |
| | **Total of Credits Third Year:** | **18** |

**Fourth Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 906 | Graduate Research VI | 8 |
| BMS 907 | Graduate Research VII | 9 |
| BMS 911 | Research Seminar II | 1 |
| | **Total of Credits Fourth Year:** | **18** |
| | **Total Credits:** | **72** |

*Note: Students in the PhD in Cellular and Molecular Biology may select and organize elective courses according to their research interests and in coordination with their academic advisor or mentor.*

[6] Curricular design in effect for the cohort beginning in academic year 2025-2026

## Master of Arts in Biomedical Sciences

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 500A | Responsible Conduct of Research | 2 |
| BMS 501 | Introduction to Experimental Design | 1 |
| BMS 510G | Biochemistry and Cell Biology | 6 |
| BMS 860 | Scientific Methodology | 2 |
| BMS 861A | Biostatistics | 3 |
| | **Total of Credits First Year:** | **14** |

**Second Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS | Electives | 10 |
| BMS869 | Seminar in Biomedical Science | 2 |
| | **Total of Credits Second Year:** | **12** |

**Third Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS | Electives | 10 |
| | **Total of Credits Third Year:** | **10** |
| | **Total Credits:** | **36** |

## Master of Arts in Biomedical Sciences in Anatomy and Cellular Biology[7]

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 500A | Responsible Conduct of Research | 2 |
| BMS 501 | Introduction to Experimental Design | 1 |
| BMS 860 | Scientific Methodology | 2 |
| BMS 861A | Biostatistics | 3 |
| BMS | Electives | 8 |
| | **Total of Credits First Year:** | **16** |

**Second Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS | Electives | 16 |
| | **Total of Credits Second Year:** | **16** |

**Third Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 809 | Seminar in Anatomy and Cell Biology | 2 |
| BMS 868 | Bibliographic Report | 2 |
| | **Total of Credits Third Year:** | **4** |
| | **Total Credits:** | **36** |

[7] *The program will not be accepting applications for the 2025-2026 academic year due to an active curricular revision process.*

## Master of Arts in Biomedical Sciences in Physiology

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 500A | Responsible Conduct of Research | 2 |
| BMS 501 | Introduction to Experimental Design | 1 |
| BMS 510G | Biochemistry and Cell Biology | 6 |
| BMS 860 | Scientific Methodology | 2 |
| BMS 861A | Biostatistics | 3 |
| BMS 862B | Research Laboratory Rotations B | 2 |
| | **Total of Credits First Year:** | **16** |

**Second Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 530B | Physiology | 6 |
| BMS 830 | Neurophysiology | 5 |
| BMS 839 | Seminar in Physiology | 1 |
| BMS 868 | Bibliographic Report | 1 |
| | **Total of Credits Second Year:** | **13** |

**Third Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 839 | Seminar in Physiology | 1 |
| BMS 868 | Bibliographic Report | 1 |
| BMS | Electives | 5 |
| | **Total of Credits Third Year:** | **7** |
| | **Total Credits:** | **36** |

## Master of Arts in Biomedical Sciences in Microbiology and Immunology[8]

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 500A | Responsible Conduct of Research | 2 |
| BMS 501 | Introduction to Experimental Design | 1 |
| BMS 510G | Biochemistry and Cell Biology | 6 |
| BMS 821 | Immunology | 3 |
| BMS 860 | Scientific Methodology | 2 |
| BMS 861A | Biostatistics | 3 |
| BMS 862A | Research Laboratory Rotations | 1 |
| | **Total of Credits First Year:** | **18** |

**Second Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 820C | Medical Bacteriology | 2 |
| BMS 822A | Parasitology | 2 |
| BMS 825A | Mycology | 2 |
| BMS 826A | Virology | 2 |
| BMS 829A | Diagnostic Bacteriology | 2 |
| BMS 868 | Bibliographic Report | 1 |
| BMS | Electives | 4 |
| BMS 820C | Medical Bacteriology | 2 |
| | **Total of Credits Second Year:** | **17** |

**Third Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 859 | Seminar in Microbiology and Immunology | 2 |
| BMS 868 | Bibliographic Report | 1 |
| | **Total of Credits Third Year:** | **3** |
| | **Total Credits:** | **38** |

[8] *The program will not be accepting applications for the 2025-2026 academic year due to an active curricular revision process.*

## Master of Science in Biomedical Sciences in Anatomy and Cellular Biology[9]

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 500A | Responsible Conduct of Research | 2 |
| BMS 501 | Introduction to Experimental Design | 1 |
| BMS 860 | Scientific Methodology | 2 |
| BMS 861A | Biostatistics | 3 |
| BMS | Electives | 6 |
| | **Total of Credits First Year:** | **14** |

**Second Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS | Electives | 14 |
| BMS 899 | Graduate Research | 2 |
| | **Total of Credits Second Year:** | **16** |

**Third Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 809 | Seminar in Anatomy and Cell Biology | 2 |
| BMS 899 | Graduate Research | 4 |
| | **Total of Credits Third Year:** | **6** |
| | **Total Credits:** | **36** |

[9] *The program will not be accepting applications for the 2025-2026 academic year due to an active curricular revision process.*

## Master of Science in Biomedical Sciences in Biochemistry

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 500A | Responsible Conduct of Research | 2 |
| BMS 501 | Introduction to Experimental Design | 1 |
| BMS 510G | Biochemistry and Cell Biology | 6 |
| BMS 860 | Scientific Methodology | 2 |
| BMS 861A | Biostatistics | 3 |
| BMS 862B | Research Laboratory Rotation B | 2 |
| | **Total of Credits First Year:** | **16** |

**Second Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 523B | Molecular Biology | 6 |
| BMS 819 | Seminar in Biochemistry | 1 |
| BMS | Electives | 4 |
| BMS 899 | Graduate Research | 4 |
| | **Total of Credits Second Year:** | **15** |

**Third Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 819 | Seminar in Biochemistry | 1 |
| BMS 899 | Graduate Research | 4 |
| | **Total of Credits Third Year:** | **5** |
| | **Total Credits:** | **36** |

## Master of Science in Biomedical Sciences in Pharmacology

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 500A | Responsible Conduct of Research | 2 |
| BMS 501 | Introduction to Experimental Design | 1 |
| BMS 510G | Biochemistry and Cell Biology | 6 |
| BMS 860 | Scientific Methodology | 2 |
| BMS 861A | Biostatistics | 3 |
| BMS 862B | Research Laboratory Rotations B | 2 |
| | **Total of Credits First Year:** | **16** |

**Second Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 540 | Medical Pharmacology | 6 |
| BMS 849 | Seminar in Pharmacology | 1 |
| BMS | Electives | 3 |
| BMS 899 | Graduate Research | 2 |
| | **Total of Credits Second Year:** | **12** |

**Third Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 849 | Seminar in Pharmacology | 1 |
| BMS | Electives | 3 |
| BMS 899 | Graduate Research | 4 |
| | **Total of Credits Third Year:** | **8** |
| | **Total Credits:** | **36** |

## Master of Science in Biomedical Sciences in Physiology

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 500A | Responsible Conduct of Research | 2 |
| BMS 501 | Introduction to Experimental Design | 1 |
| BMS 510G | Biochemistry and Cell Biology | 6 |
| BMS 860 | Scientific Methodology | 2 |
| BMS 861A | Biostatistics | 3 |
| BMS 862A | Research Laboratory Rotations | 1 |
| | **Total of Credits First Year:** | **15** |

**Second Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 530B | Physiology | 6 |
| BMS 830 | Neurophysiology | 5 |
| BMS 839 | Seminar in Physiology | 1 |
| BMS 899 | Graduate Research | 2 |
| | **Total of Credits Second Year:** | **14** |

**Third Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 839 | Seminar in Physiology | 1 |
| BMS | Electives | 2 |
| BMS 899 | Graduate Research | 4 |
| | **Total of Credits Third Year:** | **7** |
| | **Total Credits:** | **36** |

## Master of Science in Biomedical Sciences in Microbiology and Immunology[10]

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 500A | Responsible Conduct of Research | 2 |
| BMS 501 | Introduction to Experimental Design | 1 |
| BMS 510G | Biochemistry and Cell Biology | 6 |
| BMS 821B | Immunology | 3 |
| BMS 860 | Scientific Methodology | 2 |
| BMS 861A | Biostatistics | 3 |
| BMS 862A | Research Laboratory Rotations | 1 |
| | **Total of Credits First Year:** | **18** |

**Second Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 820C | Medical Bacteriology | 2 |
| BMS 822A | Parasitology | 2 |
| BMS 825A | Mycology | 2 |
| BMS 826A | Virology | 2 |
| BMS 829A | Diagnostic Bacteriology | 2 |
| BMS 899 | Graduate Research | 2 |
| | **Total of Credits Second Year:** | **12** |

**Third Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 859 | Seminar in Microbiology and Immunology | 2 |
| BMS 899 | Graduate Research | 4 |
| | **Total of Credits Third Year:** | **6** |
| | **Total Credits:** | **36** |

[10] *The program will not be accepting applications for the 2025-2026 academic year due to an active curricular revision process.*

## Master of Science in Neuroscience

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 500A | Responsible Conduct of Research | 2 |
| BMS 501 | Introduction to Experimental Design | 1 |
| BMS 510G | Biochemistry and Cell Biology | 6 |
| BMS 860 | Scientific Methodology | 2 |
| BMS 861A | Biostatistics | 3 |
| BMS 862A | Research Laboratory Rotations | 1 |
| | **Total of Credits First Year:** | **15** |

**Second Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 580A | Neuroscience | 6 |
| BMS 580B | Advanced Neurosciences | 3 |
| BMS 889 | Seminar in Neurosciences | 1 |
| BMS | Electives | 4 |
| BMS 899 | Graduate Research | 2 |
| | **Total of Credits Second Year:** | **16** |

**Third Year**

| Code | Course Title | Credits |
|---|---|---|
| BMS 889 | Seminar in Neurosciences | 1 |
| BMS 899 | Graduate Research | 4 |
| | **Total of Credits Third Year:** | **5** |
| | **Total Credits:** | **36** |

## Description of Courses

BMS 500A Responsible Conduct of Research
2 Credits
This course provides graduate students in the biomedical sciences with a comprehensive understanding of the ethical, legal, and regulatory principles governing responsible research conduct. Topics include ethical research design, data management, conflicts of interest, using human and animal subjects, authorship, peer review, intellectual property, and disseminating research findings. The course ensures that students meet the ethical training requirements mandated by institutions and funding agencies, such as NIH and NSF. Teaching methods include case study discussions, group discussions, lectures, manuscript presentation, oral presentation, peer review exercises, and workshops. Students' performance will be evaluated through attendance and participation; case study assignments; compliance list; data management plan; oral presentations; peer review evaluations; presentation of ethics case; examinations; and professionalism.

BMS 501 Introduction to Experimental Design
1 Credit
Introduces graduate students in the field of Biomedical Sciences to basic concepts and understanding of the process for conducting research and experiments in biomedical sciences. Prepare the student for the methodological aspects and the logical steps needed for implementing experimental designs and ensuring reproducibility. Integrate gained knowledge to develop methodological steps for students' research interests. Teaching methods include lectures, article critical analysis, practical exercises, oral presentations, and discussion with mentor and/or professor. Students' performance will be evaluated through examinations, oral presentations, concept papers, attendance, and professionalism.

BMS 505 Introduction to Education and Teaching
1 Credit
The course introduces the basics of classroom management, preparation of syllabus and learning objectives, planning process, methodology strategies, types of exams, assessment, measurement, evaluation, and educational statistics. Teaching methods include lectures, group discussions, and practical exercises. Students' performance will be evaluated through assignments, oral presentations, demonstrative class, reflection, and professionalism.

BMS 506 Career Skills for Biomedical Sciences
2 Credits
This course is designed for graduate students in Biomedical Sciences, providing essential skills for career development in academia, industry, government, and non-profit sectors. Topics include responsible conduct in research, scientific communication, grant writing, networking, job search strategies, entrepreneurship, and work-life balance. The course aims to equip students with the tools for successful and ethical professional practice in the biomedical sciences. Teaching methods include active learning, article critical analysis, case study discussions, group discussion, group learning activities, lectures, oral presentations, reflections, and workshops. Student's performance will be evaluated through attendance and participation; assignments; group assignments; oral presentations; reflections; self-assessment; a capstone project; and professionalism.

BMS 512A Critical Thinking
2 Credits
The course trains students in the art of reasoning and critical thinking and encourages the active practice of critical reasoning, evaluation, and discussion. Students learn how to construct, defend, and criticize arguments; identify and assess tacit assumptions; and gather and evaluate evidence. Teaching methods include lectures, case discussions, presentations, and case videos. Students' performance will be evaluated through examinations, research essays, oral presentations, participation, and professionalism.

BMS 513 Cell Biology
Prerequisite: BMS 511, BMS 523
3 Credits

The Cell Biology for graduate students' course integrates the disciplines of cell biology in prokaryotes and eukaryotes organisms and presents the most important concepts in each. The course features conferences conducted by a team of professors with expertise in their respective fields. Key topics are further developed with assigned scientific articles that feature original research corresponding to a previously presented topic. This activity is designed to develop graduate student skills in reading, analyzing, and discussing research articles while at the same time deepening student understanding of cell biology topics to which each article corresponds. Teaching methods include lectures and group discussions. Students' performance will be evaluated through assignments; attendance and participation; examinations; journal club; and professionalism.

BMS 523B Molecular Biology I
6 Credits

Prepares students on molecular biology concepts and its application in the biomedical field. Students will delve into the concepts underlying how biomolecules interact in various parts of the cell, focusing heavily on DNA replication, transcription, translation, repair, and genes. Teaching methods include readings, lectures, journal clubs, and group discussions. Students' performance will be evaluated through examinations, quizzes, assignments, participation, experimental design, attendance, journal clubs, and professionalism.

BMS 523C Molecular Biology
5 Credits

Prepares students on molecular biology concepts and its application in the biomedical field. Students will delve into the concepts underlying how biomolecules interact in various parts of the cell, focusing heavily on DNA replication, transcription, translation, repair, and genes. Teaching methods include lectures and readings. Students' performance will be evaluated through assignments; attendance and participation; examinations; journal clubs; quizzes; specific aims page; and professionalism.

BMS 580A Neurosciences
Prerequisite: BMS 510G
6 Credits

An introduction to fundamental aspects of nervous system function. Topics will include neurosignaling, neuroplasticity, neuroanatomy, and brain function. Introduction to fundamental aspects of nervous system development, including neural determination, axon guidance, and neuron-target interactions, and an overview of basics of integrative neural function, including sensory, motor and limbic systems, and computational neuroscience. The teaching strategies used in the course are lectures, individualized learning, and oral presentations. Student performance will be evaluated by exams and oral presentations.

BMS 580B Advanced Neurosciences
Prerequisite: BMS 580A
3 Credits

The objective of Advanced Neurosciences is to deepen knowledge in neurosciences and to learn how to identify current frontiers in a field. To become a successful scientist in a research field one needs to know where the 'field is going'. For the development of a vision of the current direction in a research field several skills are required: 1) knowledge of literature, 2) critical thinking, and 3) communication skills. Introductory lectures will be given by faculty members on each topic. The topics will be further deepened during interactive group discussion. During group discussions original research papers and review articles are presented by students and discussed by the group. Student performance will be assessed through exams and oral presentations.

BMS 580C Medical Neurosciences
6 Credits

The course covers topics ranging from neuronal structure and function, communication at the synapse, membrane receptors and intra- and intercellular signaling systems, to the gross organization of the brain and spinal cord, the processing of sensory information, the programming of motor responses, and higher functions such as learning, memory, cognition, and speech. During the course, the student will become acquainted with the use of monoclonal antibodies, gene cloning, cell labeling and tracing, patch clamping, and radioligand binding methods which have shed light into the structure and function of the basic unit of brain tissue, the neuron. The student will also be introduced to noninvasive approaches and instruments for the in-vivo study and analysis of brain tissue, **NMR**, **CAT**, and **PET** scans. Finally, this knowledge shall lead the student to a better understanding of the principles underlying the rational pharmacological therapy of diseases related to nervous tissue, and the new perspectives in therapy of these pathological conditions. The course includes a practical laboratory component. The course goals are reached through varied educational strategies such as: lectures, laboratories, and small and large group discussions. Evaluation is based on written exams and practical computer-based examination using the **LXR** testing program. In addition, written exams and quizzes using the Personal Response System (**PRS**) are incorporated both as formative as well as summative strategies.

BMS 581 Cellular and Molecular Neuroscience
3 Credits

The Cellular and Molecular Neuroscience course offers an in-depth exploration of the intricate cellular and molecular mechanisms underlying nervous system function. Searching through the fundamental principles governing neuronal structure, communication, and plasticity, this course provides students with a comprehensive understanding of the molecular underpinnings of neural development, signaling pathways, and synaptic transmission. Throughout the semester, students will engage in rigorous academic inquiry to investigate key concepts in cellular and molecular neuroscience in topics such as ion channel physiology, neurotransmitter systems, synaptic plasticity, and neurodegenerative diseases. Upon completion of the Cellular and Molecular Neuroscience Course, students will emerge with a profound appreciation for the cellular and molecular complexity of the nervous system, equipped with the knowledge and skills to pursue advanced studies or careers in neuroscience, medicine, biotechnology, and related fields. Teaching methods include active learning and lectures. Students' performance will be evaluated through assignments; attendance and participation; examinations; oral presentation; quizzes; and professionalism.

BMS 582 Neuroanatomy and Neurophysiology
5 Credits

The Neuroanatomy and Neurophysiology course explores the functional organization and neurophysiology of the human central nervous system, and the student will learn about the neural systems organization in the brain and spinal cord that mediate sensation, motivate bodily action, and integrate sensorimotor signals with memory, emotion and related faculties of cognition. In addition, this course provides background on the fundamental workings of the nervous system, including the normal electrophysiology, physical, and chemistry of the neuron, anatomical brain structures and pathways and how disruption of molecules and physiology can lead to clinical pathology. Teaching methods include lectures and active learning. Students' performance will be evaluated through assignments; attendance and participation; examinations; oral presentation; quizzes; and professionalism.

BMS 583 Neural Disease and Neuropharmacology
Prerequisite: BMS 581, BMS 583
4 Credits
This course is designed for PhD Graduate Program in Neurosciences students. The course delves into the intricate world of neural diseases and the pharmacological interventions designed to treat them. Students will explore the pathophysiological mechanisms underlying various neurological disorders, learn about the pharmacological agents used in their management, and examine current research trends in neuropharmacology. This course aims to comprehensively understand how neural diseases are treated and managed by integrating concepts from neuroscience, pharmacology, and clinical medicine. Teaching methods include article revision, case study discussions and lectures. Student's performance will be evaluated through assignments; attendance and participation; concept papers; examinations; oral presentations; quizzes; and professionalism.

BMS 811 RNA
2 Credits
This course focuses on RNA. The course consists of lectures given by the participating faculty and presentations and discussions of current research and review papers by students. Active student participation is always expected. Student performance will be evaluated by exams and participation in class discussions.

BMS 812 Epigenetics
2 Credits
This course focuses on epigenetics. The course consists of lectures given by the participating faculty and presentations and discussions of current research and review papers by students. Active student participation is always expected. Student performance will be evaluated by exams and participation in class discussions.

BMS 823 Cell Culture
2 Credits
This course provides students with the knowledge to work in a modern biological research laboratory using cell culture techniques. Emphasis is placed on aseptic techniques for animal cell culture, requirements for cell growth in vitro, the basics of primary and immortal cell lines, good cell culture practices, basics of stem cells, cell assays, and cell markers. Teaching methods include lectures, group discussions, tutorials, laboratories, self-directed learning, and reflection. Students' performance will be evaluated through attendance, oral presentations, quizzes, assignments, reflections, final design project and professionalism.

BMS 831 Membrane Transport
2 Credits
This course discusses fundamental concepts involving the transport of molecules and ions across biological membranes, including discussion of passive and active transport, as well as other transport processes. Examples from selected papers will be presented to illustrate the above concepts. Clinical correlations will also be presented to illustrate the importance of the basic concepts in clinical situations. The teaching strategy used in this course is small group discussion. Student performance will be evaluated through class participation and an oral presentation.

BMS 860 Scientific Methodology
2 Credits
This course will introduce basic concepts of scientific methods commonly used in biomedical research. All students will be required to actively participate in theoretical and practical discussions of scientific research and procedures. They will be given assignments on different topics to help them deepen their understanding of the material. The teaching strategy used in this course is lectures. Student performance will be evaluated through class participation and exams.

BMS 861A Biostatistics
3 Credits

Introduces students to the commonly used scientific methods in the biomedical research field requiring them to actively participate in theoretical and practical discussions of scientific research and procedures. Students will be prepared to critically evaluate experimental approaches to best achieve their research goals through learning the purpose and basics concepts of each technique. Teaching methods include lectures and laboratory. Students' performance will be evaluated through assignments; examinations; attendance and participation; and professionalism.

BMS 862A Research Laboratories Rotations
1 Credits

Research laboratory rotations introduce students to the laboratory opportunities available through the Graduate Program in Biomedical Sciences. Students will rotate through up to three different active research laboratories to help them identify their area of interest and the mentor under whose supervision they will train into the future research process guide and development. If a mentor has been previously selected, the student can complete the rotation in the mentor's research laboratory. Teaching methods include discussion with mentor and/or professor, hands-on experience, journal club, open discussions, oral presentations, practical exercises, readings, and self-directed learning. Student performance will be evaluated through attendance and participation; laboratory rotation evaluation; oral presentation or written report; and professionalism.

BMS 862B Research Laboratories Rotations
2 Credits

Research laboratory rotations introduce students to the laboratory opportunities available through the Graduate Program in Biomedical Sciences. Students will rotate through more than three different active research laboratories to help them identify their area of interest and the mentor under whose supervision they will train into the future research process guide and development. If a mentor has been previously selected, the student can complete the rotation in the mentor's research laboratory. Teaching methods include discussion with mentor and/or professor, hands-on experience, journal club, open discussions, oral presentations, practical exercises, readings, and self-directed learning. Student performance will be evaluated through attendance and participation; laboratory rotation evaluation; oral presentation or written report; and professionalism.

BMS 863C Cancer Biology
Prerequisite: BMS 510G
3 Credits

This course presents the principles of cancer biology. The topics that will be covered in the course include growth factors, control of the cell cycle, multistep tumorigenesis, invasion, and metastasis, among others. The course consists of lectures given by the participating faculty and presentations and discussions of current research and review papers by students. Active student participation is always expected. Student performance will be evaluated by exams and participation in class discussions

BMS 864A Cancer Molecular Biology
Prerequisite: BMS 863C
2 Credits

This course is designed to provide students with a thorough and in-depth understanding of fundamental concepts in cancer biology at the cellular and molecular levels. The topics that will be covered in the course include oncogenes and tumor suppressor genes, cell cycle regulation, signal transduction pathways, apoptosis, **DNA** repair mechanisms, tumor immunology, animal models for human cancer therapy, and cancer epigenetics, among others. The course consists of lectures given by the participating faculty and presentations and discussions of current research and review papers by students. Active student participation is always expected. Student performance will be evaluated by exams and participation in class discussions.

BMS 865A Scientific Communication
2 Credits

This course provides instruction and examples on the different aspects of use of written and oral language and graphic representations. The course aims to build a foundation for students to engage in effective scientific communication. The teaching strategies to be used include lectures, individualized learning, small group discussions, and critiques of written and oral examples. Students' performance will be measured through evaluations of written and oral presentations, written assignments, class discussion, and evaluation by peers. Full attendance is required.

BMS 866 Grant Writing
3 Credits

Prepares Ph.D. students in the process of writing the F-31 grant, turning a gap in knowledge into a proposal. The course reviews the main steps in drafting a fellowship training grant proposal for funding, including planning, researching, and writing and reviewing a grant as well as best practices for following up with National Institute of Health guidelines. It also reviews the nine areas of responsible conduct for research. Teaching methods include lectures and group discussions. Students' performance will be evaluated through assignments, oral presentation, peer review specific aims page, mock review, participation, record keeping, proposal, attendance, and professionalism.

BMS 867 Glial-Neuronal Cell Interactions in Biology and Disease
2 Credits

This course is designed to provide students with a thorough and in-depth understanding of glial-neuronal cell interactions. The topics that will be covered in the course include morphology of glial cells, glial development, and physiology of glial cells, among others. The course consists of lectures given by the participating faculty and presentations and discussions of current research and review papers by students. Active student participation is always expected. Student performance will be evaluated by exams and participation in class discussions.

BMS 868A/B/C Bibliographic Report
1 Credit

A library review of a topic assigned by the student's mentor or the committee. Required of all students registered for the MA degree. See the Bibliographic Report Formatting section for details on how to prepare the document. Bibliographic reports will be evaluated with **GPBSF** 19.

BMS 869A/B Seminar in the Biomedical Sciences
1 Credit

This course consists of an oral presentation in a seminar format of a relevant topic within the area of specialization. The student, upon consultation with the mentor or other academic advisor, will select the topic. The topic may be direct readings or from the students' research. The faculty will aid the students in preparing for the seminar presentation. The student's course grade will be based on faculty evaluation of the seminar. The course consists of a one-hour seminar and a minimum of 23 hours of preparation, including readings to prepare for the seminar, therefore, the course is worth one credit hour.

MS/MA students are required to present two seminars. BMS 869A will be used for the first seminar offered and BMS 869B for the second.

BMS 870-874 Topics (Specify)
Graded or Pass/Fail (Certificate of Participation)
1 Credit

The Topics course has been designed to provide the graduate student with the theoretical background and practical experience required for the in-depth understanding of specialized topics of interest to the student. The teaching strategy used in the course is small group discussion. Student performance will be assessed by presentations, exams, written reports, and/or class participation. The students and faculty members will determine their meeting schedule.

BMS 900 Proposal Writing
2 Credits

Introduces the fundamentals of proposal writing and guides doctoral students through the process of developing a dissertation proposal. It provides a comprehensive framework for articulating a research problem, reviewing relevant scientific literature, designing a rigorous methodology, and outlining the potential contributions of the research. Emphasizing both the structural and content aspects, the course prepares students with the skills necessary to craft a clear, compelling, and feasible dissertation proposal. By the end of the course, students will have developed a well-organized dissertation proposal ready for submission to their dissertation committee. Teaching methods include case study discussions, discussion with mentor and/or professor, group discussions, lectures, and oral presentations. Students' performance will be evaluated through assignments; attendance and participation; mock proposal defense; peer evaluations; proposal; seminar and proposal oral presentations; written seminar and proposal power point presentations; and professionalism.

BMS 875A Cell Growth and Death
2 Credits

This course covers in-depth mechanisms related to cell growth and death. The topics that will be covered in the course include apoptosis, autophagy, necrosis, intrinsic and extrinsic apoptotic signal cascades, caspase- independent cell death, mitochondrial death effectors, anti-apoptotic proteins, and intracellular proteases. The course consists of lectures given by the participating faculty and presentations and discussions of current research and review papers by students. Active student participation is always expected. Student performance will be evaluated by exams and participation in class discussions.

BMS 876A Immunopathology
Prerequisite: BMS 821B
2 Credits

This course covers in-depth immune mechanisms of disease including immunodeficiencies, hypersensitivity disorders, and autoimmunity. The course consists of lectures given by the participating faculty and presentations and discussions of current research and review papers by students. Active student participation is always expected. Student performance will be evaluated by exams and participation in class discussions.

BMS 879A/B Seminar in Cell and Molecular Biology
1 Credit

This course provides graduate students with the opportunity to prepare and present a scientific seminar on a relevant topic within the area of Cell and Molecular Biology. The student will select the seminar topic with the advice of the student's mentor. It will develop the students' capacity to prepare a scientific presentation on a specified topic and improve students' skills for scientific communication. The faculty will aid the students in preparing for the seminar presentation. Teaching methods include discussion with mentors and/or professors. Students' performance will be evaluated through discussion with mentor, seminar oral presentation, written seminar power point presentation, attendance, and professionalism.

BMS 893 Microelectrode Techniques in Neurophysiology
3 Credit

The purpose of this course is to expose the students to the basic terms, concepts, and methods of electrical measurement in biological systems, with a special emphasis on microelectrode techniques used in the field of neurophysiology. The course will include theoretical classes, calculations and problem-solving exercises and demonstration of the selected electrophysiological techniques in rodent brain slices. Student performance will be measured through exams and attendance.

BMS 897 Neurotechnology
Prerequisite: BMS 500A, BMS 581, BMS 582
3 Credits

This course provides a comprehensive introduction to neurotechnology, exploring the intersection of neuroscience and technology. It covers the fundamental principles, applications, and ethical considerations of neurotechnology in research and clinical practice. Students will gain a thorough understanding of current neurotechnological tools and techniques, fostering an understanding of how these innovations can advance neuroscience. Teaching methods include readings, lectures, article revisions, development of presentation, group discussions, independent learning and oral presentations. Students' performance will be evaluated through the project oral presentation, assignments, examinations, participation, quizzes, and professionalism.

BMS 898 Interprofessional Scientific Seminar
Prerequisite: First Year Courses from PhDs in Cellular and Molecular Biology or Neuroscience
1 Credit

This course provides graduate students the opportunity to prepare and present a scientific seminar on a relevant topic within the area of Cell and Molecular Biology or Neuroscience. The student will select the seminar topic with the advice of the student's mentor. It will develop the students' capacity to prepare a scientific presentation on a specified topic and improve student's skills for scientific communication. The faculty will aid the student in preparing for the seminar presentation. Teaching method include discussion with mentor. Students' performance will be evaluated through assignments; attendance and participation; discussion with mentor; seminar oral presentation; written seminar power point presentation; and professionalism.

BMS 899 Graduate Research (A to J)
Grading is Pass or Fail
0-9 Credits

The student will perform faculty-supervised research in the laboratory with a faculty member who will serve as the student's research advisor. This research will be the basis for the written dissertation or thesis, which is required for the PhD or MS degree, respectively. The main objective is to develop a specific research project and produce meaningful data, which can contribute further knowledge in the area. The data should be publishable in a peer-reviewed journal and acceptable for presentation as a written dissertation or thesis as partial fulfillment of the requirement for the PhD or MS degree. Upon completion, the student will present his/her research in seminar form to the academic community as a final defense of the dissertation or thesis. Teaching methods include discussion with mentor and/or professor, journal club, hands-on experience, development of presentation, group, independent learning, reflection, and workshop / seminar. Students' performance will be evaluated through laboratory work and performance, academic activities, attendance, and professionalism.

BMS 901 Graduate Research I
Prerequisite: BMS 862A
1 Credit

The student will get under way into the steps from the design of a research proposal to a research dissertation regarding planning; time management; general and safety laboratory rules; laboratory equipment and responsibilities; and a general outline of a research project under the supervision of the student's research mentor. Teaching methods include discussion with mentor, hands-on experience, journal club, independent learning, reflection, and/or workshop / seminar. Students' performance will be evaluated through the mentor/mentee agreement form completion; individual development plan – science careers form completion; presentation of the first conceptualization of the research proposal to the student's research mentor; attendance and participation; and professionalism.

BMS 902 Graduate Research II
Prerequisite: BMS 901
2 Credits
The student will learn about experimental methods, rigor and reproducibility; and ethical considerations in research to enable the development of specific aims under the supervision of the research mentor. The students will also deepen skills in laboratory techniques necessary to perform research and will select the dissertation committee members. Teaching methods include discussion with mentors, hands-on experience, independent learning, journal club, reflection, and/or workshop/seminar. Students' performance will be evaluated through the individual development plan – science careers form completion; dissertation committee registration form completion; scientific aims presentation to the research mentor; attendance and participation; and professionalism.

BMS 903 Graduate Research III
Prerequisite: BMS 902
4 Credits
The student will discuss and complete with the dissertation committee the meeting form to outline the next steps into the research proposal presentation, and the research project preliminary data collection. Teaching methods include discussion with mentor, hands-on experience, independent learning, journal club, reflection, and/or workshop/seminar. Students' performance will be evaluated through the individual development plan – science careers form completion; dissertation committee meeting form completion; research proposal and research proposal defense; approval of research proposal by the dissertation committee; attendance and participation; and professionalism.

BMS 904 Graduate Research IV
Prerequisite: BMS 903
Corequisite: BMS 910
8 Credits
The student will discuss and complete with the dissertation committee the meeting form to outline the next steps into research data collection and the written research manuscript or abstracts of the research project. Teaching methods include discussion with mentor, hands-on experience, independent learning, journal club, reflection, and/or workshop/seminar. Students' performance will be evaluated through the individual development plan – science careers form completion; dissertation committee meeting form completion; oral and poster presentations; the drafted or published research manuscript; attendance and participation; and professionalism.

BMS 905 Graduate Research V
Prerequisite: BMS 904
8 Credits
The student will discuss and complete with the dissertation committee the meeting form to outline the next steps into teaching assistance mentorship skills, and the research project process. The student will also identify scientific forum to deepen communication and presentation skills. Teaching methods include discussion with mentor, hands-on experience, independent learning, journal club, reflection, and/or workshop/seminar. Students' performance will be evaluated through the individual development plan – science careers form completion; dissertation committee meeting form completion; oral presentations; poster presentations in a scientific forum; the drafted or published research manuscript; attendance and participation; and professionalism.

BMS 906 Graduate Research VI
Prerequisite: BMS 905
Corequisite: BMS 911
8 Credits
The student will discuss and complete with the dissertation committee the meeting form to outline the next steps into the research project process to submit the research manuscript to a peer review journal; and collaboration and teamwork in research settings to advance the efforts toward completing the research project. Teaching methods include discussion with mentor, hands-on experience, independent learning, journal club, reflection, and/or workshop/seminar. Students' performance will be evaluated through the individual development plan – science careers form completion; dissertation committee meeting form completion; oral presentations; poster presentations in a scientific forum; the drafted or published research manuscript; attendance and participation; and professionalism.

BMS 907 Graduate Research VII
Prerequisite: BMS 906
9 Credits
The student will discuss with the dissertation committee the meeting form to outline the next steps into the dissertation defense presented to the academic community. The student will also present evidence of a published first author research manuscript. Teaching methods include discussion with mentor, hands-on experience, independent learning, journal club, reflection, and/or workshop / seminar. Students' performance will be evaluated through the individual development plan – science careers form completion; dissertation committee meeting form completion; dissertation defense; poster presentations; published first author research manuscript; attendance and participation; and professionalism.

BMS 909 Research Seminar
Grading is Pass or Fail
1 Credit
This seminar provides a platform for students in the Graduate Program in Biomedical Sciences to present their research to a multidisciplinary audience. It starts on the first semester of their third year until they remain active in the program. It also enhances students' presentation skills in small talk scenarios focused on the progress of their thesis project in small talk. Teaching methods include development of presentation skills, independent study group discussions and reflections. Students' performance will be evaluated through oral presentation, peer evaluations, reflections, paper summary, attendance, and professionalism.

BMS 910 Research Seminar I
1 Credit
This seminar provides a platform for students in the Graduate Program in Biomedical Sciences to present their research to a multidisciplinary audience. It enhances students' presentation skills in small talk scenarios focused on the progress of their dissertation project. Teaching methods include development of presentation skills, group discussions and independent study. Students' performance will be evaluated through attendance and participation; oral presentation; paper summary; peer evaluation; reflections; and professionalism.

BMS 911 Research Seminar II
1 Credit
This seminar provides a continuing platform for students in the Graduate Program in Biomedical Sciences to present their research preliminary results to a multidisciplinary audience. Teaching methods include development of presentation skills, group discussions and independent study. Students' performance will be evaluated through oral presentation; paper summary; peer review evaluations; reflections; attendance and participation; and professionalism

## Department of Anatomy and Cell Biology

BMS 502 Human Gross and Developmental Anatomy
8 Credits
This course surveys the regional, functional, and developmental anatomy of the human body with emphasis on the anatomical correlations of clinical medicine. The study and visualization of the different components of the human body is accomplished through a complete dissection and prosection of the human body in the following sequence: back, upper and lower limbs, thorax; head and neck; abdomen, pelvis, and perineum.

BMS 801 Teaching in Anatomy
2 Credits
This course will provide students with an overview of basic principles and methodology in education as well as the opportunity to utilize these concepts while serving as teacher aids in the morphology courses taught throughout the academic year by the Department of Anatomy. All the first year Biomedical Sciences Morphology Courses are pre-requisites.

BMS 802 Neuroanatomy
4 Credits
This course deals with the general organization and meaning of the nervous system, its embryology and histological structure. The organization and segmental distribution of the peripheral nerve elements and the architectonics of the central nervous system are studied by levels. The main sensory (ascending) and motor (descending) pathways are discussed in relationship to cortical organization. Topics in neurophysiology are included to integrate structural and functional features of the **CNS**. Currently, this course is based on the medical sciences course on neurosciences which is offered during the second semester; however, the student will benefit from attending other sections of this course besides the neuroanatomy component to get an insight into physiology, biochemistry, and pharmacology pertinent to this area. The course also includes a practical laboratory component.

BMS 806 Developmental Anatomy
2 Credits
This course provides a current account of human embryonic development, considering (1) normal morphology and function, (2) the new technology that allows the manipulation and study of the human embryo and fetal development, (3) the developmental basis for the more important congenital abnormalities, and (4) clinical correlations to further emphasize the practical implications of such malformations. Part one of the course covers in detail the early development, the function of the structures and tissues, and the relationship between the mother and fetus. An overview of the main changes from the third month to birth introduces the student to the next section of the course, bringing together the entire process of embryonic development to result in the birth of the fetus. Part two discusses in detail the development of the body systems, both normally and in the development of anomalies, emphasizing the immediate and normal adaptations in each system necessary for life outside the womb. New tools and techniques such as ultrasound and other imaging modalities have provided new ways of visualizing living embryos; however, these techniques are presented in the discussion of specific systems due to the time constraints of the course.

BMS 807 Microanatomy
5 Credits
The first part of the course, cell and basic tissues, will prepare those who have no experience in histology with the background necessary to understand the normal morphological adaptations and modifications of tissues in the formation of organs, and enable the student to understand why these adaptations and modifications provide the body with the basic and fundamental functions to have and maintain general well-being. Outlining the principal methods employed in the microscopic study of cells, tissues, and organs will set the stage for the subsequent detailed study of the cells and tissues of the body in other basic sciences courses. The course requires general knowledge of cellular and molecular biology as well as familiarity in the usage of the bright field of binocular microscopes.

BMS 809A/B Seminar in Anatomy and Cell Biology
1 Credit

This course consists of an oral presentation in a seminar format of a relevant topic within the area of specialization. The student, upon consultation with the mentor or other academic advisor, will select the topic. The topic may be direct readings or from the students' research. The faculty will aid the students in preparing for the seminar presentation. The seminar is not the presentation of a research publication (single paper). It is intended to develop in the students the capacity to prepare a class on a specified topic. The student's course grade will be based on faculty evaluation of the seminar. The course consists of a one-hour seminar and a minimum of 23 hours of preparation, including readings to prepare for the seminar, therefore, the course is worth one credit hour. The seminar will be announced and open to the academic community. **GPBSF** 14 Seminar Presentation Evaluation Form will be used to evaluate students' presentations. MS/MA students are required to present two seminars. BMS 809A will be used for the first seminar offered and BMS 809B for the second.

BMS 810 Comparative Anatomy
4 Credits

This course is a study of the structural and functional evolution of selected organ systems in representative vertebrates. It examines how organ systems work and how they evolve within a phylogenetic context. The purpose is to better understand the vertebrate design. For this purpose, the vertebrate groups are organized phylogenetically, and their systems are interpreted in terms of their embryological development, phylogeny, and functional adaptations. The main emphasis is given to the morphology and structural organization of organ systems and how they undergo adaptive changes on the basic vertebrate body plan.

Short writing assignments will be given to be discussed in every discussion session. Satisfactory completion of all assignments will be required to pass the course, but the assignments may not receive a letter grade.

## Department of Biochemistry

BMS 510G Biochemistry and Cell Biology
6 Credits

The Biochemistry and Cell Biology for graduate students (**BCBGS**) course integrates the disciplines of biochemistry and cell biology and presents the most important concepts in each. The course is conducted over 15 weeks in the Spring semester and divided into a Biochemistry Unit and a Cell Biology Unit. The 2023-2024 BCBGS course features 40 scheduled student contact hours of conferences conducted by a team of 7 professors with expertise in their respective fields. Key topics are further developed with assigned scientific articles that feature original research corresponding to a previously presented topic. This activity is designed to develop graduate student skills in reading, analyzing, and discussing research articles while at the same time deepening student understanding of the biochemistry and cell biology topics to which each article corresponds. Teaching methods include lectures and group discussions. Student knowledge in the BCBGS course is evaluated with quizzes, classroom discussions, and 4 course examinations.

BMS 511 Biochemistry
3 Credits

The Biochemistry course for graduate students integrates the disciplines of presents the most important concepts in each. Key topics are further developed with assigned scientific articles that feature original research corresponding to a previously presented topic. This activity is designed to develop graduate student skills in reading, analyzing, and discussing research articles while at the same time deepening student understanding of the biochemistry topics to which each article corresponds. Teaching methods include lectures and group discussions. Student's performance will be evaluated through assignments; attendance and participation; examinations; journal club; and professionalism.

BMS 813 Enzymology and Kinetics
Prerequisite: BMS 510G
2 Credits
The course emphasizes concepts and current methods of enzyme structure and kinetics. These concepts are applicable to the general field of receptor-ligand interactions. The use of mathematical models to help understand the kinetic behavior of a particular compound will also be discussed.

BMS 814 Metabolism
Prerequisite: BMS 510G
2 Credits
Topics in this course will cover metabolism of carbohydrates, lipids, amino acids, and other important metabolites. The topics will be covered in depth and the relationships among them will be pointed out. Specific topics presented and discussed in this course will depend on the participating faculty and the interests of the enrolled students. Abnormalities in the pathways of each will be emphasized. Along with the lectures there will be reading assignments of journal articles related to the specific topic. Student performance will be assessed by presentations, exams, written reports, and/or class participation. The students and faculty members will determine their meeting schedule.

BMS 815 Protein Structure and Function
Prerequisite: BMS 510G
2 Credits
Topics in this course emphasize the physical and chemical bases for protein structure and function. The relationships between amino acid sequence, secondary structure, tertiary structure, and activity will be discussed. Topics will include the use of site-directed mutagenesis to deduce protein function and principles of protein-protein interactions. The teaching strategies used are lectures and laboratories. Student performance will be evaluated through exams and class participation.

BMS 816 Gene Expression and Protein Synthesis
Prerequisite: BMS 510G
2 Credits
This course is an advanced study of important recent literature dealing with the structure and function of nucleic acids, biosynthesis of proteins, and the control of gene expression. The teaching strategies used are journal article discussions, oral presentations, and individualized learning. Student performance will be assessed through class participation and oral presentations.

BMS 817 Signal Transduction
Prerequisite: BMS 510G, BMS 523B
2 Credits
This course examines some of the methods by which the reception of signals from the environment leads to changes in gene and protein activity in responding cells, which constitute a biological response. A variety of topics in signal transduction will be covered, including the general principles of cellular communications, surface and intracellular receptors, secondary messengers and effectors, and the integration of signaling pathways for physiological processes. Teaching methods include lectures and group discussions on different topics. Students' performance will be evaluated through examinations, participation, attendance, oral presentation, journal club, and professionalism.

BMS 819A/B Seminar in Biochemistry
1 Credit

This course consists of an oral presentation in a seminar format of a relevant topic within the area of specialization. The student, upon consultation with the mentor or other academic advisor, will select the topic. The topic may be direct readings or from the students' research. The faculty will aid the students in preparing for the seminar presentation. The seminar is not the presentation of a research publication (single paper). It is intended to develop in the students the capacity to prepare a class on a specified topic. The student's course grade will be based on faculty evaluation of the seminar. The course consists of a one-hour seminar and a minimum of 23 hours of preparation, including readings to prepare for the seminar, therefore, the course is worth one credit hour. The seminar will be announced and open to the academic community. **GPBSF** 14 Seminar Presentation Evaluation Form will be used to evaluate students' presentations.MS students are required to present two seminars. BMS 819A will be used for the first seminar offered by the students and BMS 819B for the second.

BMS 890 Neuronal and Glial Cell Culture
2 Credits

This course is designed to provide students with a thorough and in-depth understanding of the isolation and establishment of mixed neuronal and glial culture from postnatal rats and the maintenance of those cultures. Participants will perform preparations, learn to maintain the cell cultures, and describe the cultures by direct observation and typified using immunocytochemical methods. Student performance will be evaluated through their performance in the laboratory.

## Department of Microbiology & Immunology

BMS 820C Medical Bacteriology
2 Credits

This course will introduce students to the relationship between microorganisms and human health. Principles and processes by which these microorganisms cause disease, their virulence factors, transmission, consequences, and the signs and symptoms of the diseases they produce will be discussed. In addition, the methods used for the identification of pathogenic organisms as well as for their prevention and treatment will be introduced. Specific laboratory exercises and review of recently published scientific manuscripts will be included. The teaching strategies used in the course include lectures, laboratories, and small group discussions. Student performance will be evaluated through exams, laboratory exercises, and small group discussions. This is a year-long course.

BMS 821B Immunology
3 Credits

This course provides graduate students with a working knowledge of the immune system and the specialized vocabulary that describes it. Topics to be covered include: (1) the structure, function, and genetics of immunoglobulins, (2) T-lymphocyte antigen receptors, and major histocompatibility complex-encoded proteins, (3) the development and differentiation of lymphocytes, (4) cell-to-cell interactions in the immune system, and (5) the regulation of immune responses. It also will include laboratory exercises and discussion of scientific papers that are used to illustrate experimental approaches to current questions. The teaching strategies used in the course include lectures, laboratories, small group discussion, and individualized learning. The students will be evaluated by exams and a small group discussion.

BMS 822A Parasitology
Prerequisite: BMS 821B
2 Credits

This course encompasses the presentation and discussion of parasitic organisms of medical and veterinary importance, with emphasis on life cycles, host-parasite relationships, epidemiology, diagnostic procedures, pathogenesis, treatment, and control methods. Practical laboratory experience is included. The teaching methods utilized in the course are lectures, laboratories, small group discussions, and individualized learning. Student performance will be assessed by exams, laboratories, oral and written presentations, and quizzes.

BMS 824B Cellular and Molecular Microbiology
3 Credits

An advanced course designed for graduate students in biomedical sciences. The course emphasizes the function of microbial structures and the metabolism and control of microorganisms. The course includes the study of gene structure, genetic variations, metabolic regulation and regulation of gene expression, and recombinant DNA techniques. The basic mechanisms of action of antimicrobial agents are also considered. The laboratory exercises include techniques used, DNA extraction, protein extraction and separation, 2-D gel analysis, protein identification, genomics, and proteomics. The teaching strategies used in the course include lectures, problem solving, individualized learning, and oral presentations. Student performance will be measured by exams and presentations.

BMS 825A Mycology
Prerequisite: BMS 821B
2 Credits

This course deals with fungi of industrial and medical importance. The course will give emphasis on morphology, structures, physiology, genetics, growth and nutrition, classification, life cycles, host-parasite, identification, pathogenesis, contaminants and diagnostic of different mycoses, ecology, and economic importance of fungi. In laboratories, the fundamentals of general mycology and the procedures used for isolation and identification of fungi will be included. The course consists of lectures, laboratory, and critical readings of the primary literature and student presentations. Heavy emphasis will be placed on student participation. The students will be evaluated through exams, laboratories, class presentations, and term papers.

BMS 826A Virology
Prerequisite: BMS 821B
2 Credits

This course consists of the study of viruses and their interaction with humans and animals. The course consists of five main units: 1) Fundamental principles of virology, detection methods and genetics; 2) Genome structure and replication; 3) Host response to viral infection; 4) Pathogenesis, prevention and control of specific viruses, and emerging viruses, and 5) Discussion of recent scientific articles. The teaching strategies include lectures, laboratories, small group discussion, and individualized learning. The students will be evaluated by exams, laboratories, and oral and written presentations.

BMS 829A Diagnostic Bacteriology
Prerequisite: BMS 821B, BMS 820C
2 Credits

The course acquaints the student with microorganisms with emphasis on the bacteria in diseases of man. Theory and principles of isolation, identification, biochemical reaction, growth requirement and susceptibility testing will be considered. Theory and practical application will include lectures, demonstration, laboratory practice, audiovisual presentations, written reports/journals, and small group activities. The teaching strategies are lectures and laboratories. Student performance will be assessed by exams, laboratory reports, and student presentations.

BMS 859A/B Seminar in Microbiology and Immunology
1 Credit

This course consists of an oral presentation in a seminar format of a relevant topic within the area of specialization. The student, upon consultation with the mentor or other academic advisor, will select the topic. The topic may be direct readings or from the students' research. The faculty will aid the students in preparing for the seminar presentation. The seminar is not the presentation of a research publication (single paper). It is intended to develop in the students the capacity to prepare a class on a specified topic. The student's course grade will be based on faculty evaluation of the seminar. The course consists of a one-hour seminar and a minimum of 23 hours of preparation, including readings to prepare for the seminar, therefore, the course is worth one credit hour. The seminar will be announced and open to the academic community. **GPBSF** 14 Seminar Presentation Evaluation Form will be used to evaluate students' presentations. MS/MA students are required to present two seminars. BMS 859A will be used for the first seminar offered by the students and BMS 859B for the second.

## Department of Pharmacology

BMS 540 Medical Pharmacology
6 Credits

The course aims to present the basic knowledge of the way drugs act upon the body; provide the essential knowledge for the understanding of drug therapy; and provide for the rational use of different drugs in clinical situations. It includes the chemistry of drugs, structure-activity relationship of different kinds of drugs, pharmacokinetics, absorption, distribution, excretion, metabolism, pharmacological actions, mechanism of action, clinical uses, side effects toxicity, adverse reactions, and interactions of substances used in the diagnosis, prevention, and treatment of disease. It also emphasizes the effect of endogenous and exogenous substances at the cellular level. The course involves lectures and conferences on blocks of material such as general pharmacological principles, autonomic pharmacology, cardiovascular drugs, CNS pharmacology, pharmacology of chemotherapeutic agents, endocrine pharmacology, gastrointestinal pharmacology, autacoids and antihistamines, prostaglandins, drug interactions, and clinical toxicology.

BMS 841 Biochemical Pharmacology
Prerequisite: BMS 540 (or concurrently enrolled)
3 Credits

In this course the fundamental and basic pharmacological concepts are integrated with biochemistry. The following topics are presented in detail: pharmacokinetics, pharmacodynamics, mechanisms of drug metabolism (cytochrome P-45- systems, transferases, etc.), ions and amino acids transport, metabolism of biogenic amines, neuronal receptors, etc.

BMS 843 Principles of Chemotherapy
2 Credits

This course encompasses such topics as general pharmacological and pharmacokinetic principles, discussion and presentation of the agents used in the treatment of infectious disease, such as antibiotics, antifungal, antiviral, anthelminthic drugs and antimalarials, cancer chemotherapy, immunotherapy, and principles of drug interactions. This course is specifically designed for those students not majoring in pharmacology and whose interests are met by studying specific topics in pharmacology.

BMS 849A/B Seminar in Pharmacology
1 Credit

This course consists of an oral presentation in a seminar format of a relevant topic within the area of specialization. The student, upon consultation with the mentor or other academic advisor, will select the topic. The topic may be direct readings or from the students' research. The faculty will aid the students in preparing for the seminar presentation. The seminar is not the presentation of a research publication (single paper). It is intended to develop in the students the capacity to prepare a class on a specified topic. The student's course grade will be based on faculty evaluation of the seminar. The course consists of a one-hour seminar and a minimum of 23 hours of preparation, including readings to prepare for the seminar, therefore, the course is worth one credit hour. The seminar will be announced and open to the academic community. **GPBSF** 14 Seminar Presentation Evaluation Form will be used to evaluate students' presentations. MS students are required to attend two seminars. BMS 849A will be used for the first seminar offered by the students and BMS 849B for the second.

## Department of Physiology Graduate courses

BMS 530B Physiology
6 Credits
This course offers a detailed presentation of the currently accepted concepts dealing with the manner in which the individual cells and organs are integrated into the complex functions by the living organisms as well as the processes which compose the activities of living cells and organ systems. Clinical correlations are held for the presentation and discussion of cases pertaining to each of the systems studied. Group discussions are held in which students prepare and present a case study for each system. The topics covered include the physiology of the major organ systems (neuromuscular, reticuloendothelial, cardiopulmonary, renal, gastrointestinal, endocrine, and reproductive). The teaching strategies used in the course include lectures and individualized learning. Student performance will be assessed through exams and student presentations.

BMS 830 Neurophysiology
5 Credits
The course introduces students to the basic principles of neuroscience that all physiology graduate students are expected to know before embarking on their specialized research programs. Several topics will be discussed, ranging from cellular aspects of neuronal signaling to cortical mechanisms of perception and motor control. A discussion-based format with a focus on original papers, exercises and demonstrations will allow students to familiarize themselves in the fundamental issues at the heart of contemporary neuroscience. Emphasis will be given to the critical evaluation of neuronal theories of brain function. The teaching strategies used in the course are lectures, individualized learning, and oral presentations. Student performance will be evaluated by exams and oral presentations.

BMS 832 Cardiovascular Physiology
Prerequisite: BMS 530
2 Credits
This course provides detailed discussion of specific topics on the physiology of the cardiovascular system, such as electrophysiology of the myocardium, cardiac work, control of cardiac function, peripheral circulation, cardiac output, pathogenesis of atherosclerosis, atrial natriuretic peptide, and inter-cellular communication in the myocardium. The teaching strategies used in the course are lectures and individualized learning. Student performance will be assessed by exams and oral presentations.

BMS 833 Renal Physiology
Prerequisite: BMS 530
2 Credits
This is a combined lecture-seminar course emphasizing special topics in renal physiology and the physiology of body fluids. Topics in renal physiology will include initially an overview of renal physiology to then review specific mechanisms of the normal function or during pathological situations to be discussed using specialized publications in the area. Students are expected to attend two seminars during the course. The teaching strategies used in this course are lectures and individualized learning. Student performance will be assessed through student presentations and exams.

BMS 834B Advanced Neurophysiology
Prerequisite: BMS 530, BMS 830
2 Credits
Combined lecture-seminar course emphasizing special topics in neurophysiology. Students, the instructor in charge of the course, and invited scientists are expected to participate in seminar presentations during the course.

BMS 839A/B Seminar in Physiology
1 Credit
This course consists of an oral presentation in a seminar format of a relevant topic within the area of specialization. The student, upon consultation with the mentor or other academic advisor, will select the topic. The topic may be direct readings or from the students' research. The faculty will aid the students in preparing for the seminar presentation. The seminar is not the presentation of a research publication (single paper). It is intended to develop in the students the capacity to prepare a class on a specified topic. The student's course grade will be based on faculty evaluation of the seminar. The course consists of a one-hour seminar and a minimum of 23 hours of preparation, including readings to prepare for the seminar, therefore, the course is worth one credit hour. The seminar will be announced and open to the academic community. **GPBSF** 14 Seminar Presentation Evaluation Form will be used to evaluate students' presentations. MS/MA students are required to present two seminars. BMS 839A will be used for the first seminar offered by the students and BMS 839B for the second.

## Department of Neuroscience Graduate courses

BMS 889A/B Seminar in Neurosciences
1 Credit
This course provides graduate students with the opportunity to prepare and present a scientific seminar on a relevant topic within the area of Neuroscience. The student will select the seminar topic with the advice of the student's mentor. It will develop the students' capacity to prepare a scientific presentation on a specified topic and improve students' skills for scientific communication. The faculty will aid the students in preparing for the seminar presentation. Teaching methods include discussion with mentors and/or professors. Students' performance will be evaluated through discussion with mentor, seminar oral presentation, written seminar power point presentation, attendance, and professionalism.

# Substance Abuse Counseling Program

# SUBSTANCE ABUSE COUNSELING PROGRAM

## Mission

The purpose of the educational program is the formation of high-quality health professionals to provide excellent, high quality service in substance abuse treatment and prevention in response to current community needs.

## Course Load

The academic load of a full-time student will be no less than six (6) and no more than ten (10) credits each trimester.

## Auditing Students

Those students who wish to audit courses may do so if they have the approval of the program coordinator and if they register during the registration period. They must also pay the corresponding fees. Refer to details in the Registrar's Office section of this document.

## Post-Baccalaureate Certificate in Substance Abuse Counseling

### Goal

The Post-Baccalaureate Certificate in Substance Abuse Counseling trains professionals to provide addiction counseling services to individual clients, their families, groups, and others in the community.

### Objectives

1. Acquire competencies in knowledge, skills, and attitudes necessary for effective substance abuse counseling of individuals, groups, and families.
2. Understand and apply theoretical foundations necessary for substance abuse counseling of individuals, groups, and families.
3. Effectively perform the professional functions of an addiction counselor.
4. Apply knowledge and strategies for primary, secondary, and tertiary prevention of substance abuse.
5. Practice effective counseling within a biopsychosocial approach in public and private settings.
6. Perform as a member of a professional interdisciplinary team.
7. Understand various perspectives in issues related to substance abuse counseling, considering the social, political, economic, and cultural context within which substance abuse exists.

## Time Limitations

Students are allowed a maximum of three (3) years to complete the requirements of the Post-Baccalaureate Certificate in Substance Abuse Counseling.

### Residence Requirements

Students must complete a minimum of 18 credit hours in the Post-Baccalaureate Certificate in Substance Abuse Counseling at the **UCC**.

**Maintenance of active status**

Students who have fulfilled all the requirements for the certificate, except for the internship, shall be required to pay a fee of $33.00 per trimester to maintain the status of graduate student in the program for a period not exceeding the rest of the time needed for the completion of the certificate, in this case, three years.

Students who have fulfilled all the requirements for the master's degree, except for the comprehensive exam, shall be required to pay a fee of $33.00 per trimester to maintain the status of graduate student in the program for a period not exceeding the rest of the time needed for the completion of the master's degree, five
(5) years.

## Graduation

Students must apply and pay the corresponding graduation fee no later than the date set in the academic calendar. Application forms for this purpose are obtained from the Registrar's Office and must be delivered to the Bursar's Office with receipt of payment of the non-refundable graduation fee. Non-compliance with these requirements may postpone the conferring of the certificate.

Graduation requirements:

1. Complete the 25 credit hours required for the Post-Baccalaureate Certificate in Substance Abuse Counseling with a grade point average of 2.5 or higher.
2. Complete a minimum of 18 credits in the Post-Baccalaureate Certificate in Substance Abuse Counseling at the **UCC**.
3. Complete all requirements for the Certificate in Substance Abuse Counseling within three (3) years from the date of admission.
4. Comply with all academic and institutional requirements of the Program in Substance Abuse and the **UCC**.

## Evaluation and Promotion Committee

Graduate students will be reviewed by a committee on student evaluations and promotions at the end of each *trimester* term to monitor academic progress. The committee on promotions will meet at the end of each academic year to evaluate the student academic status; the resulting recommendation will be based upon the general academic index (**CQPI**) on the four-point scale, as follows:

1. To be in good academic standing, the student must have a grade index of 2.5 or higher.
2. To be in good academic standing, the student must have a grade index of 3.0 or higher. If the grade index is below 3.0, but the deficiency does not extend beyond the limits for academic suspension (2.5), the student will be on probation for the next academic year until he/she reaches satisfactory academic progress. Students on probation are not eligible for financial aid.
3. When a student is placed on probation, formal written communication will be sent with the specific conditions established by the committee on promotions.

Students who have been suspended indefinitely from the program may appeal their cases to an Ad Hoc committee, who will review the student's record and make the decision regarding whether to readmit the student or whether to recommend dismissal from the program.

The grade index is calculated by dividing the weighted accumulated number of points by the total number of credit hours, including grades of F and repeated classes. Withdrawals and grades for transferred courses are not included in the calculation of the grade index.

Grade reports are sent to students at the end of each term. A certified letter is mailed to each student placed on probation or suspended. Since mail may be delayed or misdirected, it is the responsibility of every student to check with the program coordinator to determine his or her academic status before registration for the next trimester.

## Master of Health Science in Substance Abuse Counseling

### Goal and Objectives

The Master of Health Science in Substance Abuse Counseling imparts the knowledge, skills, and attitudes that enable counselors to provide and supervise counseling services and to plan, manage, and evaluate substance abuse counseling programs for prevention and treatment in public and private organizations.

The program objectives are:

1. Develop competencies to provide effective substance abuse counseling to individuals, groups, and families according to their needs and resources.
2. Develop knowledge, skills, and attitudes in management of Substance Abuse Counseling Programs.

### Time Limit

Students are allowed a maximum of five (5) years to complete the requirements of the Master of Health Science in Substance Abuse Counseling.

### Program Requirements

Students must complete a minimum of 44 credit hours in the Master of Health Science in Substance Abuse Counseling at the UCC. Students are required to complete Internship I and Internship II within a two-year period.

### Maintenance of active status

Students who have fulfilled all the requirements for the certificate, except for the internship, shall be required to pay a fee of $33.00 per trimester to maintain the status of graduate student in the program for a period not exceeding the rest of the time needed for the completion of the certificate, in this case, three years.

Students who have fulfilled all the requirements for the master's degree, except for the comprehensive exam, shall be required to pay a fee of $33.00 per trimester to maintain the status of graduate student in the program for a period not exceeding the rest of the time needed for the completion of the master's degree, five
(5) years.

### Comprehensive Examination

The student must complete all courses required for the master's degree and have achieved a **CQPI** of 3.00 before taking the comprehensive exam. The student must obtain 70% or higher in each topical area covered in the exam. If the student does not achieve this score, he/she will have two (2) additional opportunities to do so. Re-examination will take place no later than six (6) months after the first exam.

Dates for the comprehensive exam are announced by the Registrar's Office.

**Graduation**

Students must apply and pay the corresponding graduation fee no later than the date established in the academic calendar.

Application forms for this purpose are obtained from the Registrar's Office and must be sent or delivered to the Bursar's Office with the receipt of payment of the non-refundable graduation fee. Non-compliance with these requirements may postpone the conferring of the degree.

Graduation requirements:

1. Complete the 44 credit hours required for the Master of Health Science in Substance Abuse Counseling with a grade point average of 3.0 or higher.
2. Complete a minimum of 35 credits at the **UCC**.
   Pass a comprehensive exam with a minimum score of 70 % in each component of the exam.
3. Comply with all academic and institutional requirements of the Program in Substance Abuse Counseling and the **UCC**.
4. Complete all requirements for the Master of Health Science in Substance Abuse Counseling within five (5) years from the date of admission.

**Evaluation and Promotion Committee**

The graduate student record is reviewed by a committee on student evaluation and promotions at the end of each *trimester* term to monitor academic progress. The committee on promotions meets at the end of each academic year to evaluate the student academic status. The resulting recommendations are based upon the general academic index on the four-point scale, as follows:

1. To be in good academic standing, the student must have a grade of 3.0 or higher.
2. If the grade index is below 3.0, but the deficiency does not extend beyond the limits for academic suspension, (2.5), the student will be on probation for the next academic year until he/she reaches satisfactory academic progress.
3. Any student who at the end of the second academic year has not reached satisfactory academic progress will not be eligible for taking the comprehensive exam. The committee on promotions will send a formal written communication with the specific conditions for the student to remain in the program if his/her academic performance in the second year is still within the limit of 2.99-2.55 (probation). The student will be on probation until he/she reaches satisfactory academic progress. Students on probation are not eligible for financial aid.
4. When a student is placed on probation, a formal written communication will be sent with the specific conditions as established by the committee on promotions.
5. At the end of the term in which the student is repeating courses, he/she will be suspended if his/her grade index is not in good standing 3.00.

A student may be suspended indefinitely from the program by:

a. Being on probation for two consecutive terms.
b. Attaining a grade below 2.5 in any academic year

| | |
|---|---|
| -Good Standing | 3.0 + |
| -Probation | 2.99 – 2.55 |
| -Suspension | 2.49 |

Students who have been suspended indefinitely from the program may appeal their cases to the Committee on Graduate Studies, who review the student's record and make the decision about whether to readmit the student or to recommend dismissal from the program.

The grade index is calculated by dividing the weighted accumulated number of points by the total number of credit hours including grades of **F** and repeated classes. Withdrawals and grades from transferred courses are not included in the calculation of the grade index.

Grade reports are sent to students at the end of each term. A certified letter is mailed to each student placed on probation or suspended. Since mail may be delayed or misdirected, it is the responsibility of every student to check with the program coordinator to determine his or her academic status before registration for the next trimester.

## Courses of Study

### Post-Baccalaureate Certificate in Substance Abuse Counseling

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| SAC 504 | Human Development | 3 |
| SAC 503A | Neuropsychopharmacological Aspects of Substance Abuse | 3 |
| SAC 511 | Theory and Practice of Individual Counseling | 4 |
| SAC 501A | Theoretical Models of Addictions and its Implications for Counseling | 3 |
| SAC 516 | Theory and Practice of Family Counseling | 3 |
| SAC 514 | Theory and Practice of Group Counseling | 3 |
| SAC 517 | Ethical and Legal Aspects of Substance Abuse Counseling | 2 |
| SAC 530 | Internship I: Substance Abuse Counseling | 4 |
| | **Total of Credits First Year:** | **25** |
| | **Total Credits:** | **25** |

## Master of Health Science in Substance Abuse Counseling

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| SAC 504 | Human Development | 3 |
| SAC 503A | Neuropsychopharmacological Aspects of Substance Abuse | 3 |
| SAC 511 | Theory and Practice of Individual Counseling | 4 |
| SAC 501A | Theoretical Models of Addictions and its Implications for Counseling | 3 |
| SAC 516 | Theory and Practice of Family Counseling | 3 |
| SAC 514 | Theory and Practice of Group Counseling | 3 |
| SAC 517 | Ethical and Legal Aspects of Substance Abuse Counseling | 2 |
| SAC 530 | Internship I: Substance Abuse Counseling | 4 |
| | **Total of Credits First Year:** | **25** |

**Second Year**

| Code | Course Title | Credits |
|---|---|---|
| SAC 635 | Design, Planning and Implementation of Substance Abuse Counseling Programs | 3 |
| SAC 633 | Research Methodology | 3 |
| SAC 629 | Clinical Intervention of Special Populations | 2 |
| SAC 619 | Theory and Practice of Supervision | 3 |
| SAC 625 | Program Evaluation | 2 |
| SAC 515 | Theory and Practice of Substance Abuse Prevention | 2 |
| SAC 630 | Internship II: Planning, Management and Evaluation of Substance Abuse | 4 |
| | Comprehensive Exam | 0 |
| | **Total of Credits Second Year:** | **19** |
| | **Total Credits:** | **44** |

# Description of Courses

## Post-Baccalaureate Certificate in Substance Abuse Counseling

SAC 504 Human Development
3 Credits

The course involves an analysis of the principal theories and concepts that have been developed to understand and explain human development through the life span. A selected group of human development theories will be discussed, including psychosexual, cognitive developmental theories (Piaget and Vigotsky), learning conditioning (Pavlov and Skinner), social learning (Bandura), cognitive behaviorism, and psychosocial (Erikson). Essential concepts drawn from the cultural theory, social role theory, and humanism are discussed as they become relevant to the understanding of the psychosocial stages, and developmental tasks. Following Erik Erikson's psychosocial developmental theory, the course encompasses a comprehensive analysis of the stages of development, the developmental tasks, the psychosocial crisis of each life stage, the central process for the resolution of the developmental crises, and the development of prime adaptive ego qualities and core pathologies. The impact of substance uses and abuse on the biological, psychosocial, and societal systems is addressed as the course progresses within a psychosocial framework discussing each developmental stage from the prenatal stage to the very old age.

SAC 503A Neuropsychopharmacological Aspects of Substance Abuse
3 Credits

This course examines the effects of psychoactive substances on various biological systems and behaviors. The pharmacokinetics (absorption, distribution, metabolism, and excretion) and the pharmacodynamics (mechanisms and sites of action) of alcohol, sedative-hypnotics, barbiturates, stimulants, opiates, and hallucinogens, among others, will be studied. The functional anatomy of the brain and neurons, the process of neurotransmission, and variations in individual responses to psychoactive substances are reviewed. Basic neuropsychopharmacological principles are discussed in terms of substance abuse treatment and prevention, and recent scientific developments and socio-historical issues pertinent to substance abuse counselors are presented.

SAC 511 Theory and Practice of Individual Counseling
4 Credits

Counseling is viewed as a process facilitating the client's achievement of constructive personal goals. Focus is placed on the student's ability to apply state-of-the-art individual counseling models and understand the implications of the stages of change to the counseling process. The theoretical basis and practice of motivational interviewing and the following counseling - cognitive, behavioral, and social learning - will be presented. Topics covered include crisis intervention, anger in the substance abuse process, relapse-prevention models, and distinct needs of special populations. Students practice the use of different assessment instruments and develop a comprehensive treatment plan for a person with addiction-related problems. Various treatment modalities are discussed in terms of theoretical basis and effectiveness.

SAC 501A Theoretical Models of Addictions and its Implications for Counseling
3 Credits

This course provides the student with a clear articulation of what it means to be a professional substance abuse counselor. A summary introduction describes the foundation of knowledge, skills, and attitudes upon which the core functions of the substance abuse counselor are based. Selected theories are reviewed to understand the complexity of addiction for helping the student to develop a comprehensive model of substance abuse. The disease model, psychoanalytic perspective, behavioral and cognitive behavioral approaches, social learning theory, family systems theory, and the biopsychosocial paradigm are used to conceptualize addiction. The implications for substance abuse counseling associated with each model are discussed. Special emphasis is given to the development of awareness of personal constructs and these theoretical foundations to allow for an integration of these elements into an effective counseling approach.

SAC 514 Theory and Practice of Group Counseling
3 Credits

This course will focus on group strategies used in prevention and treatment of substance abuse. The group counseling will emphasize in-group processes, and strategies designed to enhance mutual support and to acquire skills such as drug refusal. The presentation of material will be didactic and experimental. The demonstration of group work will be integrated throughout the course. An involvement in a group session outside the classroom is a course requirement.

SAC 516 Theory and Practice of Family Counseling
3 Credits

This course will focus on family strategies used in the prevention and treatment of substance abuse. The family counseling provides an overview of the interactions between family dynamics and substance abuse. Basic concepts of family systems theory will be discussed to learn the application of both didactic and experimental. Demonstrations of family counseling will be integrated throughout the course. Involvement in family sessions outside the classroom is a course requirement.

SAC 517 Ethical and Legal Aspects of Substance Abuse Counseling
2 Credits

This course examines the laws that directly affect substance abuse counseling and the ethical standards of substance abuse professionals. Topics included are civil rights of substance abusers, confidentiality law (as amended in 1987), family law, criminal law, mental health care law, intoxicated driving, commitment and guardianship, negligence, liability, and the legal aspects of employee assistance programs. Also, the theories for ethical decision-making and the process and guidelines for reaching ethical decisions in difficult and sometimes complicated situations are presented and discussed. Emphasis is placed on the nature of legal and ethical obligations of the newly emerging professional substance abuse counselor in Puerto Rico.

SAC 530 Internship I: Substance Abuse Counseling
4 Credits

Internship I: Substance Abuse Counseling emphasizes the acquisition of substance abuse counseling skills and the integration of these skills into a variety of substance abuse prevention and treatment settings. A rich combination of at-risk populations, substance abuse treatment scenarios, and substance abuse counseling supervisors ensure that students acquire basic competencies in each core counselor function. An attempt is made to personalize the internship to meet each trainee's specific needs. The internship is divided into different rotations and a seminar. On each rotation the student works closely with the staff substance abuse counselor who provides supervision and guidance. The student becomes a member of the interdisciplinary team and provides counseling services to clients (individuals, family, and groups), consultation with other professionals, attends interdisciplinary meetings, and presents clients' progress in staff conferences. In consultation with the internship coordinator, the student selects internship sites from the available private and public treatment settings with which agreements have been reached. In addition to the rotations, the student is expected to participate in a two-hour seminar every other week. This didactic aspect of the internship is intended to offer academic training in areas that directly relate to the student's present and future career as a well-rounded substance abuse counselor. The didactics include case presentations, lectures, and conferences. Topics covered in this seminar include substance abuse counseling strategies (individuals, family, and group), research in neuropsychopharmacology and clinical aspects of substance abuse, and professional and ethical responsibilities of the substance abuse counselor.

## Master of Health Science in Substance Abuse Counseling

SAC 504 Human Development
3 Credits

The course involves an analysis of the principal theories and concepts that have been developed to understand and explain human development through the life span. A selected group of human development theories will be discussed, including psychosexual, cognitive developmental theories (Piaget and Vigotsky), learning conditioning (Pavlov and Skinner), social learning (Bandura), cognitive behaviorism, and psychosocial (Erikson). Developmental theories are compared based on their implications for human development and their links to psychosocial theory. Essential concepts drawn from the cultural theory, social role theory, and humanism are discussed as they become relevant to the understanding of the psychosocial stages, and developmental tasks. Following Erik Erikson's psychosocial developmental theory, the course encompasses a comprehensive analysis of the stages of development, the developmental tasks, the psychosocial crisis of each life stage, the central process for the resolution of the developmental crises, and the development of prime adaptive ego qualities and core pathologies. The impact of substance disorders on the biological, psychosocial, and societal systems is addressed as the course progresses within a psychosocial framework discussing each developmental stage from the prenatal stage to the very old age and including data and implications about the intersection between trauma, human development, and substance abuse disorder.

SAC 503A Neuropsychopharmacological Aspects of Substance Abuse
3 Credits

This course examines the effects of psychoactive substances on various biological systems and behaviors. The pharmacokinetics (absorption, distribution, metabolism, and excretion) and the pharmacodynamics (mechanisms and sites of action) of alcohol, sedative-hypnotics, barbiturates, stimulants, opiates, and hallucinogens among others will be studied. The functional anatomy of the brain and neurons, the process of neurotransmission, and variations in individual responses to psychoactive substances are reviewed. Basic neuropsychopharmacological principles are discussed in terms of substance abuse treatment and prevention, and recent scientific developments and socio-historical issues pertinent to substance abuse counselors are presented.

SAC 511 Theory and Practice of Individual Counseling
4 Credits

Counseling is a professional relationship that empowers individuals, families, and groups to accomplish mental health, wellness, education, and career goals. The focus is on the student's ability to apply state-of-the-art individual counseling models and understand the addiction like a biopsychosocial phenomenon to practice counseling without stigma and prejudgment. The theoretical and practical bases of harm reduction, motivational interviewing, and the following counseling will be concluded: cognitive, behavioral, and social learning.

Topics covered include screening, brief intervention and referral to treatment (**SBIRT**), crisis interventions, relapse prevention models, and intersectional approach for populations. Students practice doing role plays, using different assessment tools, and develop a comprehensive care plan for a person with a substance use disorder. Various forms of treatment are discussed in terms of theoretical basis and efficacy.

SAC 501A Theoretical Models of Addictions and its Implications for Counseling
3 Credits

This course provides the student with a clear articulation of what it means to be a professional substance abuse counselor. A summary introduction describes the foundation of knowledge, skills, and attitudes upon which the core functions of the substance abuse counselor are based. Selected theories are reviewed to understand the complexity of addiction for helping the student to develop a comprehensive model of substance abuse. The disease model, psychoanalytic perspective, behavioral and cognitive behavioral approaches, social learning theory, family systems theory, and the biopsychosocial paradigm are used to conceptualize addiction. The implications for substance abuse counseling associated to each model are discussed. Special emphasis is given to the development of awareness of personal constructs and these theoretical foundations to allow for an integration of these elements into an effective counseling approach.

SAC 514 Theory and Practice of Group Counseling
3 Credits

This course will focus on group strategies used in prevention and treatment of substance abuse. The group counseling will emphasize in-group processes, and strategies designed to enhance mutual support and to acquire skills such as drug refusal. The presentation of material will be didactic and experimental. Discussion about varied experiences in group work will be integrated throughout the course. Active participation will be a requirement and the inclusion of new group perspectives as well.

SAC 516 Theory and Practice of Family Counseling
3 Credits

This course will focus on family strategies used in the prevention and treatment of substance abuse. The family counseling provides an overview of the interactions between family dynamics and substance abuse. Basic concepts of family systems theory will be discussed to learn the application of both didactic and experimental. Demonstrations of family counseling will be integrated throughout the course. Involvement in family sessions outside the classroom is a course requirement.

SAC 517 Ethical and Legal Aspects of Substance Abuse Counseling
2 Credits

This course examines the laws that directly affect substance abuse counseling and the ethical standards of substance abuse professionals. Topics included are civil rights of substance abusers, confidentiality law (as amended in 1987), family law, criminal law, mental health care law, intoxicated driving, commitment and guardianship, negligence, liability, and the legal aspects of employee assistance programs. Also, the theories for ethical decision-making and the process and guidelines for reaching ethical decisions in difficult and sometimes complicated situations are presented and discussed. Emphasis is placed on the nature of legal and ethical obligations of the newly emerging professional substance abuse counselor in Puerto Rico.

SAC 530 Internship I: Substance Abuse Counseling
4 Credits

Internship I: Substance Abuse Counseling emphasizes the acquisition of substance abuse counseling skills and the integration of these skills into a variety of substance abuse prevention and treatment settings. A rich combination of at-risk populations, substance abuse treatment scenarios, and substance abuse counseling supervisors ensure that students acquire basic competencies in each core counselor function. An attempt is made to personalize the internship to meet each trainee's specific needs. The internship is divided into different rotations and a seminar. On each rotation, the student works closely with the staff substance abuse counselor who provides supervision and guidance. The student becomes a member of the interdisciplinary team and provides counseling services to clients (individuals, family, and groups), consultation with other professionals, attends interdisciplinary meetings, and presents clients' progress in staff conferences. In consultation with the internship coordinator, the student selects internship sites from the available private and public treatment settings with which agreements have been reached. In addition to the rotations, the student is expected to participate in a two-hour seminar every other week. This didactic aspect of the internship is intended to offer academic training in areas that directly relate to the student's present and future career as a well-rounded substance abuse counselor. The didactics include case presentations, lectures, and conferences. Topics covered in this seminar include substance abuse counseling strategies (individuals, family, and group), research in neuropsychopharmacology and clinical aspects of substance abuse, and professional and ethical responsibilities of the substance abuse counselor.

SAC 635 Design, Planning and Implementation of Substance Abuse Counseling Programs
3 Credits

Students on this course will receive information and develop designing, planning, and implementation skills for Substance Abuse Counseling Programs. Special attention will be given to the development of goals and objectives in accordance with an organization’s vision and mission, and to enhance the student’s administration capabilities by increasing understanding and implications of important political and legal aspects. The strategic planning model will be discussed as a recommended approach to manage the designing, planning, and implementation process of any given program.

SAC 633 Research Methodology
3 Credits

This course focuses on how to conduct scientific investigations. The students will learn how to formulate investigative questions parting from a quantity and quality point to view. They will examine different types of design, instruments, and their respective collection methods and data analysis. The course will provide students with the capacity to apply the basic principles of design and methodology of a qualified and quality scientific investigation. And finally, the course will evaluate scientific articles in reference to addiction counseling.

SAC 619 Theory and Practice of Supervision
3 Credits

This course examines the role of a substance abuse supervisor with clinical and management responsibilities. It includes theory, experiential, and integrative components, and will focus on both the skills and the personal characteristics needed to be an effective clinical supervisor. Specific models of clinical supervision particularly relevant to alcohol and drug counseling, including the psychodynamic, cognitive-behavioral, skills, and family therapy models are considered in detail.

SAC 515 Theory and Practice of Substance Abuse Prevention
2 Credits

This course reviews historical developments in the formation and implementation of effective substance abuse prevention strategies. Components of successful community, workplace, church, and school-based prevention programs are discussed, including needs assessment, program planning and evaluation, and maintenance of grassroots prevention efforts. The association between parenting and the initiation of substance use, risk and protective factors, current prevention strategies, prospects of prevention design programming, group development, volunteer management, and self-help group formation are also discussed. Although there is a focus on strategies targeting youth, the course also addresses other high-risk groups.

SAC 625 Program Evaluation
2 Credits

This course is designed to provide skills in programming evaluation. Emphasis is given to evaluation designs, and the problems of implementing certain designs at the program level. The different methodologies for needs assessment, process, outcome, and impact analysis are examined. This course also trains students in basic statistical principles and their application to program evaluation. It equips students to conduct basic data collection and analysis and to organize and report data.

SAC 629 Clinical Intervention Respecting Human Dignity
2 Credits

This course will consist of lectures delivered by guest experts and students' presentations. The seminar focuses on the specified clinical needs and issues focused on various populations with substance use disorders. Attention is given to the difficulties confronted by these groups in general, but more so for those who are also experiencing substance use disorders.

SAC 630 Internship II: Planning, Management and Evaluation of Substance Abuse Counseling Program
4 Credits

Planning, Management and Evaluation of Substance Abuse Counseling Program is the culmination of the student's formal training in substance abuse. Through this internship, the student directly and actively engages in the process of identifying programmatic needs in order to supervise a substance abuse counseling service and plan, and implement, manage, and evaluate a Substance Abuse Counseling Program. The students also attain direct experience in supervising substance abuse counselors. Students apply the knowledge and skills acquired in previous courses on the administration of Substance Abuse Counseling Programs and gain first-hand appreciation of the factors that promote or impede effective planning, management, and evaluation.

# Medical Images Technology Program

# MEDICAL IMAGES TECHNOLOGY PROGRAM

## Mission, Vision and Scope

### Mission

To educate and train qualified personnel in the field of medical imaging technology, to provide direct service to patients using the latest medical imaging modalities, with pride for the profession, compassion, and empathy for patients and enthusiasm for lifelong learning.

### Vision

To be a high-quality educational model, leader, and avant-garde in the field of medical images.

## Educational Goals

### Goals

1. To provide the opportunity to every qualified individual, regardless of race, creed, national origin, and gender to seek the experiences, competencies, challenges, and knowledge that is required to perform as an entry level medical imaging professional.

2. To provide students with broad experiences and academic support in the academic and clinical aspects to allow them to develop and integrate knowledge, and develop competencies and attitudes needed for the optimum performance of his/her skills.

3. To contribute to the students' development in the personal, professional, and humanistic aspects through academic counseling, support services, and complementary activities.

4. To support Puerto Rico's medical imaging professionals through the development of continued education activities.

Our program has a qualified faculty in the medical imaging area as well as in other medical, biological, psychosocial, and general education content areas. Faculty members strive to give a complete education to students, thus enabling him/her to offer a better service to patients.

## Student Evaluation and Promotion

The performance of all students in the Medical Images Technology Program's offerings (Associate Degree in Radiologic Technology, post-Associate Certificates and bachelor's in science) will be assessed by applying rules and academic procedures and non-discriminatory policies.

## Graduation Requirements

To obtain expected degrees for all Medical Images Technology Program offerings, students must complete all the courses described on the program continuum with a qualification of "C" or above. In addition, they must comply with all the administrative requirements established by the Universidad Central del Caribe.

## Individual Performance on Courses

At the beginning of each course, faculty members will provide students with a course syllabus describing learning objectives, competencies to be achieved, and evaluation criteria. The evaluation of the performance of the individual students is the responsibility of the faculty member offering it. Final grade on the course is the product of:

- Student academic performance based on the objectives, requirements, and evaluation methods.
- The attendance and participation in class, clinical labs, or other programmed educational activities.

Students' opinions and behavior unrelated to the academic requisites will not affect the evaluation and grade.

## Minimum Grade to Approve Courses

All courses in the academic offerings of the program must be approved with the minimum grade of "C" (Average) or higher.

Any student receiving an "F" in a course must satisfactorily repeat the course the next time the course is offered.

## Academic Classifications

At the end of each evaluative period, the Students Evaluation and Promotion Committee reviews the academic performance of all students in all courses and makes recommendations to the program director on the status of students according to the standards of performance. When the evaluation has been completed for each case, the committee submits the recommendations to its program director.

The committee can recommend the following academic classifications based on the student performance: promotion, conditional promotion, academic probation, suspension, and dismissal.

### A. Promotion (UP)

The student will be promoted to the next academic period as a regular student after having completed all courses in the study program with a **"CQPI**" of 2.00 or more and with no failures in any course.

After the end of the last academic period the student can be recommended to receive the corresponding degree/certificate if he/she:

1. Has completed the academic requirements with a **"CQPI"** of 2.00 or more.
2. Satisfactorily approved all courses required in the program's continuum.
3. Comply with other institutional requirements as indicated at the beginning of the academic program.

### B. Conditional Promotion (CP)

This classification is assigned when a student fails in less than 33% of the credits/courses registered in any evaluative period but maintains a "**CQPI**" of 2.00 or more. This implies that the student must repeat the failed course the next time it is offered. The course can be repeated in other institutions, with appropriate authorizations from the program director and the Registrar's Office.

## C. Academic Probation (AP)

The academic probation classification corresponds to a period in which the student's performance is continuously evaluated. This classification is assigned when:

1. The students' **"CQPI"** is less than 2.00
2. The student receives a final grade of failure in more than 33%, but no more than 50%, of the credits/courses registered in any evaluative period.

The Students Evaluation and Promotion Committee may recommend a limit of credits to be taken in the next academic period of enrollment as a condition for removal of the probation classification.

To be removed from academic probation the student must:

1. Maintain a **"CQPI"** of 2.00 or more in the next academic year.
2. Repeat and satisfactorily complete all courses with previous grades of "F".
3. An academic probation status can be held for a maximum of two (2) evaluative periods, after which the student will be suspended.

## D. Academic Suspension (AS)

Academic suspension is for a limited period, usually one year. The student may apply for readmission to the program after the established period, as determined by the program's Students Evaluation and Promotion Committee. Upon readmission the student will be assigned an academic probation classification. The student must comply with academic probation conditions to resume a regular course program.

The academic suspension of a student can be recommended under the following conditions:

1. The student "**CQPI**" is less than 2.00
2. The student receives a final grade of failure in more than 50%, but no more than 66%, of the credits/courses registered in any evaluative period.
3. A student who has received an academic probation and on the next academic period fails to achieve a minimum "**CQPI**" of 2.00.
4. Suspension after course repetition: any student who has been asked to repeat any courses and fails it for a second time.

## E. Academic Dismissal (AD)

Academic dismissal is a definitive action: the student will no longer be allowed to enroll in the Medical Images Technology Program at the **UCC**.

The academic dismissal of a student can be recommended under the following conditions:

1. A student who has received an academic suspension and in the next academic period fails in achieving a "**CQPI**" of 2.00 or fails in any one course for a third time.
2. Any student who fails in over 66% of the registered credits/courses in any evaluative period.

## Satisfactory Academic Progress

To maintain satisfactory academic progress the student must achieve a **CQPI** of 2.00 at the end of the prescribed period and pass at least 66% of the enrolled credits.

### Maximum Period to Obtain a Degree

The time to complete the Associate Degree in Radiologic Technology is three years (36 months), while the maximum period allowed for degree completion is five (5) years. The student can require additional time to complete a degree for academic or personal reasons. In these cases, the Evaluation and Promotion of Student Committee can establish a special schedule to allow the student to complete the requirements.

The maximum time to complete the post-Associate Certificate in Diagnostic Medical Sonographer and the bachelor's in science in Diagnostic Images is twelve (12) months. Students can take an additional year to complete requisites for academic or personal reasons following approval by the Evaluation and Promotion of Students Committee.

The maximum time to complete the post-Associate Certificate in Mammography, Computerized Tomography and Magnetic Resonance is one semester. Students can take an additional semester to complete the certificate's requisites for academic or personal reasons following approval by the Students Evaluation and Promotion Committee.

### Affiliated Institutions

The Medical Images Technology Program has over forty (40) formal affiliations with institutions throughout Puerto Rico that serve as clinical training sites for students.

## Study Programs

### Associate Degree in Radiologic Technology Description

Since its discovery in 1895, X-rays have become an indispensable tool in the diagnosis of health conditions. A simple radiograph is probably the front door for many individuals into the health system. Conventional radiology is still the first step in a long ladder of modalities designed to produce medical diagnostic images.

### Profile of a Radiologic Technologist

A radiologic technologist is a health professional who produces diagnostic images through the utilization of specialized equipment working with ionizing radiation and other electronic means. He/she is responsible for producing quality images, gathering patient history/information, and submitting the images to a radiologist for interpretation and diagnosis. The radiologic technologist will provide services to patients/clients in the most variable of settings, ranging from hospital, diagnostic and treatment centers, and stand-alone offices, public or private.

The radiologic technologist is responsible for assuring the safety and well-being of the patient /client under his/her charge and, as a member of the health professional team, has the additional responsibility of educating, supporting and serving his/her patient/client.

The radiologic technologist is capable of:

1. Evaluating the patient's medical and clinical information to follow the prescribed radiographic procedure.
2. Utilizing discrete and valuative judgment in the operation of specialized equipment and performance of radiographic procedures.
3. Performing radiographic procedures to achieve quality images that include unequivocal diagnostic information of the anatomic structure and of pathological conditions.
4. Assisting the radiologist in those invasive procedures requested or needed.
5. Facilitating the diagnosis by integrating medical information, clinical history, and the images produced.
6. Orienting patients about the radiographic procedures and on healthy lifestyles.
7. Integrating quality control procedures into his/her professional duties as to maintain a consistent excellence level in performance.
8. Performing his/her duties in such a way that due respect and empathy for the human being prevails.

## Educational Program

This program comprises three academic years (six semesters), divided into closely related periods of didactic and clinical practice. The curriculum was designed based on the curricular recommendations of the American Society of Radiologic Technology and the Joint Review Committee on Education in Radiologic Technology. These two institutions recommend standardized education and accreditation of most programs in radiologic technology in the United States. It is important to point out that we have adjusted the curriculum recommendations to comply with their requirements while meeting local regulations, and in accordance with the needs and realities of the Puerto Rican community.

The program's curriculum is designed in such a way that the balance between didactic and clinical requisites changes as the student progresses in training, increasing clinical responsibilities as the student approaches completion of the program. This system allows the student to adapt to professional life and at the same time achieve a more ordered transition towards entry-level work upon completion of training.

After the student completes all academic and administrative requirements, he/she receives the Associate Degree in Radiologic Technology and is eligible to take the Radiologic Technologists Board administered by the Puerto Rico Radiology and Radiotherapy Technologists Examination Board as well the American Registry of Radiologic Technologists' credential.

## Post-Associate Certificate in Diagnostic Medical Sonography

**Description of the Post-Associate Certificate in Diagnostic Medical Sonography**

Among the new trends in medical diagnostic, ultrasound, or sonography, has become one of the most common. This new technique of producing images by means of sound waves, because of its low cost and its wide use in areas prohibited from ionizing radiation (the reproduction organs) is used more every day in the specialty of obstetrics, gynecology, urology, internal medicine, pediatrics, cardiology, and pediatric neurology.

Ultrasound is a technique by which the operator determines the diagnostic information that he/she needs and the techniques to be used to gather information according to the specific needs, situations, and conditions of the patient.

**Profile of the Sonographer**

The sonographer is a health professional that produces images of the soft tissues of the body by means of specialized equipment that uses very high frequency sound waves. He/she is responsible for producing high quality images and who later presents and submits his/her findings to a certified physician for analysis and diagnosis. The sonographer is responsible for preserving the integrity of the patient/client under his/her charge and as a health professional, has the responsibility of educating, supporting, and serving his/her patient/client.

The sonographer is a health professional capable of:

1. Evaluating medical and clinical information of the patient to determine the appropriate procedure to follow.
2. Performing sonographic procedures using specialized electronic equipment to gather anatomic information that facilitates the interpretation of findings and the diagnosis of pathological conditions.
3. Assisting the physician in gathering sonographic information by means of the integration of medical information, clinical background, and the images obtained.
4. Using discretion and valuative judgment in the use of procedures and operation of the equipment.
5. Providing orientation to the patient about the procedures made and as a health professional, collaborates in the promotion of good and healthy lifestyles.

**Educational Program**

This is a one-year academic program that seeks to develop radiologic technologist's theoretical knowledge and practical training in the modalities of medical diagnosis by means of ultrasound. The academic content is balanced to offer the student other opportunities to become more proficient in the theoretical processes related to this trend and develop practical skills in equipment operation and patient management.

Graduates of this program will be prepared to successfully meet any professional evaluation required to practice the imaging modality selected, in Puerto Rico as well as in the continental United States.

The course content of the Post-Associate Certificate in Diagnostic Medical Sonography program has been developed following the curricular recommendations of the American Registry on Diagnostic Medical Sonographers (**ARDMS**).

The academic content has been balanced to offer the student the opportunity to master theoretical processes related to the ultrasound modality and develop practical skills in the operation of the equipment and psychomotor and affective skills of patient management.

The courses and the clinical practice requirements for the certification are distributed across two semesters. The students attend theoretical courses, and at the same time develop the necessary skills while pursuing their clinical practices.

## Post-Associate Certificate in Mammography (online) Description of the Post-Associate Certificate in Mammography

Mammography is the imaging procedure which utilizes ionizing radiation to produce images of the human breast. Its effectiveness in the early detection of the medical conditions of the breast and surrounding tissues has been widely corroborated. Because of its importance in the battle against breast cancer, a condition that has increased in the past ten years among women and men, mammography is considered an area of specialization in the field of medical diagnostic images.

**Profile of the Mammographer**

The mammographer is a health professional who produces images of the breast by means of specialized equipment that uses low-level ionizing radiation. He/she is responsible for producing high quality images and submitting these mammographic images to the radiologist for analysis and diagnosis. The mammographer is also in charge of the mammography quality control program as well as to keep on track the accreditation process by the American College of Radiology and the certification by the Food and Drug Administration (**FDA**) and state agencies to operate. In addition, he/she is responsible for preserving the integrity of the patient/client under his/her charge and as a health professional has the responsibility of educating, supporting, and serving his/her patient/client.

The mammographer is a health professional capable of:

1. Evaluating medical and clinical information of the patient to determine the appropriate procedure following established protocols.
2. Performing mammographic procedures using specialized equipment to gather anatomic information that facilitates the interpretation of findings and the diagnosis of pathological conditions, integrating medical information and clinical history with the obtained images.
3. Performing mammographic procedures in any patient, regardless of mental or physical capacity and without social, racial, or cultural discrimination.
4. Providing support and orienting the patient about the procedures to be performed, familiarizing the patient with the equipment, the need for breast compression, and early cancer detection guidelines by a recognized organization such as the American Cancer Association.
5. Offering an optimum quality service in a prudent and reasonable time period.
6. Participating in invasive processes with the radiologist.
7. Performing quality assurance and quality control procedures required to maintain the certification and accreditation by ACR and FDA in the mammography modality.
8. Correct management of the mammography equipment. Using discretion and valuative judgment in the use of procedures and operation of the equipment.
9. Maintaining current knowledge in mammography through continued education.

**Educational Program**

The academic program seeks to develop, in a radiologic technologist, theoretical knowledge and practical training in the modalities of mammography. The academic content is balanced to offer the student other opportunities to comprehend theoretical processes related to this trend and develop practical skills in the equipment operation and patient management.

The certificate intends to produce a comprehensive professional dedicated to breast health. The didactic- practical program of the Certificate in Mammography is designed to develop in the graduates from an Associate Degree in Radiologic Technology the theoretical knowledge and practical competencies required to produce optimum quality images of this anatomical region to be used in the diagnosis of the breast's pathological conditions.

After participating in a period of one semester of online courses (15 weeks) in didactic activities, as well as clinical practice in mammography modality, while working directly with patients and participating in quality control procedures, the student will receive the Post-Associate Degree Certificate in Mammography. The student will be prepared to sit for the Mammography Modality State Exam as well as the American Registry of Radiologic Technologist Mammography credential once the radiology credential has been achieved.

## Post-Associate Certificate in Computerized Tomography

**Description of the Post-Associate Certificate in Computerized Tomography**

Computerized tomography, developed in 1972 by Engineer Geoffrey Hounsfield, uses ionizing radiation (X- rays) and radiation detectors to provide a computer with information about the density of the human tissues, which the computer then turns into a digital image of the body volumes. The resulting images are like a radiograph in its density, but the image is oriented perpendicular to the body axis. Computerized tomography is used primarily to evaluate the whole human body.

The academic program of the Post-Associate Certificate in Computerized Tomography is designed to develop, in graduates of an Associate Degree in Radiologic Technology, theoretical knowledge and the practical skills to produce medical diagnostic images by means of computerized tomography equipment. This certificate is offered in one semester long (18 weeks) period and comprises 13 academic credits.

**Profile of the Computerized Tomography Technologist**

The imaging technologist specializing in computerized tomography is a health professional who operates very complex and sophisticated equipment and combines electronic elements with ionizing radiation to produce images of the human body with the purpose of making or defining a medical diagnosis.

Because of the impression the equipment produces on patients, a computerized tomography technologist's first task, before doing the procedure, is the responsibility to interact with the patient in an effective manner, to orient the patient on the procedure to be performed and lower the patient's anxieties. Before the procedure, the technologist explains to the patient the importance of following the instructions he/she will receive during the procedure, of maintaining the proper positioning and the proper way of breathing to acquire optimum quality images.

The computerized tomography technologist will be able to:

1. Evaluate patient's medical and clinical information to determine the procedure to perform, following the protocols established by his/her workplace and according to the medical and physical condition of the patient.
2. Perform computerized tomography procedures acquiring anatomic information and integrating patient medical and clinical information to facilitate the patient diagnosis.
3. Assume full responsibility for his/her patient's and accompanying person's safety during the procedure, avoiding unnecessary radiation exposure to them.
4. Accurately manipulate the computerized tomography equipment to produce optimum quality images.
5. Demonstrate his/her knowledge about the operation and physical principles related to the computerized tomography equipment.
6. Perform any computerized tomography procedure that is required from him/her, regardless of the level of physical and/or mental condition of the patient and without of social, racial, or cultural prejudice.
7. Educate patient and clarify any doubt the patient might have regarding the equipment, the need to use contrast media when indicated, and the importance of performing an optimum quality procedure to enhance diagnosis.
8. Support patients, before, during, and after the procedure.
9. Offer optimum quality services in a prudent and reasonable lapse of time.
10. Document any incident that may occur before, during, and after the procedure, in the patient's record and/or any form designed for this purpose.
11. Evaluate the quality of the services, keeping control of the quality of the operations and functioning of the equipment and its accessories, image printing, and post-processing routines and image viewing conditions, among others.
12. Acquire optimum quality images in all procedures performed.
13. Apply discretion and critical thinking to the performance of all procedures and the operation of the equipment.
14. Collaborate with the radiologist in the performance of interventional procedures using computerized tomography.
15. Assume responsibility for his/her own personal and professional development and enhancement through his/her participation in continued education activities and in new procedures capacitating workshops.

## Post-Associate Certificate in Magnetic Resonance

### Description of the Post-Associate Certificate in Magnetic Resonance

Magnetic resonance images have revolutionized the medical diagnostic imaging field with the superb resolution of tissues of its images. Magnetic resonance utilizes a strong magnetic field (several times stronger than gravity force) to alienate free protons (hydrogen ions), and then these protons are stimulated with a radio frequency and pushed out of alignment. When the protons return to the magnetized state, they resonate (they resend the energy used to align them), during which process they emit a signal captured by a radio antenna and pass to a computer. The computer then processes the information and produces an image based on the density and volume of the tissue being imaged. Images produced with magnetic resonance differ from computerized tomography in that there are various ways to analyze tissue density based on their magnetic properties.

The academic-practical program of the Post-Associate Certificate in Magnetic Resonance is designed to develop in graduates with an Associate Degree in Radiologic Technology, the theoretical knowledge and practical skills needed to produce optimum quality images to be used in medical diagnosis using highly sophisticated equipment using magnetic and radio frequency energy. This certificate comprises 13 academic credits, which are offered in a one semester long (18 weeks) period.

### Profile of the Magnetic Resonance Technologist

The imaging technologist specializing in magnetic resonance is a health professional who operates very complex and sophisticated equipment that combines magnetic and electronic elements to produce images of the human body with the purpose of making or defining a medical diagnosis.

Because of the impression the equipment produces on patients, a magnetic resonance technologist's first task, before doing the procedure, is the responsibility to interact with the patient in an effective way to orient the patient on the procedure to be performed and lower patient anxieties. Before the procedure, the technologist explains to the patient the importance of following the instructions he will receive during the procedure, of maintaining the proper positioning, and the proper way of breathing to acquire optimum quality images.

The magnetic resonance technologist will be able to:

1. Evaluate patient's medical and clinical information to determine the procedure to perform, following the protocols established by his/her workplace and according to the medical and physical condition of the patient.
2. Perform magnetic resonance procedures acquiring the anatomic information and integrating patient medical and clinical information to facilitate the patient diagnosis.
3. Assume full responsibility for his/her patient's and accompanying person's safety during the procedure, indicating the precautions to be taken around a strong magnetic field.
4. Interview patient to assess the possible risk of metal magnetization.
5. Accurately manipulate the magnetic resonance equipment to produce optimum quality images.
6. Demonstrate his/her knowledge about the operation and physical principles related to the magnetic resonance equipment.
7. Perform any magnetic resonance procedure that is required from him/her, regardless of the level of physical and/or mental condition of the patient and without social, racial, or cultural prejudice.
8. Educate patient and clarify any doubt the patient may have regarding the equipment, the need to use contrast media when indicated, and the importance of performing an optimum quality procedure to enhance diagnosis.
9. Support patient, before, during, and after the procedure.
10. Offer optimum quality services in a timely and reasonable time and manner.
11. Document any incident that might occur before, during, and after the procedure, in the patient's record and/or any form designed for this purpose.

12. Evaluate the quality of the services, keeping control of the quality of the operations and functioning of the equipment and its accessories, image printing and post-processing routines and image viewing conditions, among others.
13. Acquire optimum quality images in all procedures performed.
14. Apply discretion and critical thinking to the performance of all procedures and the operation of the equipment.
15. Collaborate with the radiologist in the performance of interventional procedures using magnetic resonance.
16. Assume responsibility for his/her own personal and professional development and enhancement through his/her participation in continued education activities and in new procedures capacitating workshops.

## Post-Associate Degree Certificate in Interventional Radiology and Angiography (online)

**Description of the Interventional Radiology and Angiography Technologist**

A radiologic technologist in interventional radiology and angiography is responsible for preparing and positioning patients, operating advanced imaging equipment, and assisting radiologists during procedures such as angioplasties and image-guided biopsies. Additionally, they ensure radiation safety, administer contrast media, and monitor the patient before, during, and after the procedure, ensuring comprehensive and accurate care. Their professionalism is reflected in their ability to remain calm under pressure, communicate effectively with the medical team and patients, and adhere to the highest standards of safety and quality in every procedure.

**Profile of the Interventional Radiology and Angiography Technologist**

The radiologic technologist specialized in interventional radiology and angiography is trained to perform the following functions:

1. Explain the procedures for patients, obtaining their consent and trust.
2. Prepare the patient appropriately for the interventional procedure to be performed.
3. Organize a sterile work field before and during all procedures.
4. Check the patient's vital signs during the interventional procedure and inform the physician.
5. Through monitoring sonographic and radiological images, identify cardiovascular signals to record detailed information on cardiovascular, central, and peripheral function, cerebral, thoracic, or abdominal circulation, and oxygen saturation.
6. Manipulate essential tools when assisting the physician during the interventional procedure.
7. Operate the radiographic equipment and ensure its proper use to obtain optimal images following the established protocol.
8. Establish fluoroscopy time control to ensure that it does not exceed the recommended limits (**ALARA**).
9. Recognize the procedures for administering contrast media to carry out the interventional procedure.
10. Validate patient records before, during, and at the end of the interventional procedure, ensuring the confidentiality of the information.

## Post-Associate Degree Certificate in Vascular Sonography (online)

The Post-Associate Degree Certificate in Vascular Sonography is designed according to the curricular recommendations developed by the American Society of Radiologic Technologists (**ASRT**) and the academic preparation requirements established by the American Registry for Diagnostic Medical Sonography (**ARDMS**) for those wishing to obtain the credential of a specialized technologist in vascular sonography.

Students in the program must complete eight specialization courses equivalent to twenty-four (24) credits. These are divided into six theoretical courses of three (3) credits each, and clinical practice equivalent to two courses of three (3) credits each. All will be offered in the same format as the other specialty certificates affiliated with the Medical Imaging Technology Program.

### Description of the Vascular Sonography Technologist

The vascular sonographer is a highly trained healthcare professional capable of performing detailed studies of anatomical structures using vascular ultrasound and Doppler techniques. This specialist applies appropriate tracking techniques and protocols, categorizes communication processes and patient care, and integrates theoretical principles into real practices. Additionally, they interpret medical orders, guide patients on the instructions for each routine and protocol and review clinical studies to obtain accurate diagnoses. They analyze the sonographic anatomy of vascular structures, classify, identify, and correct common artifacts, and understand social aspects in patient care. They are governed by laws and professional standards, assuming leadership roles. This professional can work in hospitals and clinics, imaging diagnosis centers, specialized medical offices, research laboratories, educational institutions, and medical equipment companies, adapting to various contexts within the healthcare field.

### Graduate Profile

The Vascular Sonographer is trained to perform the following functions:

1. Apply appropriate tracking techniques and protocols in evaluating anatomical structures using vascular ultrasound, according to their location.
2. Categorize processes related to patient communication, care, attention, and safety.
3. Integrate theoretical principles of vascular ultrasound into virtual (simulated) and real practice.
4. Interpret medical orders before managing each clinical case.
5. Explain the basic routine, protocols, and instrumentation necessary for conducting different vascular sonographic studies.
6. Appreciate clinical laboratories and related imaging studies to establish a correlation that aids in obtaining a more accurate diagnosis of vascular anatomy.
7. Analyze the normal and pathological sonographic appearance of the vascular structures evaluated in a vascular sonogram.

## Bachelor of Science in Diagnostic Images

The Bachelor of Science in Diagnostic Images offers graduates from an Associate Degree in Radiologic Technology from an accredited or recognized program in Puerto Rico or the United States the opportunity to acquire a higher academic degree in their professional field. Through this program, graduates from radiologic technology associate degree programs will continue their training by choosing and completing two or more specialization certificates and increasing their direct patient attention competencies and organizational skills.

Baccalaureate students will complete additional general education courses beyond the associate degree curricula and take courses in basic managerial skills to be better prepared to face additional professional responsibilities. The graduate of the Bachelor of Science in Diagnostic Images will possess the competencies in at least three medical imaging modalities: conventional radiology and two other modalities of his/her choice; a rounded general education, and managerial training in medical imaging services skills.

The **UCC** has designed this offer based on the premise that almost all the radiologic technologists in Puerto Rico have attained an associate degree. The Bachelor of Science in Diagnostic Images will integrate admitted students' academic experiences through the incorporation of credits approved in courses in: (1) general education; (2) an Associate Degree in Radiologic Technology; (3) specialization certification (Sonography, Mammography, Computerized Tomography and Magnetic Resonance), and (5) bachelor's degree higher courses.

**Profile of the Bachelor of Science in Diagnostic Images Professional**

The graduate of the Bachelor of Science in Diagnostic Images will be capable of:

1. Evaluating the referral and the patient's medical information and performing the required procedure in any of the selected modalities.
2. Recognizing medical terms, and applying knowledge of human topographic and sectional anatomy, pathology, and physiology to determine the most adequate protocols in the selected modality.
3. Performing diagnostic procedures that collect, using electronic and sophisticated equipment, information to facilitate a diagnostic interpretation of the results of the procedure.
4. Offering patients appropriate information about the risks, secondary effects, and indications and counter indications to the procedures, before, during, and after performing the same.
5. Offering patients information about healthy lifestyles.
6. Presenting to the specialized physician, any information obtained during the procedures which facilitate the diagnosis through the integration of patient record information, clinical history, and images obtained by means of the available modalities.
7. Participating in case discussions to determine any need for follow up or complementary procedures and perform the necessary procedures if requested.
8. Applying universal protection measures against infections during the performance of the requested procedures and in any emergency that may arise.
9. Using effective communication skills, in Spanish and English, written or verbal, with patients, patients' families, peers, and community members.
10. Demonstrating a high level of respect for all human beings.
11. Integrating management concepts and strategies into the work and participating in the development of coherent policies in risk management for the work area.
12. Continuously improving personal and professional knowledge and application of information systems and their applications to the medical images and diagnosis.
13. Applying problem solving, critical thinking, and decision-making skills to improve services to patients while in the workplace.
14. Promptly identifying problems with the equipment used in the workplace and relating any such problems to those responsible for maintenance and repairs.
15. Developing assessment programs to continuously improve quality of services and

recommended corrective measures as they are required.

16. Assuming leadership positions in the institutions where he/she is employed.
17. Acting as role models to those interested in continuing formal studies in the medical images field.

## Courses of Study

### Associate Degree in Radiologic Technology

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| CP 101 | University Life | 0 |
| EN 101 | Basic English I | 3 |
| SP 101 | Basic Spanish I | 3 |
| CN 101 | Fundamentals of Science: Chemistry and Physics | 3 |
| MT 101 | Fundamentals in Mathematics | 3 |
| RT 110A | Introduction to Computer Systems | 3 |
| EN 102 | English Language II | 3 |
| SP 102 | Spanish Language II | 3 |
| RT 101 | Introduction to Radiologic Technology (includes clinical hours) | 3 |
| RT 103 | Human Anatomy and Physiology I (w/lab) | 3 |
| RT 216 | Basic Patient Care (w/lab) | 3 |
| | **Total of Credits First Year:** | **30** |

**Second Year**

| Code | Course Title | Credits |
|---|---|---|
| RT-104 | Human Anatomy and Physiology II (w/lab) | 3 |
| RT-107 | Principles of Radiographic Exposure (w/lab) | 2 |
| RT-111 | Radiologic Physics | 3 |
| RT-113 | Radiographic Procedures and Evaluation I (w/lab) | 3 |
| RT-202B | Clinical Practice I | 2 |
| RT-108 | Principles of Image Acquisition and Evaluation | 2 |
| RT-211 | Radiobiology | 3 |
| RT-213 | Radiographic Procedures and Evaluation II (w/lab) | 3 |
| RT-303 | Sectional Anatomy (w/lab) | 3 |
| RT-203B | Clinical Practice II | 2 |
| | **Total of Credits Second Year:** | **26** |

**Third Year**

| Code | Course Title | Credits |
|---|---|---|
| RT-115B | Radiologic Pathology | 3 |
| RT-204 | Clinical Practice III | 3 |
| RT-316 | Advance Patient Care | 3 |
| RT-314 | Radiographic Procedures and Evaluation III (w/lab) | 2 |
| RT-315A | Legal Concepts Seminar | 1 |
| RT-320 | Radiographic Quality Assurance | 4 |
| RT-350 | Review for Professional Credentialing Exam | 1 |
| RT-414 | Introduction to Imageneology | 3 |
| RT-205 | Clinical Practice IV | 4 |
| | **Total of Credits Third Year:** | **24** |
| | **Total Credits:** | **80** |

## Post-Associate Certificate in Diagnostic Medical Sonography

| Code | Course Title | Credits |
|---|---|---|
| US 401 | Clinical Practice I | 3 |
| US 411 | Ultrasound Physics | 4 |
| US 416 | Pelvic Sonography | 2 |
| US 419 | Abdominal Sonography | 3 |
| US 421 | Superficial Organs and Special Procedures in Sonography | 3 |
| US 459 | Integration Laboratory I | 2 |
| US 402 | Clinical Practice II | 3 |
| US 417 | Obstetric Sonography | 3 |
| US 427 | Instrumentation and Quality Assurance | 4 |
| US 431 | Basic Ultrasound Studies Seminar | 3 |
| US-440 | Research Project | 3 |
| US-469 | Integration Laboratory II | 2 |
| | **Total of Credits:** | **35** |

## Post-Associate Certificate in Mammography

| Code | Course Title | Credits |
|---|---|---|
| MA 401 | Mammography Procedures | 3 |
| MA 402 | Anatomy, Physiology and Pathology of the Breast | 2 |
| MA 403 | Physics and Quality Assurance in Mammography | 3 |
| MA 404 | Operational and Clinic Fundamentals of Sonomammography | 3 |
| MA 405 | Clinical Practice and Research | 3 |
| | **Total of Credits:** | **14** |

## Post-Associate Certificate in Computerized Tomography

| Code | Course Title | Credits |
|---|---|---|
| CT 425 | Operating Fundamentals of Computerized Tomography | 3 |
| CT 430 | Computerized Tomography Procedures and Protocols | 3 |
| CT 435 | Anatomy and Pathology in Computerized Tomography Images | 3 |
| CT 440 | Clinical Practice and Research in Computerized Tomography | 4 |
| | **Total of Credits:** | **13** |

## Post-Associate Certificate in Magnetic Resonance

| Code | Course Title | Credits |
|---|---|---|
| MR 400 | Operating Fundamentals of Magnetic Resonance Images | 3 |
| MR 405 | Procedures and Protocols in Magnetic Resonance Images | 3 |
| MR 410 | Anatomy and Pathology in Magnetic Resonance Images | 3 |
| MR 415 | Clinical Practice and Research in Magnetic Resonance | 4 |
| | **Total of Credits:** | **13** |

## Post-Associate Degree Certificate in Interventional Radiology and Angiography

| Code | Course Title | Credits |
|---|---|---|
| IA 461 | Operational Concepts of Interventional Radiology and Angiography | 3 |
| IA 462 | Procedures Protocols in Interventional Radiology and Angiography | 3 |
| IA 463 | Anatomy and Pathophysiology in Interventional Radiology and Angiography | 3 |
| IA 464 | Clinical Practice and Research in Interventional Radiology and Angiography | 4 |
| | **Total of Credits:** | **13** |

## Post-Associate Degree Certificate in Vascular Sonography

| Code | Course Title | Credits |
|---|---|---|
| SV 400 | Doppler Physics and Hemodynamics | 3 |
| SV 404 | Anatomy and Physiology of the Venous and Arterial System | 3 |
| SV 408 | Procedures of the Venous and Arterial System in the Upper and Lower Extremity | 3 |
| SV 412 | Vascular Clinical Practice I | 3 |
| SV 416 | Abdominopelvic Vascular Procedures | 3 |
| SV 420 | Intracranial and Extracranial Vascular Procedures | 3 |
| SV 424 | Vascular Clinical Practice II | 3 |
| SV 430 | Seminar in Vascular Sonography | 3 |
| | **Total of Credits:** | **24** |

## Bachelor of Science in Diagnostic Images

**First Year**

| Code | Course Title | Credits |
|---|---|---|
| EN 101 | Basic English I | 3 |
| SP 101 | Basic Spanish I | 3 |
| RT 101 | Introduction to Radiologic Technology (includes clinical hours) | 3 |
| RT 107 | Principles of Radiographic Exposure (w/lab) | 2 |
| RT 113 | Radiographic Procedures and Evaluation I | 3 |
| RT 103 | Human Anatomy and Physiology I (w/lab) | 3 |
| RT 110A | Introduction to Computer Systems | 3 |
| CP 101 | University Life | **N/C** |
| EN 102 | Basic English II | 3 |
| SP 102 | Basic Spanish II | 3 |
| RT 111 | Radiologic Physics | 3 |
| RT 213 | Radiographic Procedures and Evaluation II (w/lab) | 3 |
| RT 216 | Patient Care in Radiology (w/lab) | 3 |
| RT 202 | Clinical Practice I | 2 |
| RT 203 | Clinical Practice II | 2 |
| | **Total of Credits First Year:** | **39** |

**Second Year**

| Code | Course Title | Credits |
|---|---|---|
| RT 303 | Sectional Anatomy (w/lab) | 3 |
| RT 314 | Radiographic Procedures and Evaluation III (w/lab) | 2 |
| RT 211 | Radiation Biology | 3 |
| RT 115 | Radiologic Pathology | 2 |
| RT 204 | Clinical Practice III | 3 |
| RT 320 | Radiographic Critique and Quality Assurance | 4 |
| RT 414 | Introduction to Imaging Modalities | 3 |
| RT 315A | Legal Concepts Seminar | 1 |
| RT 350 | Review for Professional Credentialing Exam | 1 |
| RT 205 | Clinical Practice IV | 4 |
| RT 104 | Human Anatomy and Physiology II (w/lab) | 3 |
| | **Total of Credits Second Year:** | **29** |

**Third Year**

| Code | Course Title | Credits |
|---|---|---|
| EN-201 | English III | 3 |
| SP-201 | Literary Genre | 3 |
| CN-101 | Fundamentals of Sciences I | 3 |
| CN-102 | Fundamentals of Sciences II | 3 |
| MT-101 | Fundamentals in Mathematics | 3 |
| MT-102 | Mathematics II | 3 |
| CS-101 | Introduction to Sociology | 3 |
| HU-101 | Occidental Civilizations | 3 |
| MDCL-101 | Clinical and translational Research (elective) | 4 |
| DO-450 | Bone Densitometry (elective) | 4 |

**Student must select a minimum of two of the following:**

| | |
|---|---|
| Post-Associate Certificate in Mammography | 14 |
| Post-Associate Certificate in Computerized Tomography | 13 |
| Post-Associate Certificate in Magnetic Resonance | 13 |
| Post-Associate Certificate in Diagnostic Medical Sonography | 35 |
| **Total of Credits Third Year:** | **58-81** |

**Fourth Year**

| Code | Course Title | Credits |
|---|---|---|
| BSID 510 | Administration and Supervision Diagnostic Images Service | 3 |
| BSID 520 | Planning and Evaluation Diagnostic Images Service | 3 |
| BSID 530 | Pharmacology in Diagnostic Imaging | 3 |
| BSID 540 | Sociology of Health and Disease | 3 |
| BSID 550 | Professional Lectures Seminar [1] | 2 |
| | **Total of Credits First Year:** | **14** |
| | **Total Credits:** | **140-167** |

## Description of Courses

CP-101 University Life
0 Credits
The University Life course provides students with the skills needed to achieve a successful academic life: study habits, problem solving and critical thinking, and time management, among others. The course deals with self-consciousness, recognition of strengths and weaknesses, and teamwork in the process of developing professional skills.

CN-101 Fundamentals of Science: Chemistry and Physics
3 Credits
This course is designed to introduce topics in chemistry and physics at an entry level leading to a conceptual understanding of how these principles relate to everyday life. The topics in physics in this course include Newton's laws, properties of matter, heat and thermodynamics, electricity and magnetism, and waves. The topics covered in chemistry are measurements, nomenclature, atomic bonding, states of matter, solutions, equilibria, acids, bases, and PH. Students will apply these principles using practical examples, facilitated discussions, and experiments conducted through a virtual laboratory.

EN-101 Basic English I
3 Credits
This course is a hybrid class that combines in-person and online sessions through the Elentra platform, where students will learn the basic structures of the English language, focusing on their functional use and application. The course seeks to guide students in mastering essential skills such as public speaking, reading, and writing, improving their oral and written expression. Course content will be delivered through various teaching strategies, including lectures, interactive workshops, and integration exercises. Assignments will be designed to reinforce material covered in class and provide opportunities for practical application. Students will be assessed through exams, quizzes, special assignments, individual and group presentations, attendance, and participation in scheduled activities. This comprehensive assessment approach ensures that students are continually engaged and able to demonstrate their understanding and application of the course material.

[1] Course lasts for two semesters

MT-101 Fundamentals in Mathematics
3 Credits

This course reviews basic mathematical skills, including real numbers, integers, exponential notation, algebraic properties, polynomial calculations, and factorization. We will explore linear equations with integer and rational numbers and solve problems involving variables. Students will use algebraic expressions to calculate costs in hypothetical medical studies and tackle science-focused and everyday math problems. Weekly 1-hour in-person lectures will be supplemented with materials (recordings, presentations, practice exercises) available on Teams and Elentra for independent study. Assessment includes in-person exams (80%), short tests (10%), and assignments and participation (10%). There will be two partial exams (one with class notes), two short tests (10-15 minutes each), and a comprehensive final exam. Engagement is evaluated through assignments, attendance, and active participation.

RT-110 Introduction to Computer Systems
3 Credits

In this course, students will acquire fundamental knowledge about the use and management of computer systems. Throughout the course, computer terms, commands, and operational principles will be covered, focusing on applications such as Word, PowerPoint, and Excel, in addition to the Windows operating system and the identification of hardware components. The course content is offered at a distance, allowing students to access materials and participate in activities from any location with an internet connection. Teaching strategies such as video lectures, practical demonstrations, workshops, and independent tasks will be used. Student evaluation will consist of short quizzes to test the understanding of key concepts, practical tasks to apply acquired skills, and online discussion forums to exchange ideas.

SP 101 Basic Spanish I
3 Credits

This course introduces students to the Spanish language as a vehicle for technical expression. Students will learn basic concepts and skills including grammar, composition, pronunciation, conversation, and reading of oral and written communication in Spanish. The course content is tailored to the professional context, ensuring that students can apply their language skills in their specific fields. Mastery of oral and written expression is developed gradually, increasing in complexity and refinement over time. The course will be delivered through lectures, practical exercises, and contextual applications related to the students' professions. Students' learning will be assessed through written assignments, oral presentations, and practical exams to ensure a comprehensive understanding and application of the course material.

EN-102 Basic English II
Pre-requisite EN-101
3 Credits

Students will continue to develop their English language communication skills, focusing on applications relevant to professional life. This includes enhancing their abilities in listening, reading, writing, and speaking, with an emphasis on professional context and scenarios. The course will be delivered through a combination of lectures, interactive workshops, and practical integration exercises. Assignments will be designed to simulate real-world professional situations, providing students with hands-on experience. Additionally, there will be opportunities for collaborative projects and peer-to-peer learning. Students will be evaluated through a variety of methods, including tests, quizzes, and special assignments. Assessment will also include individual and group presentations, participation in class activities, and attendance. The focus will be on both the process and the final output, ensuring that students can apply their skills effectively in professional settings.

RT-101 Introduction to Radiologic Technology
3 Credits

Students will be introduced to radiologic technology as a science, exploring various aspects related to the profession. They will learn basic medical terminology relevant to the field of medical imaging, providing a foundational understanding necessary for further studies and professional practice. The course will be delivered through a combination of lectures and practical sessions. Students will engage in their first clinical practice period, totaling 120 hours, where they will gain exposure to the operation of an imaging center. This hands-on experience will be complemented by theoretical lessons to ensure a comprehensive understanding of the subject matter. Students will be assessed through a mix of written tests, quizzes, and practical evaluations during their clinical practice. Continuous feedback from instructors will help students identify their strengths and areas for improvement, ensuring they are well-prepared for advanced courses and professional responsibilities.

RT-103 Human Anatomy and Physiology I
3 Credits

This course introduces students to the basic anatomic and physiological principles of the human body through descriptive anatomy by regions and systems. Students will learn about the chemical, cellular, skeletal, and muscular components of the human body. The course includes lectures and laboratory experiences to provide both theoretical knowledge and practical application. Students will be evaluated through a combination of quizzes, lab reports, mid-term exams, and a final comprehensive exam. Participation in laboratory sessions is also a key component of the assessment.

RT-216 Patient Care in Radiology
3 Credits

Students will learn basic nursing procedures essential for patient care in the radiology department. This includes principles of human communication, precautionary and safety considerations, first aid, cardiopulmonary resuscitation (**CPR**), vital signs assessment, medication and contrast media administration, medical sepsis, and infection control procedures. The course will be delivered through a combination of lectures, demonstrations, and hands-on practice. Students will engage in interactive sessions where they will discuss and demonstrate the various procedures and principles. Practical exercises will be conducted to ensure students gain the necessary skills and confidence in performing these tasks. Students will be assessed through written tests, practical evaluations, and participation in class activities. Continuous feedback from instructors will help students understand their progress and areas needing improvement. Practical assessments will focus on the accurate and safe execution of nursing procedures, ensuring students are well-prepared for real-world applications.

SP-102 Basic Spanish II
Pre-requisite SP-101
3 Credits

This course is a continuation of the introduction to the Spanish language as a vehicle for technical expression. It builds on the basic concepts and skills (grammar, composition, pronunciation, conversation, and reading) introduced in the previous course, with a particular focus on written communication in Spanish. The course content is oriented towards professional contexts, providing students with the opportunity to refine their writing skills and acquire the basic tools necessary for effective writing in their respective fields. The course will be delivered through lectures, practical writing exercises, and contextual applications relevant to the students' professions. Students' learning will be assessed through written assignments, projects, and practical exams to ensure a comprehensive understanding and application of the course material.

RT-104 Human Anatomy and Physiology II
Pre-requisite RT-103
3 Credits

This course is designed to facilitate learning about the human body's structure and function. Integrated concepts of Biological Sciences, Anatomy, and Physiology will be reviewed. The student will know the body based on the concept of levels of organization, from the simplest to the most complex. In addition, the human body will be studied by systems based on the idea that all systems work together, maintaining the human body as a whole. The course contents will include conferences, visits to the gross anatomy laboratory, and hands-on experiences of the human body. Students will be evaluated through computer-based assessments, group discussions, presentations, and laboratory assignments.

RT-107 Principles of Radiographic Exposure
2 Credits

This course covers the content associated with the production of X-rays and the formation of radiographic images. Students will explore radiation characteristics, elements of X-ray production, factors affecting radiographic exposure, and elements influencing image quality. Additionally, the course will discuss accessories needed to improve image quality. The course content will be delivered through presentations, relevant assignments, and case discussions. Students' performance will be evaluated through exams, take-home assignments, and other pertinent criteria to ensure a comprehensive understanding and application of the course material.

RT-111 Radiologic Physics
3 Credits

The course provides students with the opportunity to explore the physical mechanisms that lead to the production of X-rays in the radiographic imaging process. During the development of the course, the fundamental components of radiology equipment will be addressed, as well as its construction, operation, and maintenance. In addition, the basic principles of electrical circuits applied to the generation of X-rays will be included. The evaluation of the course content will be carried out through exams, exercises, or assignments. The contents will be taught through readings, lectures, and group discussions, encouraging active and collaborative learning. The course is structured in thematic units, which will facilitate a progressive approach to learning. The evaluation will be carried out through summative exams, formative activities, and class participation, ensuring that students understand and apply the concepts learned.

RT-113 Radiographic Procedures and Evaluation I: Extremities and Body Trunk
3 Credits

In this course, students will learn about patient positioning, exposure techniques, film evaluation, and the anatomy relevant to radiographic procedures for the superior and inferior extremities, bony thorax, pelvic girdle, and spine. This course focuses on delivering instruction through lectures and hands-on lab sessions, with assessments conducted via practical and theoretical exams.

RT-202B Clinical Practice I
Pre-requisite RT-102
2 Credits

Students rotate through affiliated hospitals for 15 weeks, practicing radiographic procedures for the skeletal system and observation of contrast media studies. Learning is experiential, with assessment based on clinical performance and practical application.

RT-108 Principles of Image Acquisition and Evaluation
2 Credits

This course comprises the knowledge needed to comprehend the concepts associated with the production of digital radiographic images. Course themes to be presented, discussed, and analyzed include digital image capturing (direct and indirect imaging), equipment design and functioning, radiographic image quality characteristics, and accessories needed to acquire quality images. Course content will be covered during face-to-face meetings with presentations, case discussions, image quality analysis, and students and faculty clinical experiences. A student's performance will be assessed via tests, assignments (take home or classroom), and other strategies brought by the faculty, so the students better understand the concepts discussed.

RT-211 Radiation Biology
Pre-requisite RT-111
3 Credits

Once the student has acquired knowledge about radiation production, he or she must understand the effects of this radiation used in medical diagnosis and treatment on the organism. The content of this course is designed to provide the student with information about how radiation interacts with matter, how and in what units' radiation is measured, and the biological effects of radiation on organisms, with a particular emphasis on the impacts on humans due to short and long-term exposure. The content will be taught through readings, lectures, and group discussions, encouraging active and collaborative learning. The course will be structured in thematic units, which will facilitate a progressive approach to learning. Assessment will be carried out through summative exams, formative activities, and class participation, ensuring that students understand and apply the concepts learned.

RT-213 Radiographic Procedures and Evaluations II: Vertebral Column and Non-Invasive Studies
Pre-requisite RT-113
3 Credits

The students will acquire knowledge in the use of contrast media and radiographic procedures for the gastrointestinal and urinary systems, as well as the proper management of trauma and pediatric patients. Learning includes class discussions and hands-on labs, with assessments based on practical skills and theoretical exams.

RT-203B Clinical Practice II
Pre-requisite RT-202B
2 Credits

Students participate in 15 weeks of clinical rotations, where they are expected to acquire knowledge in radiologic studies of the gastrointestinal and urinary systems, as well as gain experience working with trauma and pediatric patients. They will complete assignments and be evaluated by the instructor and course coordinator based on their performance in the clinical setting.

RT-303 Sectional Anatomy
Pre-requisite RT-104
3 Credits

Course oriented to familiarize students with the anatomical regions and planes as required for the application of advanced imaging modalities, such as computerized tomography, magnetic resonance imaging and ultrasound. The course is complemented with laboratory experiences.

RT-115B Radiologic Pathology
Pre-requisite RT-104
3 Credits

In this course, students will learn about the most common conditions and lesions affecting the human body and their relation to changes observed in radiographic images. The course covers etiology, epidemiology, and prognosis of these conditions. Content will be delivered through a combination of lectures, class discussions, and hands-on laboratory sessions, providing both theoretical knowledge and practical experience. Learning will be assessed through quizzes, exams, and a final comprehensive exam, ensuring a thorough understanding of both practical skills and theoretical concepts.

RT-204 Clinical Practice III
Pre-requisite RT-203
3 Credits

Over 15 weeks, students complete clinical rotations in affiliated hospitals, where they practice invasive radiographic procedures and observe cranial studies. Evaluations, conducted by the instructor and clinical coordinator, are based on their clinical competency and the practical application of theoretical knowledge.

RT-314 Radiographic Procedures and Evaluation III: Skull and Neck
Pre-requisite RT-213
2 Credits

The students will acquire knowledge in the study of radiographic procedures related to cranial structures, facial bones, and neck. This includes a discussion of exposure techniques, positioning skills, medical indications, and indications for special and optional projections to be performed in traumatized patients and special studies on this anatomical region. Learning includes class discussions and hands-on labs, with assessments based on practical skills and theoretical exams.

RT-315A Legal Concepts Seminar
1 Credit

In this online course, students will learn about the medical-legal considerations of health professionals in Puerto Rico, with a particular emphasis on radiologic technologists. The course covers current aspects of ethics, responsibilities, obligations, and rights of health professionals about patients and colleagues. Content will be delivered through interactive lectures, virtual class discussions, and case presentations. Learning will be assessed through quizzes, participation in discussions, and analysis of case studies, ensuring a comprehensive understanding of both theoretical and practical aspects.

RT-316 Advance Patient Care
3 Credits

In this advanced online course in patient care, students will learn about infection control, handling and disposal of hazardous materials, and pharmacology as applied to the medical imaging field. Additionally, the course provides an introductory overview of essential health field topics, including public health concepts, epidemiology, statistics, and administration of health services. Content will be delivered through interactive lectures, class discussions, and practical simulations. Learning will be assessed through presentations, fieldwork, and exams, ensuring a comprehensive understanding of both theoretical and practical aspects

RT-205 Clinical Practice IV
Pre-requisite RT-204
4 Credits

Students participate in 15 weeks of clinical rotations, where they develop skills in radiographic critique and quality assurance. They acquire proficiency in the application of all radiographic procedures, including extremities, trunk, skull, facial bones, and special procedures involving contrast media, under indirect supervision. Students will also be exposed to new imaging modalities and must complete all required competencies. Evaluations will be conducted by both the instructor and the clinical coordinator

RT-320 Radiographic Quality Assurance
4 Credits

This hybrid course is designed to equip students with the knowledge necessary to implement a Quality Assurance program, with an emphasis on quality control tests on X-ray equipment. The content is delivered through a combination of in-person sessions and online activities. The in-person sessions include laboratory practices and demonstrations, while the online components include lectures and discussions. Students will develop practical skills assessed through participation in practical sessions, the delivery of laboratory reports, and a final presentation with the results of their investigations in the field of radiology.

RT-350 Review for Professional Credentialing Exam (1)
1 Credit

This course summarizes and reviews the five content areas included in the American Registry of Radiologist Technologist (ARRT) examination: radiographic protection, acquisition and evaluation of radiographic images, operation and maintenance of radiographic equipment, radiographic procedures, and patient care. Course content is offered through presentations, guided studies, and simulated tests. At the end of the course, students will be required to approve a comprehensive test similar in content to the above registry exam.

RT-414 Introduction to Imaging Modalities
Pre-requisite RT-211
3 Credits

Students will be introduced to new modalities of medical diagnostic imaging. They will learn the basic concepts, principles, and operational procedures of various imaging techniques, including lineal tomography, digital and computerized radiology, computerized tomography (CT), digital subtraction arteriography, magnetic resonance imaging (MRI), nuclear medicine, and radiotherapy. The course will be delivered through a combination of lectures, demonstrations, and hands-on practice sessions. Students will engage in interactive discussions and practical exercises to understand the operational procedures and applications of each imaging modality. Real-world case studies will be used to illustrate the use of these technologies in medical diagnostics. Students will be assessed through written tests, quizzes, and practical evaluations. Participation in class activities and discussions will also be considered. Continuous feedback from instructors will help students identify their strengths and areas for improvement, ensuring they gain a comprehensive understanding of the various imaging modalities and their applications.

RT 206 Clinical Practice V (Elective)
3 Credits

Students registered in this course are required to complete clinical competencies to gain proficiency in the application of all procedures related to diagnostic imaging. The student may select an elective appointment in a non-regular clinical site.

US 401 Clinical Practice I
3 Credits

In this course, the student will learn how to recognize and apply sonographic tracing protocols and techniques in a supervised clinical setting. Competencies will be developed in the interpretation of medical requests, patient management, and identification of sonographic anatomy, as well as the appearance of pathologies observed through the application of ultrasound. The contents will be taught through practical experiences both inside and outside the walls, where students will integrate what they have learned in class into simulated and real scenarios. In addition, resources such as readings and discussions will be used to reinforce learning. The assessment of learning will be carried out through practical assessments, studies and exams of the SonoSim modules, as well as compliance with the assigned schedules.

US 411 Ultrasound Physics
4 Credits

This course provides the student with fundamental knowledge about the physics of ultrasound, its concepts and applications. It integrates the use of ultrasound and mathematical formulas to facilitate the understanding of the physical principles that govern the operation of ultrasound equipment. The contents will be taught through readings, lectures and group discussions, encouraging active and collaborative learning. The course will be structured in thematic units, which will facilitate a progressive approach to learning. Assessment will be carried out through summative exams, formative activities and class participation, ensuring that students understand and apply the concepts learned.

US 416 Pelvic Sonography
2 Credits

This course focuses on the creation and interpretation of medical images related to the pelvis, both female and male. Students will learn about examination protocols, patient interviews, sonographic medical terminology, and the ultrasound aspect of normal organs and pathological conditions. The contents will be taught through various didactic techniques, including readings, lectures, group discussions, and analysis of images and cases. This will allow students to apply their knowledge in a practical context. The assessment of learning will be carried out through summative exams, training activities, forums and class participation, ensuring that students contrast and apply what they have learned in real situations.

US 419 Abdominal Sonography
3 Credits

In this course, students will learn about the anatomical structures of the abdomen, covering tracing protocols, patient interviews, terminology, complementary studies, and the sonographic aspect of abdominal anatomy, as well as the pathological conditions that can be observed sonographically. The contents will be taught through various didactic techniques, including readings, lectures, group discussions, and critical analysis of images and clinical cases. Learning assessment will be done through summative exams, and formative activities, which will allow students to show their understanding and application of the concepts learned.

US 421 Superficial Organs and Special Procedures in Sonography
3 Credits

This course focuses on the study of procedures used in the evaluation of ultrasound studies of the thyroid, chest, testes, salivary glands, breasts, and neonatal neurosonography, as well as sonography of the gastrointestinal and shoulder systems. Procedures for injections, biopsies and needle aspirations will also be addressed. Medical terminology related to each of the studies will be included, as well as the patient interview and normal and pathological sonographic anatomy. The contents will be taught through various didactic techniques, including readings, lectures, group discussions and critical analysis of images and clinical cases. The assessment of learning will be carried out through summative exams and formative activities, which will allow students to demonstrate their understanding and application of the concepts learned.

US 459 Integration Laboratory I
2 Credits

In this laboratory, students integrate the didactic and practical aspects in the realization of the sonographic studies that are addressed during the first semester. Students will demonstrate competencies related to essential protocol techniques, which include ultrasound handling, tracking routines, instrumentation, vocabulary application, preliminary report writing, interviewing, and patient care, as well as precautions and care of sonographic equipment. Content will be taught under the direct supervision of a faculty member, combining clinical and hands-on teaching techniques, as well as peer-to-peer simulations, use of high-fidelity simulators, SonoSim tracking, and simulated patients. The assessment of learning will be carried out through practical assessments, compliance with assigned schedules and the delivery of a portfolio documenting their progress.

US 402 Clinical Practice II
3 Credits

In this second clinical practice experience, students will integrate theoretical knowledge with advanced practical skills. The course will be taught through the performance of sonographic procedures in a real scenario, where students will develop new skills in special sonographic procedures. In addition, resources such as readings and discussions will be used to reinforce learning. The assessment of learning will be carried out through practical assessments, studies and exams of the SonoSim modules, as well as compliance with the assigned schedules.

US 417 Obstetric Sonography
3 Credits

This course is divided into two fundamental sections. The first section provides a comprehensive understanding of the three trimesters of pregnancy. The anatomical changes and sonographic appearance of the structures observed in each trimester are analyzed. In addition, topics such as embryology, normal variants, and different types of pregnancy are addressed, as well as the pathological aspects that may arise during this period, including those related to the placenta, umbilical cord, fetus, and mother. Protocols and techniques for visualizing the embryo and fetus throughout the three trimesters are also included. The second part of the course focuses on fetal pathology and the medical complications associated with pregnancy, including specific procedures such as the Biophysical Profile Ultrasound. The contents will be presented through assigned readings, lectures, and group discussions, promoting active and collaborative learning. The evaluation of learning will be done through summative, theoretical or practical exams, training tasks, and participation in obstetric simulations. This structure aims to provide students with solid and detailed knowledge about the development and complications of pregnancy, preparing them for success.

US 427 Instrumentation and Quality Assurance
4 Credits

In this course, the Ultrasound Physics course is expanded, focusing on the instrumentation, operation, calibration, and maintenance of equipment and the implementation of a quality assurance plan in an ultrasound unit. Basic concepts of Doppler will be introduced, and the contents will be taught through readings, lectures, and group discussions. The evaluation will be carried out through summative exams, training tasks, and participation.

US 431 Basic Ultrasound Studies Seminar
3 Credits

This course is designed to integrate didactic knowledge and clinical experiences. During the seminar, the cases carried out by the students and their clinical rotations are discussed. In addition, students will be required to read, synthesize, and react critically and constructively to professional articles related to ultrasound found in journals and other electronic media. The content of the course will be studied and presented in units and these will be evaluated through summative exams, formative tasks and participation.

US 440 Research Project
3 Credits

This distance learning course introduces the student to scientific research focused on medical ultrasound, using the scientific method as a guide. Each student will select a topic based on their experience and prior knowledge. The content is delivered entirely online through our educational platform, which includes multimedia resources and assigned readings. Active participation in synchronous and asynchronous activities is expected. The student's ability to formulate and analyze problems, conduct a comprehensive literature review, design appropriate research methodologies, and employ data collection techniques will be assessed. The course culminates with a research report.

US 469 Integration Laboratory II
2 credits

In this laboratory, students integrate the didactic and practical aspects in realizing the sonographic studies addressed during the second semester. Students will demonstrate competencies related to essential protocol techniques, including color Doppler application, tracking routines, instrumentation, vocabulary application, preliminary report writing, interviewing, and patient care, as well as precautions and care of sonographic equipment. Content will be taught under the direct supervision of a faculty member, combining clinical and hands-on teaching techniques, as well as peer-to-peer simulations, use of high-fidelity simulators, SonoSim tracking, and simulated patients. Learning assessments will be done through practical assessments, compliance with assigned schedules and delivery of a portfolio documenting their progress.

MA 401 Mammography Procedures
3 Credits

This distance learning course focuses on breast evaluation procedures, protocols, and positioning techniques, with special attention to patients with specific needs. It covers positioning terminology, patient comfort, and special cases like breast reconstruction, irradiated tissue, and prosthetic devices. Non-invasive procedures such as magnification and cone-down views are also included. The course emphasizes essential skills in patient care and education related to breast health. Students will be evaluated through discussion forums, quizzes, and written assignments to ensure a comprehensive understanding of mammography's theoretical and practical aspects.

MA 402 Anatomy, Physiology and Pathology of the Breast
2 Credits

This distance learning course provides students with a comprehensive understanding of the anatomy, physiology, and pathology of conditions affecting both the female and male breast. The content includes breast development, tissue composition, and the identification of normal and abnormal variations. Students will explore benign and malignant conditions and how these changes are visualized in mammography and sonomammography images. Additionally, the course covers changes in breast tissue resulting from surgical or pathological processes. Evaluation strategies include, but are not limited to, participation in discussion forums, short quizzes, and written assignments. These assessments are designed to ensure that students can apply theoretical knowledge to the practical interpretation of breast imaging and pathology.

MA 403 Physics and Quality Assurance in Mammography
3 Credits

This distance learning course covers the fundamental concepts of radiation physics as they relate to mammography. Topics include special equipment requirements, FDA-recommended construction standards for mammography units, exposure factors, radiation interaction with breast tissue, maximum permissible doses, collimation, the developing process, and final image evaluation. Additionally, the course addresses the operation and maintenance of accessories used in mammography. Students will also gain the skills necessary to recognize, develop, and implement a comprehensive quality assurance program for mammography units. Assessment strategies include, but are not limited to, participation in discussion forums, short quizzes, and written assignments. These assessments are designed to evaluate students' understanding of theoretical concepts and their ability to apply them in the context of quality assurance and the technical aspects of mammography.

MA 404 Operational and Clinical Fundamentals of Sonomammography
3 Credits

This distance learning course introduces students to the basic concepts of physics, terminology, operation, instrumentation, and scanning protocols for the use of ultrasound in the evaluation and diagnosis of breast conditions. The course covers normal breast anatomy, image artifacts, and interventional procedures using this modality. While the course is delivered online, students will engage in virtual laboratory sessions designed to familiarize them with sonomammography procedures. These sessions will help them develop skills in scanning protocols, tissue recognition, and equipment adjustment. Evaluation methods include, but are not limited to, participation in discussion forums, short quizzes, and written assignments. These assessments aim to ensure that students not only grasp the theoretical foundations but also demonstrate practical competence in sonomammography.

MA 405 Clinical Practice and Research
3 Credits

Clinical experience in which the student implements all concepts learned in the didactic courses. As students advance in the clinical experience, they develop competencies for the correct performance of mammography procedures and acquire competencies in special procedures. As part of the clinical experience, the student must do a research project related to the field of breast health and imaging, in which he/she will deal with defining a problem or situation, literature search, data acquisition and analysis, and problem-solving. The student is required to complete 240 hrs of clinical practice and the development of a clinical portfolio in 60 hrs for a total 300hrs. Clinical evaluation includes interpreting medical orders, analysis of patient medical history, patient care and orientation, and competencies in positioning, communication, equipment handling, film critique, and quality control procedures. Students are required to procure and secure a clinical practice site. Students already working in mammography will be required to support and document their daily work to validate these experiences.

CT 425 Operating Fundamentals of Computerized Tomography
3 Credits

This course is designed for postgraduate students who are studying Computed Tomography (CT). Throughout the course, topics will be addressed such as: Policies and operational protocols of different CT centers, History and evolution of CT as a diagnostic tool, Clinical applications and specialized terminology related to CT, Fundamentals of the physics of ionizing radiation, Technical parameters for the acquisition and processing of images in CT, Safety measures in the use of ionizing radiation and Procedures to guarantee and maintain the quality of the images obtained. Teaching strategies will be based on classes, videos, and/or presentations, as well as on the presentation and discussion of real clinical cases. Through these dynamics, students will acquire both the theoretical knowledge and the practical skills necessary for their training in this area. Student evaluation will be carried out through various tools, such as short tests and practical exercises, Midterm exams, Practical evaluation in the laboratory, and Final integrative exam.

CT 430 Computerized Tomography Procedures and Protocols
3 Credits

This course is designed to provide students with a comprehensive understanding of the protocols used in Computed Tomography (CT) imaging of various regions of the body. Both standard procedures and those specific to specialized studies in each anatomical area will be addressed. Throughout the course, special emphasis will be placed on sectional anatomy, correct patient positioning, variations in protocols, and determining factors to ensure optimal image quality. Body regions to be analyzed include the Head and Spine, the Neck and Thorax, the Abdomen and Pelvis, and the Extremities. The course will combine theory and practice, covering the technical aspects necessary for conducting studies in these areas. Pedagogical strategies employed include lectures, and simulators, as well as the presentation and discussion of clinical cases. Students will be assessed using a variety of methods, including short tests and practical exercises, Midterm exams, and a practical assessment. This comprehensive approach ensures that students develop the skills necessary to correctly apply CT protocols, with an emphasis on anatomical accuracy and image quality.

CT 435 Anatomy and Pathology in Computerized Tomography Images
3 Credits

This course is designed to offer the student a detailed overview of human anatomy as presented on computed tomography (CT) images. Throughout the course, various diseases and injuries that commonly affect the human body will be discussed, highlighting the changes and alterations visible in CT images. Students will explore both normal anatomical variants and pathological conditions, delving into the etiology and natural evolution of such conditions, and their correlation with the manifestations seen on CT images. The course will combine lectures, presentations, and discussions of real clinical cases, providing students with a practical and dynamic approach to learning. Assessment will include short tests and identification exercises, midterm exams, and a final exam, ensuring that students master both theory and image interpretation.

CT 440 Clinical Practice and Research in Computerized Tomography
4 Credits

This course is designed for students assigned to perform their clinical practice in diagnostic imaging centers, either in a hospital or in a private office, specifically in Computed Tomography (CT). During this supervised experience, students will have the opportunity to apply the theoretical knowledge acquired in their didactic courses to the real clinical environment. Under the direct supervision of a clinical instructor, the student will develop fundamental skills in the following areas: Patient management and care, Interpretation of clinical history and medical orders, Performance of CT procedures, Selection and processing of images, Education and patient orientation, and effective communication to inform and educate the patient about the process and results of the procedure. Student progress evaluations will be based on the student's performance in clinical practice, which will be evaluated comprehensively, considering several components such as Attendance, Progress evaluations, Regular reports by the clinical instructor, Portfolio, and Reflective journal. The student must develop basic research on a topic related to CT. This work will include a review of existing literature, Data collection and analysis, Identification of problems, and proposal of solutions based on the findings obtained.

MR 400 Operating Fundamentals of Magnetic Resonance Images
3 Credits

This course comprises the presentation and discussion of: history of magnetic resonance (MR) and the physical and chemical principles related to magnetic resonance images. Among the contents to be covered in this course are: magnetisms, resonance, equipment and instrumentation, tissue characteristics, signal production, tissue spatial location, sequences and technical parameters used in the acquisition of MR images, image processing techniques, special applications, patient and personnel security issues, and quality assurance procedures related to this modality. Teaching strategies will be based on presentations, videos, and discussion of real clinical cases. Through these dynamics, students will acquire both the theoretical knowledge and the practical skills necessary for their training in this area. Student evaluation will be carried out through short tests and practical exercises, partial exams, and final integrative exam.

MR 405 Procedures and Protocols in Magnetic Resonance Images
3 Credits

In this course, the protocols utilized to produce diagnostic images of the human body by means of the magnetic resonance (MR) equipment are presented. The human body is divided into four basic regions: head and spine, neck and thorax, abdomen and pelvis, and extremities, and protocols are presented for each region, in terms of the: patient position, anatomy included in each slice, different variations needed to accommodate patient needs, and exposure factors. Pedagogical strategies employed include lectures, and simulators, as well as the presentation and discussion of clinical cases. Students will be assessed using a variety of methods, including short tests and practical exercises, Midterm exams, and a practical assessment. This comprehensive approach ensures that students develop the skills necessary to correctly apply MRI protocols, with an emphasis on anatomical accuracy and image quality.

MR410 Anatomy and Pathology in Magnetic Resonance Images
3 Credits

This course offers the student the opportunity to acquire concepts related to the anatomy and pathology of the human body as presented in magnetic resonance (MR) images. The most common conditions and lesions, as seen in MR, are discussed. The course includes the analysis of: normal variations, etiology and prognosis of those conditions, and their relationship to the imaging conditions in MR. The course will combine lectures, presentations, and discussions of real clinical cases, providing students with a practical and dynamic approach to learning. Assessment will include partial tests and identification exercises, and a final exam, ensuring that students master both theory and image interpretation.

MR415 Clinical Practice and Research in Magnetic Resonance Images
4 Credits

Students will complete supervised clinical experience in magnetic resonance (MR) in an accredited MR imaging center, in which the student implements all concepts learned in the didactic courses. As students advance in clinical experience, they develop competencies in patient care, education and management, patient's medical and clinical history interpretation, performing MR procedures following prescribed protocols, and image selection and processing. Clinical practice is performed based on the development of a clinical portfolio and three hundred (300hrs) clinical hours. As part of clinical experience, the student must do a research project related to MR operations, in which he/she will deal with defining a problem or situation, literature search, data acquisition and analysis, and problem solving.

IA-461 Operational Fundamentals in Interventional Radiology and Angiography
3 credits

This course covers the basic knowledge necessary for performing interventional radiology and angiography. The student will learn concepts related to procedure preparation, communication with the patient before the procedure, monitoring of medical and clinical signs and symptoms, medical equipment, septic and aseptic techniques, management of medical conditions before, during, and after the procedure. Operating principles of the radiology equipment used, automatic injectors, and other related equipment will also be covered, and radiation protection pertaining to these procedures will be included in the course content. Content will be covered through lectures, case discussion, and literature review. Knowledge acquired will be measured through midterm and final exams and assignments.

IA-462 Protocols for procedures in Interventional Radiology and Angiography
3 credits

This course covers the basic knowledge of procedures performed in an Angiography or Interventional Radiology laboratory. Concepts related to procedural protocols will be discussed, including, but not limited to cerebral, thoracic, abdominal and peripheral angiography, cardiac diagnostic procedures, electrophysiology, hemodynamic calculations, angioplasty, arteriotomy, stenting, thrombectomy, intravascular lithotripsy and other non-vascular procedures. Concepts related to procedure preparation, necessary materials, patient preparation and protocols for a wide variety of procedures. Course content will be covered through lectures, exercises, case discussions and assignments. Knowledge acquired will be measured through midterm and final exams and assignments.

IA-463 Anatomy and Pathophysiology in Interventional Radiology and Angiography
3 credits

This course comprises specific knowledge of the vascular system (arterial and venous) of the human body required for the proper understanding of interventional radiology and angiography procedures. As part of this course, detailed vascular anatomy and pathophysiology, patient management, angiographic access, patient monitoring, contrast administration, medications, before and during angiographic procedures, and emergency care will be discussed and accessed. Course content will be delivered through lectures, case discussions, and role-play strategies to be conducted in the Clinical Skills Development Center. Knowledge acquired will be measured through midterm exams, final exam, homework/assignments, and professionalism.

IA-464 Clinical Practice in Interventional Radiology and Angiography
4 credits

Students will critically analyze, integrate, synthesize, and evaluate fundamental concepts and theories in performing various interventional radiology and angiography procedures. They will gain hands-on experience working with a professional team, performing procedures on varied patient profiles to achieve necessary competencies. The course will be structured sequentially and competency-based, ensuring progressive skill acquisition. Students will participate in procedures, specialized reading reviews, and discussions of patient-centered clinical cases. A clinical instructor will guide and supervise the tasks, providing continuous support and feedback. Students will maintain a detailed portfolio to record reflections and learnings from each competency achieved. They will receive direct and indirect evaluations from clinical instructors, providing accurate feedback on performance. This will help identify areas for improvement and strengths, contributing to the ongoing development of skills and knowledge in interventional angiography.

SV-400 Doppler Physics and Hemodynamics
3 credits

The course includes the study of the physical principles of Doppler, instrumentation, and arterial and venous hemodynamics, with emphasis on the quality of the vascular sonography image and quality assurance. It will be worked on in a hybrid way; with virtual meetings and laboratory sections in person to apply the following specific topics: Doppler image optimization (botonology and artifacts). Content will be covered through lectures, case discussions, and literature review. Evaluations will be based on midterms, assignments, and hands-on assessment of image optimization in the laboratory. The knowledge gained will be measured through midterms, final exams, homework/assignments, and professionalism.

SV-404 Anatomy and Physiology of the Venous and Arterial System
3 credits

The course covers a detailed study of the anatomy and physiology, normal, variant, and surrounding anatomy of the arteries and veins; large, small, and microscopic images of the human body. Content will be covered through lectures, case discussions, and literature review. Evaluations will be based on midterm examinations, assignments, discussion of sonographic images, and recognition of the appearance of vascular sonographic anatomy through study. The knowledge gained will be measured through midterms, final exams, homework/assignments, and professionalism.

SV-408 Procedures of the Venous and Arterial System in the Upper and Lower Extremity
3 credits

The course includes the study of peripheral medical vocabulary, the normal and pathological sonographic anatomy of the arteries and veins of the upper and lower extremities, including their variants. The protocol techniques to perform a complete vascular sonographic trace are integrated, including the interview of the patient, preparation of a preliminary report and the protocol for sonographic tracing. Other topics of study covered in this course are; the analysis of ultrasound images and the recognition of vascular diseases that can be observed under the application of sonographic techniques. Content will be covered through lectures, case discussions, and literature review. Evaluations will be based on midterms, assignments, and hands-on evaluation of image optimization in the laboratory. The knowledge gained will be measured through midterms, final exam, homework/assignments, and professionalism.

SV-412 Vascular Clinical Practice I
3 credits

This course offers a set of varied experiences focused on the practice of peripheral sonography. Students will learn how to perform ultrasound exams on the upper and lower extremities, as well as the abdomen and carotids. Under the direct supervision of specialized physicians, students will acquire skills in botonology, protocol techniques, patient interviews, preliminary report, application of vascular vocabulary, general sonography and Doppler techniques, and will be encouraged to discuss sonographic images of the different areas of exploration. The evaluations will be based on a portfolio, practical exams, practice in the Sonosim modules (simulator), attendance at the clinical skills laboratory, discussion and presentation of cases. Clinical practice I is structured in a sequential and competency-based manner, ensuring that students acquire progressive skills and achieve the development of the required competencies

SV-416 Abdominopelvic Vascular Procedures
3 credits

This course covers the study of the medical vocabulary of the vascular abdomen, screening, techniques and protocol, as well as the disorders, anatomical variant sand pathological conditions of the abdominopelvic veins and arteries that can be observed by non-invasive vascular studies. It includes risk factors and symptoms of these processes. Content will be covered through lectures, case discussions, and literature review. Evaluations will be based on midterms, assignments, and hands-on evaluation of image optimization in the laboratory. The knowledge gained will be measured through midterms, final exam, homework/assignments, and professionalism.

SV-420 Intracranial and Extracranial Vascular Procedures
3 credits

The course includes the study of vocabulary, screening, techniques, and protocol, as well as disorders, anatomical variants, and pathological conditions of veins and arteries, intracranial and extracranial that can be observed by non-invasive and invasive vascular studies. It also includes the study of the risk factors and symptoms of these processes. Content will be covered through lectures, case discussions, and literature review. Evaluations will be based on midterms, assignments, and hands-on evaluation of image optimization in the laboratory. The knowledge gained will be measured through midterms, final exams, homework/assignments, and professionalism.

SV-424 Vascular Clinical Practice II
3 credits

The course offers a varied set of experiences focused on the practice of sonography where the student will be able to perform peripheral sonographic traces under the direct and indirect supervision of a licensed sonographer and from a real scenario. This course requires each student to maintain a Practice Manual where they must organize and document all work performed, including their attendance at the practice center, clinical evaluations performed, analysis of readings, Sonosim modules (simulator), discussion, and presentation of cases, among other documents. Clinical Practice II is structured in a sequential and competency-based manner, ensuring that students acquire progressive skills and achieve the development of the required competencies.

SV-430 Seminar in Vascular Sonography
3 credits

This course seeks to offer the student a review of the fundamental principles of vascular sonography in preparation for their professional revalidation exam. The main concepts and techniques used in the acquisition of images of the most common vascular studies in the field of sonography will be reviewed. As part of the strategies, a Mock exam will be offered where the areas studied will be evaluated: physics, arteries and veins of the upper and lower extremities, intracranial and extracranial. As a passing requirement for this certification, the student will be required to complete each Mock exam with a minimum score of 80%.

DO-450 Bone Densitometry
4 credits

This hybrid course covers the technology, clinical applications, and diagnostic practices of bone densitometry (DXA). It includes operational concepts such as patient positioning based on the requested study, result interpretation, management of cases with physical complications, patient safety and protection, and image quality management. The course combines theoretical instruction with clinical practice, allowing students to apply what they learn in real-world settings. Students are required to complete clinical practices and compile their work in an electronic portfolio. Assessment will be based on the development of this portfolio, short quizzes, and oral presentations. The course incorporates both theoretical and practical concepts recommended by the International Society of Clinical Densitometry and the American Registry of Radiologic Technologists (ARRT) for professional certification in this field.

MDCL-101 Clinical and translational Research
4 credits

This multidisciplinary course, offered in a hybrid format, is designed for both undergraduate and graduate students interested in clinical and translational research. Participants will gain a deep understanding of the key concepts underpinning clinical and translational research, preparing them to effectively contribute to this dynamic field. The course combines in-person sessions and online activities to facilitate a comprehensive learning experience, utilizing lectures, workshops, and presentations. Students will be assessed through active participation in workshops, the quality of presentations, and the development of an electronic portfolio that demonstrates the understanding and application of the course concepts. Specific rubrics will be provided for each evaluative component.

HU-101 Introduction to Occidental Civilizations
3 credits

This course begins with the study of Western civilization, spanning from the Middle Ages to the 21st century. Emphasis is placed on the philosophical and cultural thought of the peoples that comprise Western civilization. Students will analyze and appreciate the social, political, economic, and religious movements of European cultures that served as a framework for manifesting philosophical and religious conceptions and various social behaviors. Selected reference works will be examined to understand the cultural legacy of the civilizations studied. The course is delivered online, guiding students through the development of Western cultures and civilizations using various teaching strategies. Students' learning will be assessed through written assignments, critical essays, and online discussions to ensure a comprehensive understanding and application of the course material.

MT-102 Introduction to Mathematics II
3 credits

This course includes inequalities and interval notation and continues with the study of radicals, the quadratic equation, and its solution methods. Linear equations with two variables, systems of linear, radical, and quadratic equations, and the methods of solving and applying these to word problems will be discussed. The course is designed to be offered online and comprises four content modules for the student to work on their own with the assistance of the teacher. The student's performance will be evaluated through assignments to deliver, scheduled exams, short tests, and participation in the process.

CS-101 Introduction to Sociology
3 credits

This course aims to critically explore the main theoretical and methodological approaches for the analysis of human societies, with particular emphasis on issues related to health and the provision of health services. Through the course, the student will have the opportunity to examine various theories considering current situations in local and international contexts, as well as to practice the design and use of social research methods. The online course format is supported by activities and field exercises that allow the student to explore their particular interests individually and in groups. The course also aims to promote student sensitivity towards the relationship between science, health, and society, and awaken their concern to contribute to the solution of current and future social problems, from their professional practice and as critical citizens. It is designed to be offered online.

SP-201 Introduction to the Study of Literary Genres
3 credits

This course introduces students to the study of the literary genres of short stories and novels. It aims to familiarize students with representative works from Spanish, Latin American, and Puerto Rican narratives. The course focuses on developing linguistic skills for understanding texts and analyzing literary works. Additionally, it encourages students to evaluate and critique literary creations based on the fundamental characteristics of the studied genres, appreciating literature as a communicative expression of humanity. The course is delivered online, encouraging students to adopt a critical stance and demonstrate their ability to analyze literary works. Various teaching strategies will be employed to enhance learning. Students' learning will be assessed through written assignments, critical essays, and online discussions to ensure a comprehensive understanding and application of the course material.

EN-201 Introduction to English Literature I
3 credits

This course will provide opportunities to develop the necessary skills and techniques for literary analysis. It covers many forms of literature including essays, short stories, poetry, and drama. This course focuses on literature as a primary vehicle for ideas and values and helps students to recognize and appreciate the humanistic and artistic elements of literature. Course content will be covered using internet technology. Students will be evaluated by question-and-answer exercises, written reports on reading materials, and short essays.

This Advanced English course is delivered online with a focus on literary analysis and appreciation of English literature, covering essays, short stories, poetry, and drama. Through the study of literature, students will develop critical and technical skills necessary for literary analysis, fostering a love of reading and the ability to read critically. Students will read various forms of literature and will answer questions, make comparisons, express opinions, and relate the material to their personal experiences. Assessment of learning will be through two synchronous meetings, two exams, weekly assignments on the material discussed, and a final essay comparing two stories discussed in class, assessed against a checklist. This comprehensive approach ensures that students are continually engaged and can demonstrate their understanding and application of the course material.

EN-202 Conversational English
3 credits

This course will develop the students' oral communication skills. It will improve fluency, self-confidence, and accuracy in spoken English. Each student will participate in conversations about daily activities to dialogues dealing with their medical practice with patients. The students will organize and deliver short oral presentations, reports, and speeches. The course content will be discussed using virtual meetings through the Teams and Elentra platforms three times in four weeks. Students will be assessed through question-and-answer exercises, role-play short presentations, or a report on an assigned topic.

CN-102 Fundamentals of Science: Biology
3 credits

This course is designed to introduce topics of biology at an entry level leading to a conceptual understanding of how these principles relate to everyday life. The topics in biology in this course include chemistry of life, the cell and its organelles, **DNA**, cellular metabolism, cellular communication, mitosis and meiosis, mechanisms of inheritance, transcription, translation, and regulation of gene expression. The topics covered serve as an introduction and a basis for advanced courses such as human anatomy and physiology. Students will apply these principles using practical examples, facilitated discussions, and experiments conducted through virtual laboratories.

BSID 510 Administration and Supervision Diagnostic Images Services
3 Credits

Students will have the opportunity to develop basic skills in the organization and supervision of a diagnostic imaging center or service. This course offers students basic concepts of health service administration with an emphasis on the quality of the services offered to the community in diagnostic imaging centers. They will differentiate between the roles of the medical director, administrator, manager, and supervisor in these types of services. Students will develop teamwork skills, dealing with issues such as: risk management, radiation protection and dosimetry, continuous quality improvement, service accreditation procedures, and interpersonal relations. At the same time, this knowledge will help the student: design, implement, analyze, and evaluate diagnostic images services, complying with state and federal policies, rules, and regulations. Teaching strategies include conferences, case presentations, and discussion. Students will be evaluated through: written exams, short tests, assignments, and participation in programmed activities.

BSID 520 Planning and Evaluation Diagnostic Images Services
3 Credits

This course will provide students with basic skills for planning and evaluating radiologic image services. Planning and evaluation will be presented as continuous processes emphasizing problem identification and effective solution development and the implementation and assessment of the proposed imaging services. Course content includes general aspects of an organization, how to develop a mission and vision for an organization, how to do need assessment, using SWOT strategies and strategic planning skills for the advancement of an organization, and developing an effective assessment plan for the organization. Assisted by the faculty member, students will produce a Strategic Plan for an organization, fictional or real, including all mentioned aspects. Students will be evaluated and graded by rubrics specifically created for this process.

BSID 530 Pharmacology in Diagnostic Imaging
3 Credits

This course will offer students the knowledge and skills necessary for the management and administration of imaging contrast media agents and other medications used in the medical diagnostic field. Course content includes general pharmacology concepts, patient assessment skills, strategies for the safe and responsible management of contrast media agents, and administration techniques. Teaching strategies include conferences, case discussion, electronic reference reviews, and medication administration competencies laboratories.

BSID 540 Sociology of Health and Disease
3 Credits

This course will offer students the knowledge and skills necessary to provide support to patients of all types. Content is designed to offer students a review of the physiologic and anatomical changes related to varied pathologies that affect the human being in different stages of life. As part of this course, the following issues will be discussed: responsible and safe patient management, rules and regulations related to patient's medical information confidentiality, community health concepts, and communication skills. Course content will be offered through conferences, case discussion, literature review, and content related assignments.

BSID 550 Professional Lectures Seminar
2 Credits - Hybrid course

This course aims to develop in the participants the skills of critical reading, evaluation, application, and creation of new knowledge. The course will emphasize the search for articles that provide information on new technological developments and research in the field of medical diagnostic imaging, which tend to the development of this field of health. Through critical reading, discussion of assignments, and evidence-based cases assigned in the course, participants will gain an up-to-date knowledge of new trends in medical diagnostic modalities; the problems and situations that afflict this area of health diagnosis; the forces that move health service delivery organizations, and the relationship between health systems and political, economic, social, and historical components. The course will be offered primarily using the hybrid course strategy where participants will complete the course requirements in a structured manner. During the course, participants will work with searches and retrieval of information. Analysis and critical evaluation of professional articles, application of the knowledge acquired in their clinical centers related to assigned topics and will contribute to the discussion of the work carried out by their classmates.

# FACULTY

## School of Medicine Faculty

### BASIC SCIENCES DEPARTMENTS

**Department of Anatomy**

Baksi, Krishna, Ph.D, Associate Professor
Ph.D, India Institute of Medical Sciences, New Delhi, India, 1977
MS, University of Calcutta, India, 1970

Jiménez, Sofía, Ph.D, Associate Professor and Chairperson
Ph.D, University of Puerto Rico, School of Medicine, 1984
MS, University of Puerto Rico, 1970

La Puerta, Marizabel, DPT, Assistant Professor
DPT, Boston University, 2008

Oliver-Sostre, José L., D.M.D. MHS, Associate Professor and Assistant Dean of Admissions and Students Affairs
D.M.D., University of Puerto Rico, School of Medicine, 2002
MHS, Unviersidad Central del Caribe, 2016

Ortiz Colón, Ana I, Ph.D, Assistant Professor
Ph.D, University of Puerto Rico, Medical Sciences Campus, 2016
Specialty in Anatomy Neuro-environmental

**Department of Biochemistry**

Hann, Richard, M.D., Professoris Eminentis
M.D., University of Oklahoma College of Medicine, 1974

Kucheryavykh, Yuriy V, Ph.D, Associate Professor
Ph.D, Saint Petersburg State University, St. Petersburg, Russia, 2003

Kucheryavykh, Lilia, Ph.D, Associate Professor
Ph.D, Saint Petersburg State University, St. Petersburg, Russia, 2001

Martínez, Michelle M., Ph.D, Associate Professor
Ph.D, Michigan State University, 2004
MS, University of Puerto Rico, Mayagüez Campus, 2001

Rivera-Aponte, David E., Ph.D., Associate Professor and Interim Chairperson
Ph.D., Universidad Central del Caribe, School of Medicine, Bayamón, PR, 2017

Suárez-Arroyo, Ivette J., Ph.D., Associate Professor
Ph.D., Universidad Central del Caribe, School of Medicine, Bayamón, PR 2016

**Department of Microbiology and Immunology**

Alvarez, Eduardo, PhD, assistant Professor
PhD, Molecular and Cellular Biology, Universidad Central del Caribe, School of Medicine, 2023

Alves, Janaina, Ph.D, Assistant Professor
Ph.D., Molecular Biology/Biochemistry, University Federal of São Paulo, 2009
Post Doc., Molecular Biology/Biochemistry, Universidad Central del Caribe, School of Medicine, 2011

Boukli, Nawal, Ph.D, Associate Professor Ph.D, University of Missouri, 1999

Espino, Ana M., Ph.D, Assistant Professor
Ph.D, Instituto de Medicina Tropical, Cuba, 1997

Lespier-Torres, Zahira, Ph.D., Assistant Professor
Ph.D, Caribbean Center for Advanced Studies in Psychology, 1996

Ríos, Zilka, MS, Professor and Associate Dean of Medical Education
MS, University of Puerto Rico, School of Medicine, 1978

**Department of Neuroscience**

Baccin-Martins, Antonio Henrique, PhD, Assistant Professor
Ph.D, Federal University of Sao Paulo, 2006

Ferrer-Acosta, Yancy, Ph.D, Assistant Professor
Ph.D in Biology, University of Puerto Rico, Medical Sciences Campus, 2013

Martinez-Jiménez, Solianne, M.D., Assistant Professor
M.D. in Neuroscience, Universidad Central del Caribe, School of Medicine, 2022

Sabeva, Nadezhda, Ph.D,, Assistant Professor
Ph.D, Pharmaceutical Sciences, University of Kentucky, Lexington, KY, 2011

Schikorski, Thomas, Ph.D, Associate Professor (Dual appointment in Anatomy)
Ph.D, in Zoology/Neuroscience, Johann-Wolfgang-Goethe University, Frankfurt, Germany, 1993
Postdoctoral in Neuroscience, The Salk Institute, San Diego, CA, 2000

**Department of Pathology**

Bonilla de Franceschini, Angelisa, M.D., Associate Professor & Chairperson
M.D. Universidad Central del Caribe, School of Medicine, 1981
Specialty in Pathology, University of Alabama Hospital at Birmingham, 1985

Conte-Miller, María S., M.D. J.D., Associate Professor
M.D., Universidad Católica Madre y Maestra, School of Medicine, 1982
Specialty in Pathology, University of Puerto Rico, Medical Science Campus, 1988
Fellowship in Forensic Pathology, University of Miami, School of Medicine, 1989
Juris Doctor, Interamerican University of Puerto Rico, 1995

Rodríguez-Ortiz, Eveneida, MEd, Instructor
MEd, in Teaching and Curriculum in Science, Universidad del Turabo, Caguas, PR, 2014 MSc, Environmental Sciences, Universidad del Turabo, Caguas, PR, 2015

Silvestrini, Isis, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1985
Specialty in Pathology, University District Hospital (UPR), 1989

Simons-García, José A., M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1987
Specialty in Pathology, University Hospital (UPR), 1992

**Department of Pharmacology**

Pérez-Arcila, Alvaro, M.D. Associate Professor and Assistant Dean for Curriculum Development, Accreditations, and Licensing
M.S, Universidad de Antioquía, Colombia, SA, 1995 M.D., Universidad de Antioquía, Colombia, SA, 1991

Quidgley-Nevares José A. PhD., Associate Professor
PhD, Medical Sciences Campus University of Puerto Rico, 2014
MS, Pharmacology, Medical Sciences Campus University of Puerto Rico, 2005

Salgado-Villanueva, Iris K., Ph.D, Assistant Professor and Chairperson
Ph.D. in Physiology, University of Puerto Rico, Medical Sciences Campus

Silva, Walter, Ph.D, Associate Professor
Ph.D, Mount Sinai School of Medicine, CUNY, 1986

Torres-Cruz, José L., Ph.D, Associate Professor
Ph.D, University of Puerto Rico, School of Medicine, 2011
M.S in Science, University of Puerto Rico, School of Medicine, 1976

**Department of Physiology**

Inyushin, Mikhail Y., Ph.D, Assistant Professor
Ph.D, Leningrad State University, 1986

Rivera, Amelia, Ph.D, Professor
Ph.D, University of Puerto Rico, 1982

Rojas, Legier, Ph.D, Professor
Ph.D, University of Puerto Rico, Medical Sciences Campus, 1987

Sanabria, Priscila, Ph.D, Professor and Chairperson
Ph.D, University of Puerto Rico, Medical Sciences Campus, 1986

Skatchkov, Serguei, Ph.D, Professor (Dual appointment in Biochemistry)
Ph.D, Leningrad State University, Russia, 1991
M.P.H., Leningrad State University, Russia, 1979

## CLINICAL SCIENCES DEPARTMENTS

**Department of Emergency Medicine**

Abreu-Rivera, Arlene, M.D., MPH, Assistant Professor
M.D., San Juan Bautista School of Medicine, 1991,
Specialty in Internal Medicine, St. Mary's Hospital, NY, 1994
Fellowship in Emergency Medicine Services, University of Pittsburgh, 1996

Acevedo-Valentín, Ismael A., Assistant Professor
M.D., Iberoamerican University, School of Medicine, 2002
Specialty in Internal Medicine, University Hospital Dr. R. Ruiz Arnau, 2007

Díaz-Alcalá, José Eric, M.D, Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1990 Specialty in Emergency Medicine, Lincoln Medical and Health Center, New York Medical College, 1994
Fellowship in Medical Toxicology, Allegheny University of the Health Sciences, Medical College of Pennsylvania, Hahnemann University, 1996

Gago-Rivera, Jorge, M.D., Associate Professor
M.D., Universidad Autónoma de Guadalajara, México, 1977 Specialty in Emergency Medicine, University Hospital (UPR), 1982

García-Castro, Juan A., M.D., Assistant Professor
M.D., Zaragoza School of Medicine, Spain, 1973
Specialty in Emergency Medicine, University District Hospital (UPR) 1983

Gascot-Zayas, Javier, M.D., Assistant Professor
M.D., San Juan Bautista, School of Medicine, 2003

Marín-De Gracia, Jesús M., M.D., Assistant Professor
M.D., University of Seville, Spain, 1981
Specialty in Emergency Medicine, University District Hospital (UPR), 1995

**Department of Family Medicine**

Acevedo-Sierra, Ignacio, M.D., Assistant Professor
M.D., Universidad Católica Madre y Maestra, Santiago, DR, 1989

Cabán-Reyes, Joyce, MSW, Instructor MSW, Roberts Wesleyan College, 2010

Carrión-González, Ibis S. PsyD., Assistant Professor
PsyD., Psychology with Specialization in Clinical Psychology, Universidad Carlos Albizu, 2002

Crespo, Waleska, DrPH, Professor
DrPH., University of Puerto Rico, Medical Sciences Campus, 2017

Cruz-Igartua, Miguel, M.D., Assistant Professor
M.D., University of Puerto Rico, Medial Science Campus, 1982
Specialty in Family Medicine, San Pablo Hospital, Bayamón, PR, 1985

Cruz-Igartua, Ariel, M.D., Assistant Professor
M.D., University of Puerto Rico, Medial Science Campus, 1982
Specialty in Family Medicine, San Pablo Hospital, Bayamón, PR, 1985

González, Eric M., M.D., MPH, Professor,
M.D., Universidad Central del Caribe, School of Medicine, 1980
MPH, University of Puerto Rico, 1985

González-Rivera, Víctor M., Psy.D, Assistant Professor
Psy.D., Carlos Albizu University, San Juan, PR

Mercado, Harry, M.D., Professor and Associate Dean of Clinical & Faculty Affairs
M.D., University of Puerto Rico, School of Medicine, 1980
Specialty in Family Medicine, University District Hospital (UPR), 1983

Miranda-Jiménez, Lisa A., Psy.D., Assistant Professor
Psy.D., Pontifical Catholic University, Ponce, PR, 2008

Moscoso, Margarita, Ph.D, Associate Professor
Ph.D, University of Michigan, 1992
M.Ed., University of Puerto Rico, School of Medicine, 1987

Nieves-Rodríguez, Aracelis, M.D., Assistant Professor
M.D., San Juan Bautista Medical School, Caguas, PR, 2008
Specialty in Family Medicine, Manati Medical Center Family Medicine Program, 2012

Oquendo, Leyda, M.D., Assistant Professor
M.D., Ponce School of Medicine, 1994
Specialty in Family Medicine, San Pablo Hospital, 1997

Ortiz-Rodríguez, Cynthia M., M.D., Assistant Professor
M.D., Universidad de Zaragoza, Zaragoza, Spain, 1994
Specialty in Family Medicine, Dr. Alejandro Otero López Hospital, Manatí, PR, 1984

Parrilla, Iris, Ph.D, Professor and Associate Dean of Student Affairs
Ph.D, University of Puerto Rico, 2012

Reyes-Pulliza, Juan Carlos, Ed.D, Assistant Professor
Ed.D University of Puerto Rico, 2003
MS, University of Puerto Rico, 1990

Reyes-Rosario, Yadira, M.D., Assistant Professor
M.D., Universidad Autónoma de Guadalajara, School of Medicine, México, 2002
Specialty in Family Medicine, Manatí Medical Center Residency Program, 2009

Rivera-Mercado, Damaris, M.D., Instructor
M.D., Universidad Autónoma de Guadalajara, 2010

Rodríguez-Guerra, Esther, Ph.D., Assistant Professor
Ph.D., University of Puerto Rico, Medical Sciences Campus, 1994

Rosa-Toledo, Luis, M.D., Associate Professor
M.D., Universidad Autónoma de Guadalajara, 1989
Specialty in Family Medicine, Dr. Alejandro Otero López Hospital, Manatí, PR, 1994

Vélez Crespo, Michael, MS, Assistant Professor
MS, University of Puerto Rico, 1995

Zaldua, Eduardo, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1995
Specialty in Family Medicine, Universidad Central del Caribe, SOM, 2006

**Department of Internal Medicine**

Adorno-Fontánez, José R., M.D., Associate Professor
M.D., Ponce School of Medicine, 2003
Specialty in Internal Medicine,
Fellowship in Pulmonary & Critical Care Medicine, VA Caribbean Healthcare System, PR, 2009

Agosto-Maury, Norma, M.D., Assistant Professor
M.D., Universidad de Valencia, 1993

Andino-Rivas, Ada I., M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1990
Specialty in Neurology, University District Hospital (UPR) 1994
Fellowship in Clinical Neurophysiology, Veterans Administration Hospital (UPR) 1995

Ayala-Vélez, Iván S., M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1987
Specialty in Internal Medicine, University Hospital, 1990
Fellowship in Cardiology, University Hospital, 1994

Benítez-Colón, Carlos R., M.D., Assistant Professor
M.D., Universidad Central del Este, 1982
Specialty in Internal Medicine

Blanco-Franco, Alejandro, M.D., Assistant Professor
M.D., Universidad Autónoma de Guadalajara, México, 2007
Specialty in Internal Medicine, University Hospital Dr. Ramón Ruiz Arnau (UCC) PR, 2012

Carbelleira, David, M.D., Associate Professor
M.D., University of Puerto Rico, Medical Sciences Campus, 1984
Specialty in Internal Medicine, University District Hospital (UPR) 1987

Carrillo-Morales, Sol Melissa, M.D., Assistant Professor
M.D., University of Puerto Rico, Medical Sciences Campus, 2007
Specialty in Internal Medicine, University District Hospital UPR), 2010
Sub-specialty in Infectious Diseases, University District Hospital (UPR) 2011

Carrasquillo, Efraín, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1994
Specialty in Internal Medicine, Franklin Square Hospital Center, Baltimore, M.D
1997 Fellowship in Rheumatology, San Juan City Hospital, 2001

Cruz-Loubriel, Abdiel, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 2003
Specialty in Internal Medicine, University District Hospital (UPR), 2006
Fellowship in Gastroenterology, University District Hospital (UPR), 2009

De La Torre-Lugo, Eneida, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 2008
Specialty in Dermatology, University District Hospital (UPR) 2012

Díaz-Hernández, Antonio L., M.D., Associate Professor
M.D., Ponce School of Medicine, 2005
Specialty in Internal Medicine, San Juan VA Medical Center, 2008
Fellowship in Nephrology, San Juan VA Medical Center, 2010

Díaz-Olivo, Rolando, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1984
Specialty in Neurology, University of Puerto Rico, School of Medicine, 1988

Fernández-Santos, Diana, Ed.D., Associate Professor and Associate Dean of Research and Graduate Studies
Ed.D., University of Puerto Rico, School of Medicine, 1994

Flores-González, Juan A., M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 2010

Fumero-Pérez, Juan J., M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1988
Specialty in Psychiatry, St Vincent's Hospital & Medical Center of New York, 1992
Fellowship in Public Psychiatry, New York State Psychiatry, New York, NY, 1993
Fellowship in Gastroenterology, University District Hospital (UPR) 1977

Girón-Morell, Jessie, M.D., Assistant Professor
M.D., Universidad Iberoamericana (UNIBE), Dominican Republic, 2001
Specialty in Internal Medicine, University Hospital Dr. R. Ruiz Arnau, 2008

Marchand, Ernesto, M.D., Professor Emeritus
M.D., St. Louis University, Missouri, 1943
Specialty in Internal Medicine School of Tropical Medicine, San Juan City Hospital (UPR)
Graduate School of Medicine, University of Pennsylvania, 1950
Fellowship in Cardiology, John Sealy Hospital,
Fellowship Cardiovascular Diseases, University of Texas, 1951

Martínez, Johanna L., M.D., Associate Professor
M.D., San Juan Bautista, School of Medicine, Caguas, PR, 2001
Specialty in Internal Medicine, Bronx-Lebanon/Albert Einstein College of Medicine, NY, 2007

Mayor-Becerra, Ángel M., M.D., Associate Professor
M.D., Military University Nueva Granada, Bogotá, Colombia, 1986

Miranda-Díaz, Christine, Ph.D., M.P.H., Assistant Professor
Ph.D., in Community Health Promotion and Education, Walden University, College of Health Sciences, 2015
M.P.H., University of Puerto Rico, Medical Sciences Campus, 2007

Ortiz, Juan Carlos, M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 2004
Specialty in Internal Medicine, University District Hospital (UPR) 2007

Ortiz-Rivera, Damarys, M.D., Assistant Professor
M.D., Universidad Autónoma de Guadalajara, 2000
Specialty in Internal Medicine, Veterans Administration Medical Center, 2004

Ortiz-Rosario, José D., M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 2008
Specialty in Internal Medicine, Veterans Administration Hospital, PR, 2011
Fellowship in Nephrology, Veterans Administration Hospital, 2013

Pérez, Milton, M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1981
Specialty in Internal Medicine, Staten Island Hospital, NY, 1984
Fellowship in Pulmonary Disease, Maimonides Medical Center, Brooklyn, 1986

Quintero, Aida, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1985
Specialty in Internal Medicine

Rivera, Ángel, M.D., M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1965
Specialty in Internal Medicine

Rodríguez-Castro, Eddie, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 2012

Rodríguez-Cintrón, William, M.D., Porfessor
M.D., University of Puerto Rico, School of Medicine, 2012

Ruiz-Candelaria, Yelitza, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 2001
Specialty in Internal Medicine, University District Hospital (UPR), 2004
Fellowship in Hematology/Oncology, Veteran Administration Hospital, 2008

Santiago-Sánchez, Michellealdema, M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 2005
Specialty in Internal Medicine, Veterans Administration Hospital, PR, 2008

Santos, Eladio, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1985
Specialty in Internal Medicine, 1992
Fellowship in Endocrinology Diabetes and Metabolism, 1995

Soler-Ramírez, Ricardo J., M.D., Assistant Professor
M.D., Universidad Autónoma de México Specialty in Internal Medicine

Torres-Berríos, Damarys, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1994
Specialty in Neurology, University District Hospital (UPR), 1998

Vargas, Vivianne Marie, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 2000
Specialty in Internal Medicine, Veterans Administration Medical Center, 2003

Vázquez-Díaz, María M., M.D., Assistant Professor
M.D., Universidad Iberoamericana (UNIBE) DR, 2001
Specialty in Internal Medicine, University Hospital Dr. Ramón Ruiz Arnau (UCC) 2008

Vázquez-Medina, Juan M., M.D., Assistant Professor
M.D., Universidad Autónoma Guadalajara (México) 1976
Specialty in Internal Medicine, Ponce District Hospital, 1981
Fellowship in Hematology-Oncology, Roswell Park Memorial Institute, 1983

Velázquez, Roberto K., M.D., Associate Professor
M.D., Universidad de Guadalajara, Jalisco, México, 2004
Specialty in Internal Medicine, Hospital de la Concepción, San Germán, PR, 2010

Vendrell, Roberto M., M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 2001
Specialty in Internal Medicine, University of Texas, Southwestern Medical Center, 2004
Fellowship in Gastroenterology, University District Hospital (UPR), 2009

Vila-Rivera, Karina, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 2005
Specialty in Internal Medicine, University Hospital Dr. Ramón Ruiz Arnau, 2009
Sub-specialty in Rheumatology, University District Hospital (UPR) 2012

Viñuelas-Cabezas. Ángel, M.D., Ph.D., Assistant Professor
M.D., Universidad Autónoma de Madrid, Spain, 1994
Ph.D in Neuroscience, Universidad Autónoma de Madrid, Spain, 2002
Specialty in Neurology, University District Hospital, 2010
Fellowship in Movement Disorders, Columbia University/New York Presbyterian, 2015

**Department of Obstetrics and Gynecology**

Beauchamp, Pedro J., M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1976
Specialty in OB/Gyn, Caguas Regional Hospital, Johns Hopkins Hospital, Baltimore, Maryland, 1980
Fellowship in Reproductive Endocrinology and Infertility, University Hospital of Pennsylvania, 1982

Benabe-González, Erika M., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 2003
Specialty in Obstetrics and Gynecology, San Juan City Hospital, 2007

Cruzado, Gustavo, M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 2000
Specialty in OB/Gyn

Del Toro, Iván, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1976
Specialty in OB/Gyn, University District Hospital (UPR), 1980

Díaz, Rodrigo, M.D., Associate Professor
M.D. University of Puerto Rico, School of Medicine, 1989
Specialty in OB/Gyn, San Juan City Hospital, PR, 1994

Escobar, Pedro F., M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1998
Specialty in OB/Gyn, Northwestern University, Chicago, IL, 2002

Figueroa-De Los Reyes, Rafael, M.D., Associate Professor
M.D., Universidad Autónoma de Guadalajara, 1983
Specialty in OB/Gyn, San Juan City Hospital Medical Center, 1986

Fonseca-Salgado, Carlos A., M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 2002
Specialty in OB/Gyn, San Juan City Hospital, 2005

Fraguada-Reyes, Ángel L., M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1985
Specialty in OB/Gyn, San Juan City Hospital, 1991
Fellowship in ACOG Board Certified

Gelpí-Guzmán, Angel L., M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1983
Specialty in OB/Gyn, University District Hospital (UPR) 1987

González-Recio, Ailed, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1979
Specialty in OB/Gyn, University District Hospital (UPR), 1983

Llorens-Martínez, Amaury, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1994
Specialty in Ob/Gyn, San Juan Municipal Hospital, 1999
Fellowship in Reproductive Endocrinology and Infertility, New Jersey Medical School, 2002

Martín-Rodríguez, José C., M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1994
Specialty in OB/Gyn, San Juan District Hospital, 1998 Board Certified

Méndez-Mártir, Celia G., M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1989
Specialty in OB/Gyn, Catholic Medical Center of Brooklyn & Queens, 1993

Moreno-Rivera, Maritzel, M.D., Assistant Professor
M.D., San Juan Bautista, School of Medicine, Caguas, PR, 2008
Specialty in OB/Gyn, San Juan City Hospital, 2014

Muñiz-Vélez, Eduardo J., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1994
Specialty in OB/Gyn, University District Hospital, 1999

Ortiz-Roque, Carmen, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1986
Specialty in OB/Gyn, Brookdale Hospital Medical Center, NY, 1994

Pérez, Lianette M., M.D., Associate Professor
M.D., Ponce School of Medicine, 1996
Specialty in OB/Gyn, Ponce University Hospital, 2000

Rodríguez-Millayes, Héctor J., M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 2001
Specialty in OB/Gyn, San Juan City Hospital, PR, 2005

Ruiz-Maysonet, Ruth N., M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1993
Specialty in OB/Gyn, University District Hospital (UPR) 1997

Salgado-Morales, Juan L., M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1984
Specialty in OB/Gyn, Caguas Regional Hospital Dr. Eduardo Garrido, 1989

Salgueiro-Bravo, Jesúsmanuel, M.D., Assistant Professor
M.D. Universidad Central del Caribe, School of Medicine, 1997
Specialty in OB/Gyn, University District Hospital (UPR), 2001

Serrano-Isern, Alfonso, M.D., Associate Professor
M.D., Ponce School of Medicine, 1985
Specialty in OB/Gyn, San Juan City Hospital, 1989

Vale-Moreno, Yari, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1999
Specialty in OB/Gyn, State University of New York, 2003

Vázquez, Miguel A., M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1995
Specialty in OB/Gyn

Vélez-Rodríguez, Herminio, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1987
Specialty in OB/Gyn, Mayaguez Medical Center, PR, 1992

Zweig, María E., M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1983
Specialty in OB/Gyn, Jackson Memorial Hospital, Miami, FL, 1987

**Department of Pediatrics**

Agosto-Pérez, Mariely, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1993
Residency in Pediatrics, University Pediatric Hospital (UPR) 1996

Alvelo-Santiago, Jesús M., M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1980
Specialty in Pediatrics

Aponte-Colón, Jessika, M.D., Assistant Professor
M.D., Pontificia Universidad Católica Madre y Maestra, DR, 2000
Specialty in Pediatrics, The Brooklyn Hospital Center, NY, 2006

Arroyo-Berríos, Alida, M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1981
Specialty in Pediatrics, Our Lady of Mercy Medical Center, NY, 1986

Báez-Rivera, Emilio, M.D., Associate Professor
M.D., University of Puerto Rico, Medical Science Campus, 1991
Specialty in Pediatrics, University Pediatric Hospital (UPR), 1994
Fellowship in Pediatric Critical Care, University Pediatric Hospital (UPR), 1997

Cantellops-Montalvo, José M., M.D., Assistant Professor
M.D., Universidad Nacional Pedro Henríquez Ureña, RD, 1987
Specialty in Pediatrics, University Hospital Dr. Ramón Ruiz Arnau, 1990

Clavel-Rodríguez, Luis, M.D., Professor
M.D., University of Puerto Rico, School of Medicine, 1976
Specialty in Pediatrics, University of California Davis, School of Medicine, 1978
Fellowship in Hematology-Oncology, Children's Hospital Medical Center, Boston, & Sidney Farber Cancer Institute, 1980

Colón-Pérez, Ivette, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1994
Specialty in Pediatrics, 1997

Cotto-Rodríguez, Roalba, M.D., Assistant Professor
M.D., Universidad Central del Este San Pedro de Macorís, RD, 1985
Specialty in Pediatrics, University Hospital Dr. Ramón Ruiz Arnau, 2007

Cuevas-Marrero, Javier, M.D., Assistant Professor
M.D., Universidad Central del Caribe, 1997
Specialty in Pediatrics, 2000

De Jesús-Pagán, Brenda M., M.D., Associate Professor
M.D., Ponce School of Medicine, 1997
Specialty in Pediatrics, San Juan City Hospital, 2000

Delgado-Marrero, Maribel, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1997
Specialty in Pediatrics, University Pediatric Hospital (UPR), 2000

Díaz-Crescioni, Rosalyn, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 2000
Specialty in Pediatrics, University Pediatrics Hospital (UPR) 2003
Fellowship in Pediatrics Gastroenterology, The Children's Hospital of Philadelphia, 2007
Research and Clinical Fellowship in Pediatrics, The Children's Hospital of Philadelphia, 2008

Figueroa, Wanda, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1986
Specialty in Pediatrics, Dr. Eduardo Garrido Morales Regional Hospital, 1989

Font-Aponte, Luis, M.D., Associate Professor
M.D., San Juan Bautista, School of Medicine, 2000
Specialty in Pediatrics, Flushing Hospital Medical Center, NY, 2006
Fellowship in Pediatric Endocrinology, Schneider Children's Hospital, NY, 2009

García-Contreras, Frances, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1973
Specialty in Pediatrics, University District Hospital (UPR), 1976

González-Rodríguez, Rafael, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1983
Specialty in Pediatrics, Mount Sinai, School of Medicine, 1986
Subspecialty in Nephrology, Health Sciences Medical Center, SUNY, Brooklyn, 1990

Irizarry, Luis, M.D., Associate Professor M.D., Universidad de Zaragoza, 1984
Specialty in Pediatrics, University Hospital Dr. Ramón Ruiz Arnau (UCC), 1999

Laó-Vélez, Carlos, M.D., Professor
M.D., University of Puerto Rico, School of Medicine, 1971
Specialty in Pediatrics, University District Hospital (UPR), 1974
Fellowship Pediatrics Neurology, John Hopkins Hospital, Baltimore, 1977

López-Martínez, Annette Y., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 2005
Specialty in Pediatrics, University Pediatrics Hospital (UPR) 2008
Fellowship in Pediatric Rheumatology, Cincinnati Children's Medical Center, 2011

Malavé-Rodríguez, Marisol, M.D., Assistant Professor
M.D., University of Puerto Rico, Medical Science Campus, 1998
Specialty in Pediatrics, University Pediatric Hospital (UPR), 2001

Malinow, Iona K., M.D., Associate Professor
M.D., Mount Sinai, School of Medicine, NY, 1990
Specialty in Pediatrics, University of Rochester Medical Center, NY, 1995
Fellowship in Allergy and Immunology, University of Puerto Rico, Medical Sciences Campus, 2011

Martínez-Santiago, Glenda, Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1989
Specialty in Pediatrics, University Pediatric Hospital (UPR), 1992

Montañez-Ramos, Víctor M., M.D., Assistant Professor
M.D., Universidad Autónoma de Guadalajara, México, 1987
Specialty in Pediatrics, San Juan City Hospital, 1996

Ochoa-Bacallao, Eduardo, M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1980
Specialty in Pediatrics, San Juan City Hospital, 1983
Fellowship in Pediatric Critical Care, University Pediatric Hospital, 1984

Puig-Ramos, Gilberto, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1987
Specialty in Pediatric Critical Care, 1993

Reyes-Díaz, Clara N., M.D., Associate Professor
M.D., University of Puerto Rico, Medical Science Campus, 1980
Specialty in Pediatrics, University Pediatric Hospital, 1983
Fellowship in Hematology and Oncology, University District Hospital (UPR), 1986

Rodríguez-Cruz, Sandra, M.D., Assistant Professor
M.D., University of Puerto Rico, Medical Science Campus, 1986
Specialty in Pediatrics, University Pediatric Hospital (UPR), 1989

Sánchez, Carlos Felipe, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 2008
Specialty in General Surgery, University of Puerto Rico, 2012
Pediatric Surgery, Univ of Calgary Alberta Children's Hospital, Canada, 2013

Sánchez-Longo, Mercedes, M.D., Assistant Professor
M.D., Universidad Católica Madre y Maestra, Santiago de los Caballeros, 1981
Specialty in Pediatrics, University Hospital Dr. Ramón Ruiz Arnau (UCC), 1988
Fellowship in Electroensephalogy and Clinical Neurophysiology, 1990

Sánchez-Lugo, Fermin, M.D., Professor and Chairperson
M.D., University of Puerto Rico, School of Medicine, 1970
Specialty in Pediatrics, University Pediatrics Hospital, 1975
Fellowship Pediatric Endocrinology, University District Hospital (UPR), 1977

Santiago-Castro, Sherry L., M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine
Specialty in Pediatrics, San Juan City Hospital, 2014
Fellowship in Child Neurology, Boston University Medical Center, 2017

Serrano-Oyola, Edna, M.D., Assistant Professor
M.D., Universidad Autónoma de Guadalajara, School of Medicine 1986
Specialty in Pediatrics, 1993
Fellowship in Adolescentology, 1995

Suárez-Martínez, Carmen I., M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1989
Specialty in Pediatrics, Maimonides Medical Center, 1992

Vázquez-Cobián, Liza B., M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1999
Specialty in Pediatrics, State Univ of New York Health Science Center, 2002
Fellowship in Pediatric Rheumatology, New York Presbyterian Hospital, 2005

Velázquez, Magdalena, M.D., Associate Professor
M.D., Universidad Autónoma de Queretaro, Facultad de Medicina, México, 1991
Specialty in Pediatrics, San Juan City Hospital, 2012

Vera-Arocho, Antonio A., M.D., Assistant Professor
M.D., Universidad Autónoma de Guadalajara, México, 1980
Specialty in Pediatrics, San Juan City Hospital, 1986

Zaragoza-Díaz, Elizabeth, M.D., Assistant Professor
M.D., Universidad Central del Este, San Pedro de Macorís, 1984
Specialty in Pediatrics, San Juan City Hospital, 1993

**Department of Physical Medicine and Rehabilitation**

Acevedo, William, M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1987
Specialty in Physical Medicine and Rehabilitation, San Juan VA Medical Center, 1991

Arroyo, Mara, M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1987
Specialty in Physical Medicine and Rehabilitation, San Juan VA Medical Center, 1991

Borrás, Isabel C., M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1994
Specialty Combined Program in Internal Medicine and Rehabilitation, 1999

Cintrón-Rodríguez, Ana Virginia, M.D., FAAPMR, Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1980
Specialty in Physical Medicine and Rehabilitation, San Juan VA Medical Center, 1987

Crespo-Hernandez, Myriam, M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1996
Specialty in Physical Medicine and Rehabilitation, University District Hospital (UPR) 2001

Cruz-Jiménez, Maricarmen, M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1994
Specialty in Physical Medicine and Rehabilitation, San Juan VA Medical Center, 1998

Cuadrado-Pereira, Marianela, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1999
Specialty in Physical Medicine and Rehabilitation, San Juan VA Medical Center, 2003

Jiménez-Figueroa, Anabel, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 2001
Specialty in Physical Medicine and Rehabilitation, Tufts New England Medical Center, MA, 2005

Motta-Valancia, Keryl, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1998
Specialty in Physical Medicine and Rehabilitation, San Juan VA Medical Center, 2002

Rodríguez-Campos, Marimie, M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 2003
Specialty in Physical Medicine and Rehabilitation, University District Hospital (UPR), 2007
Fellowship in Interventional Pain Medicine, Beth Israel Medical Center, NY, 2008

Soto-Quijano, David A., M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1996
Specialty in Physical Medicine and Rehabilitation, University District Hospital (UPR), 2000
Fellowship in Musculoskeletal and Sports Medicine, Baylor College of Medicine, Texas, 2004

Torres-Rivera, Anelys, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1986
Specialty in Physical Medicine and Rehabilitation, San Juan VA Medical Center, 1990

**Department of Psychiatry**

Almodovar-Sánchez, William, M.D., Assistant Professor
M.D., Ponce School of Medicine, 2001
Specialty in Psychiatric, Veterans Administration Hospital, 2006

Alicea-Rosado, Dhilma L., M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1994
Specialty in Psychiatry, University District Hospital (UPR), 1998

Alvarado-Espada, Luis R., M.D., Assistant Professor
M.D., Universidad Iberoamericana de Santo Domingo, DR, 2008
Specialty in University of Puerto Rico, Medical Sciences Campus, 2015
Fellowship in Addiction Psychiatry, VA Caribbean Healthcare System, 2018

Arroyo, Lillian M., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1985
Specialty in Psychiatry, Veterans Administration Hospital (UPR) PR, 1989

Berrios-Merced, Joalmi, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1999
Specialty in Psychiatry, University District Hospital (UPR) 2006

Berrios-Reyes, Sylvia, M.D., Assistant Professor
M.D., University of Puerto Rico, Medical Sciences Campus, 2006
Specialty in Psychiatry, University of Puerto Rico, Medical Sciences Campus, 2010

Brito-Medina, Carmen, M.D., Assistant Professor
M.D., Universidad Iberoamericana, DR, 2003
Specialty in Psychiatry, University of Puerto Rico, Medical Sciences Campus, 2010

Calderón-Juliá, Fernando, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1991
Specialty in Psychiatry, University District Hospital (UPR) 1995

Cardona-Medina, Dodanid, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1999
Specialty in Psychiatry, Albert Einstein Medical Center, Penn, 2002
Fellowship in Child and Adolescent Psychiatry, University of Pennsylvania, 2004

Caro-Pérez, Osvaldo, M.D., Instructor
M.D., University of Puerto Rico, School of Medicine, 1989
Specialty in Psychiatry, University Hospital, 1993

Casas-Dolz, Ingrid, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 2001
Specialty in General Psychiatry, Child, and Adolescent Psychiatry, University District Hospital, Combined Program, 2006

Cott-Dorta, Héctor M., M.D., Assistant Professor
M.D., San Juan Bautista School of Medicine, 2000
Specialty in Psychiatry, San Juan Bautista Medical Center, 2004

Del Valle-Rodríguez, Benjamín, M.D., Instructor
M.D., Universidad Nordestana, San Francisco de Macorís, DR, 1985
Specialty in Psychiatry, Puerto Rico Institute of Psychiatry, 2002

Diez-Gutierrez, Viriana, M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 2010
Specialty in Psychiatry, VA Administration Hospital, Ponce, PR, 2014

Entenza-Cabrera, Fernando, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1990
Specialty in Psychiatry, University District Hospital (UPR), 1994
Fellowship in Geriatric Psychiatry, University of Pennsylvania, 1995

Escobar-Roger, Frank F., Assistant Professor
M.D., Universidad Tecnológica de Santiago, Santo Domingo, DR, 1985
Specialty in Psychiatry, Kings County Hospital, Brooklyn, NY, 1998
Fellowship in Child and Adolescent Psychiatry, Kings County Hospital, Brooklyn, NY, 2000

Esparza-Razo, Bogart R., M.D., Assistant Professor
M.D., Universidad Autónoma de Guadalajara, School of Medicine, México, 1989
Specialty in Psychiatry, The Puerto Rico Institute of Psychiatry, 1998

Fors-Rodríguez, Gustavo E., M.D., Assistant Professor
M.D., University of Puerto Rico, Medical Sciences Campus, 2012
Specialty in Psychiatry, University of Puerto Rico, School of Medicine, 2016

Franceschini-Carlo, José A., M.D., Professor and Chairperson
M.D., Universidad Central del Caribe, School of Medicine, 1981
Specialty in Psychiatry, University of Alabama, 1984
Fellowship in Geriatric Psychiatry; University of Alabama, 1985

Franco-Yambo, Glory Ann, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 2002
Specialty in Psychiatry, University of Puerto Rico, Medical Sciences Campus, 2007

González-Torres, Mario R., M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 2006
Specialty in Psychiatry, VA Administration Hospital, Ponce, PR, 2010
Fellowship in Child and Adolescent Psychiatry, Ponce School of Medicine, 2011

Gutiérrez, Ramón J., M.D., Assistant Professor
M.D., San Juan Bautista School of Medicine, Caguas, PR, 1991
Specialty in Psychiatry, Westchester Medical Center, Michigan, 1994
Fellowship in Child and Adolescent, Westchester Medical Center, Michigan, NY, 1999

Hernández-Almodovar, Maritere, M.D., Assistant Professor
M.D., Ponce School of Medicine, 2008
Specialty in Psychiatry, University of Puerto Rico, School of Medicine, 2012

Ifarraguerri-Gómez, Carlos E., M.D., Instructor
M.D., University of Maryland, 1961
Specialty in Psychiatry, New York State Psychiatric, 1971

Liberatore-Gallardo, Katia, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 2005
Specialty in Psychiatry, University of Puerto Rico, School of Medicine, 2010

Maldonado-Santos, Carlos I., M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 2007
Specialty in Psychiatry, University of Puerto Rico, Medical Sciences Campus, 2011

Martínez-Irizarry, Angel E., M.D., Assistant Professor
M.D., Ponce School of Medicine, 2008
Specialty in Psychiatry, Ponce School of Medicine, 2013

Pérez-Alvarado, Reynaldo J., M.D., Assistant Professor
M.D., San Juan Bautista School of Medicine, Caguas, PR, 2001
Specialty in Psychiatry, San Juan Bautista Medical Center, Caguas, PR, 2005

Pierantoni, Marlene M., M.D, Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 2004.
Specialty in Psychiatry, James A. Haley & Bay Pines VA Hospital, Tampa General Hospital, 2008
Fellowship in Psychosomatic Medicine and Psycho-Oncology, Memorial Sloan-Kettering Cancer Center, New York Presbyterian Hospital, Weill Medical College of Cornell, NY, 2009

Quiles-Rodríguez, Dinorah, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 2003
Specialty in Psychiatry, University of Puerto Rico, School of Medicine, 2008

Ramírez-Ortiz, Beatriz, M.D., Assistant Professor
M.D., Universidad Autónoma de Santo Domingo, 1986
Specialty in Psychiatry, University District Hospital (UPR), 2001
Fellowship in Child and Adolescent Psychiatry, 2002

Reoyo-Ortiz, Zaida, M.D., Instructor
M.D., Universidad Central del Caribe, School of Medicine, 1993
Specialty in Psychiatry, University of Miami, 1997
Fellowship in Geriatric, University of Miami, 1998

Reyes-Rabanillo, María, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1996
Specialty in Psychiatry, University District Hospital (UPR) 2005

Rivera-Monserrate, Gretchen, M.D., Assistant Professor
M.D., Universidad Autónoma de Guadalajara, School of Medicine, México, 2006
Specialty in Psychiatry, University of Puerto Rico, School of Medicine, 2012

Rodríguez-Llauger, Anabelle, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1986
Specialty in Psychiatry, Veterans Administration Hospital, 1990

Rodríguez-Maldonado, Justo X., M.D., Assistant Professor
M.D., Universidad del Noroeste, Escuela de Medicina, México, 1999
Specialty in Psychiatry, San Juan Bautista Medical Center, PR, 2004

Román-Ithier, Jan C., M.D., J.D., Assistant Professor
M.D., JD. University of Puerto Rico, School of Medicine and School of Law, 2009
Specialty in Psychiatry, University of Puerto Rico, School of Medicine, 2013
Fellowship in Addiction Psychiatry, University of Pittsburgh Medical Center, 2016

Romero-Medina, Marialba, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 2007
Specialty in Psychiatry, University of Puerto Rico, Medical Sciences Campus, 2011
Fellowship in Child and Adolescent Psychiatry, Drexel University Colle of Medicine, 2013

Santiago-Colón, Jorge, M.D., Instructor
M.D., University of Puerto Rico, School of Medicine, 1995
Specialty of Psychiatry, University District Hospital (UPR), 1999

Santiago-Luna, Aidarilys, M.D., Instructor
M.D., University of Puerto Rico, School of Medicine, 2000
Specialty in Psychiatry, University District Hospital (UPR), 2003 and Ponce Health Sciences University, 2013

Soto-Raices, Ohel, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1997
Specialty in Psychiatry, University of Florida College of Medicine, 2001
Fellowship in Pediatric Psychiatry, University of Florida College of Medicine & Affiliated Hospitals, Gainesville, Florida, 2004

Suris-Dávila, Dharma, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 2005
Specialty in Psychiatry, University of Puerto Rico, Medical Sciences Campus, 2009

Toro-Ruiz, Caroline, M.D., Assistant Professor
M.D., San Juan Bautista, School of Medicine, 2011
Specialty in Psychiatry, VA Caribbean Healthcare System, PR, 2013

Torres, Ana I., M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1987
Specialty in Psychiatry, 1991

Torres-Plata, Jaime G., M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 2006
Specialty in Psychiatry, Ponce School of Medicine, VA Medical Center, 2010

Torres-Plata, Jaime G., M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 2006
Specialty in Psychiatry, Ponce School of Medicine, VA Medical Center, 2010

Torres-Rodríguez, Alexis, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 2006
Specialty in Psychiatry, Ponce School of Medicine, 2011
Fellowship in Child and Adolescent Psychiatry, 2013

Troche-Panetto, Michelle, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1998
Specialty of Psychiatry, Albany Medical Center, NY, 2002
Fellowship Medical College of Virginia and H.H. McGuire VAMC, Virginia, 2003

Vargas-Nazario, Analicia, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 2006
Specialty in Psychiatry, University of Puerto Rico, Medical Sciences Campus, 2010

Vega-Vázquez, Nina M., M.D., Assistant Professor
M.D., Ponce School of Medicine, 2008
Specialty in Psychiatry, Ponce School of Medicine, VA Hospital, 2012
Fellowship in Child and Adolescent Psychiatry, Ponce School of Medicine, VA Hospital, 2013

**Department of Radiology**

Álvarez-Villar, Carmen, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1981
Specialty in Diagnostic Radiology, University Hospital, 1985

Barreras-Rincón, José, M.D., Assistant Professor
M.D. Universidad Central del Caribe, School of Medicine, 1994
Nuclear Medicine Residency, Christ Hospital, Cincinnati, Ohio, 1998
Specialty in Diagnostic Radiology, Sisters of Charity Medical Center, Saint Vincent's Hospital, 2002

Cruz-Jové, Eva L., M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1995
Specialty in Diagnostic Radiology, University District Hospital (UPR), 1999

De Choudens, Mercedes, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1988
Specialty in Diagnostic Radiology, University Hospital, 1993

De Jesús, Ricardo, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1999
Specialty in Diagnostic Radiology, Christina Care Hospital, Newark, DE, 2005

Estela-Jové, Zoraida E., M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1997
Specialty in Diagnostic Radiology, University Hospital (UPR), 2002

González, Carlos J., M.D., Associate Professor
M.D., Ponce School of Medicine, PR, 2007
Specialty in Diagnostic Radiology, Boston University Medical Center, 2012
Fellowship in Breast Imaging, Boston University Medical Center, 2013

Matos, Nelson F., M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 2000
Specialty in Diagnostic Radiology, University District Hospital (UPR), 2005
Fellowship in Neuroradiology, Medical College of Georgia, 2006

Marcial-Vega, Víctor A., M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1984
Specialty in Radiation Oncology, Johns Hopkins University, 1988

Medina-Soto, Rochelly, M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1999
Specialty in Diagnostic Radiology, University District Hospital (UPR), 2004

Polo, Mario J., M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 2004
Specialty in Diagnostic Radiology, Baylor College of Medicine, TX, 2009
Fellowship in Diagnostic and Interventional Neuroradiology, Baylor College of Medicine, 2010
Fellowship in Endovascular & Therapeutic Neuroradiology, The Methodist Neurological Institute, TX 2011

Rivera-Jiménez, Ricardo E., M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1998
Specialty in Diagnostic Radiology, Mount Sinai Medical Center, Florida, 2003 Fellowship in Neuroradiology, University of Miami, Jackson Memorial Hospital, 2004 Fellowship in Musculoskeletal/MRI, Univ. of Miami, Jackson Memorial Hospital, 2005

Vázquez-De Corral, Lorraine, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1980
Specialty in Diagnostic Radiology, University Hospital, 1984

Vázquez-Figueroa, Yadira, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1987
Specialty in Diagnostic Radiology, University District Hospital (UPR) 1992
Fellowship in Body Imaging (CT, US, MRI), Hahnemann University Hospital, PA, 1995

Vázquez-Josué, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 2004
Specialty in Diagnostic Radiology, Massachusetts General Hospital, Boston, MA, 2009
Fellowship in Musculoskeletal Imaging, Massachusetts General Hospital, Boston, MA, 2010

Zalduondo, Fernando, M.D., Associate Professor
M.D., Columbia College of Physicians & Surgeons, 1989
Specialty in Diagnostic Radiology, St. Luke's Roosevelt Hospital Center, 1994
Fellowship in Neuroradiology, Duke University Medical Center, 1995

**Department of Surgery**

Aponte-López, Luis, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1986
Specialty in Surgery Brooklyn Hospital Center, 1991
Fellowship in Cardiovascular, Brooklyn Hospital Center, 1994

Arboleda-Osorio, Bolívar, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1983
Specialty in Surgery, University of Puerto Rico, University Hospital, 1988

Bibiloni, Juan J. M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1983
Specialty in Orthopedic Surgery, University District Hospital (UPR), 1984

Brau-Ramírez, Ricardo H., M.D., Professor
M.D., University of Puerto Rico, School of Medicine, 1975
Specialty in Neurological Surgery, University of Alabama at Birmingham, 1980

Calimano, Carlos, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1971
Specialty in Surgery, Henry Ford Hospital, Detroit, Michigan, 1976
Fellowship in Vascular Surgery, Henry Ford Hospital, Detroit, Michigan, 1977

Casanova-Rodríguez, Heriberto, M.D., Assistant Professor
M.D., Instituto Superior de Ciencias Médicas de la Habana, Cuba, 1986
Specialty in General Surgery, University of Puerto Rico, Medical Sciences Campus, 2016

Debs-Elías, Natalio, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1981
Specialty in General Surgery, Affiliated Hospitals University of Puerto Rico, 1986
Fellowship in Burns-Clinical & Research, Southern Illinois University, SOM, 1987
Fellowship in Hand Surgery, University of Connecticut Health Center, 1990

Dubocq, Francisco M., M.D., Assistant Professor
M.D., Universidad Autónoma de Guadalajara, Mexico, 1986
Specialty in General Surgery, University District Hospital (UPR) 1995
Fellowship in Urology, Stanford University Medical Center, 1996
Fellowship in Andrology, Wayne University Medical Center, 1997

Fontánez-Sullivan, Felipe, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1980
Specialty in Surgery, University District Hospital (UPR), 1985

García-Ruiz, Manuel, M.D., Associate Professor
M.D., Universidad Santiago de Compostela, Spain, 1974
Specialty in Orthopedic, University District Hospital (UPR), 1980
Fellowship in Pediatric Ortho & Scoliosis, 1981

Garratón-Martín, Miguel R., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1985
Specialty in General Surgery, University District Hospital (UPR), 1987
Fellowship in Otolaryngology (ENT), University District Hospital (UPR), 1991

Giráldez-Rodríguez, Laureano A., M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 2007
Specialty in Surgery, Head & Neck Surgery, University of Puerto Rico, School of Medicine, 2012
Fellowship in Laryngology, Emory University, 2013
Fellowship in Head & Neck Cancer and Microvascular Reconstructive Surgery, Mount Sinai, SOM, 2014

González-Stubbe, Eduardo F., M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 2010
Specialty in Ophthalmology, University of Puerto Rico, School of Medicine, 2015
Fellowship in Vitreoretinal Surgery, Louisiana State University Health Science Center

Guerrero, Andrés, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1985
Specialty in Surgery

Gutiérrez-Tabar, Cristella O., M.D., Assistant Professor
M.D., Universidad Autónoma de Santo Domingo, DR, 1961
Specialty in Anesthesiology, University District Hospital (UPR) 1970

Henn, Carmen, M.D., Associate Professor
M.D., Associate Professor, University of Puerto Rico, School of Medicine
Specialty in Surgery

Izquierdo, Natalio J., M.D., Associate Professor M.D., Ponce School of Medicine, 1986
Specialty in Ophthalmology, University District Hospital (UPR), 1991
Fellowship in Glaucoma and Anterior Segment Laser Surgery, Georgetown University Medical Center, 1993

Jiménez-Dávila, Christine, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 2009
Specialty in General Surgery, University District Hospital (UPR), 2014

Lastra-Power, Jorge J., M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1992
Specialty in Neurological Surgery, University of Puerto Rico, Affiliated Hospitals, 1994
Fellowship in Spine Surgery, The Cleveland Clinic Foundation, Cleveland, 2000

Lozada-Sierra, Rosa, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 2015
Specialty in Ophthalmology, University District Hospital (UPR), 2020

Luque-Fontánez, César, Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 2011
Specialty in General Surgery, University District Hospital (UPR), 2016

Lugo-Piazza, Edwin, M.D., Professor
M. D., Escuela de Medicina de Zaragoza, Spain
Specialty in General Surgery
Subspecialty in Neurological Surgery

Maeso, Andrés, M.D., Assistant Professor
M.D., Universidad de Madrid, Spain, 1957
Specialty in General Surgery, VA Hospital, PR, 1961
Subspecialty in ENT, Medical College of Virginia, 1966

Márquez-Sárraga, Erik, M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1982
Specialty in General Surgery, University District Hospital (UPR), 1988

Meléndez-Dedós, Andrés, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1989
Specialty in Anesthesiology, Georgetown University Medical Center, 1994
Fellowship in Pain Management, Harvard University Medical School, 1995

Mercado, Marcos A., M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1996
Specialty in General Surgery, University District Hospital (UPR), 1998
Specialty in Neurological Surgery, University District Hospital (UPR), 2003
Fellowship in Spine Surgery, University District Hospital (UPR), 2005

Miranda-Ramírez, Gabriel, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1989
Specialty in Urology, University District Hospital (UPR), 1994

Montañez-Falcón, Rufino, M.D., Assistant Professor
M.D., University of Zaragoza (Spain) 1975
Specialty in Orthopedic Surgery, University Hospital, 1984

Ortiz-Justiniano, Víctor N., M.D., Professor
M.D., University of Puerto Rico, School of Medicine, 1964
Specialty in Pediatric Surgery, Columbus Children's Hospital, 1978

O'Neill-Rivera, José G., M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1981
Specialty in General Surgery, University District Hospital (UPR), 1986
Fellowship in Cardiovascular and Thoracic Surgery, Newark Beth Israel Medical Center, 1992
Residency in Cardiovascular and Thoracic Surgery, Newark Beth Israel Medical Center, 1994

Otero-López, Antonio M., M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 2003
Specialty in Orthopedic Surgery, University District Hospital (UPR), 2008

Otero-López, Francisco J., M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 2000
Specialty in Orthopedic Surgery, University District Hospital (UPR), 2005
Fellowship in Arthroscopy & Sports Medicine, Orthopedic Research of Virginia, 2006

Perazza, Elizabeth, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1993
Specialty in Surgery

Pérez-De León, Emilio, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1983
Specialty in Surgery, University District Hospital (UPR), 1988

Ramírez-Lluch, Norman F., M.D., Professor
M.D., University of Puerto Rico, School of Medicine, 1988
Specialty in Orthopedic Surgery, University District Hospital, VA (UPR), 1994
Fellowship in Pediatric Orthopedics and Scoliosis, Texas Scottish Rite Hospital for Children, 1995

Ramírez-Tánchez, Carlos, M.D., Professor
M.D., Universidad Central del Caribe, 1995
Specialty in General Surgery, 2000

Ramos, Nestor W., M.D., Assistant Professor
M.D., San Andrés University, School of Medicine, Bolivia, 1965
Specialty in Surgery, University District Hospital (UPR), 1977
Fellowship in Pediatric Orthopedic, San Diego, California, 1987
Fellowship Orthoscopic Surgery, Hospital for Joint Diseases, NY, 1989

Ramos-Cruz, Alberto, M.D., Assistant Professor
M.D., University of Sevilla, Spain, 1980
Specialty in Orthopedic and Fracture Surgery, University District Hospital (UPR) 1986

Reyes-Delfaus, Reinaldo, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1993
Specialty in Surgery

Rivera-Berríos, Angel E., M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 2006
Specialty in General Surgery, University District Hospital (UPR), 2011
Residency in Plastic Surgery, Medical University of South Carolina, 2015

Riviere-William, Jean, Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 2002
Specialty in Surgery

Rivera-Castro, Angel, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1989
Specialty in Emergency Medicine, University of Puerto Rico, School of Medicine, 1992
Specialty in Ophthalmology, University of Puerto Rico, School of Medicine, 1995

Rivera-Cruz, Fernando, M.D., Assistant Professor
M.D., University of Puerto Rico Hospital, 1997
Specialty in General Surgery, University of Puerto Rico Hospital, 2003

Rodríguez-Vázquez, Eduardo, M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1980
Specialty in General Surgery, University District Hospital (UPR), 1987
Fellowship in Hand Surgery, Harford Medical Program, Connecticut, 1998

Rosario-Mendoza, Ricardo, M.D., Assistant Professor
M.D., Universidad Complutense de Madrid (Spain),1974
Specialty in General Surgery, University District Hospital (UPR), 1980

Rullán, Pedro, M.D. Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1981
Specialty in Surgery

Sánchez-Arniella, Alexis, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1999
Specialty in General Surgery, University District Hospital (UPR), 2004

Sánchez-Caso, Luis Pio, M.D., Associate Professor
M.D. Universidad Central del Caribe, School of Medicine, 1990
Specialty in Orthopedics, University of Puerto Rico Affiliated Hospital, 1997
Fellowship in Spine-Scoliosis, The New York Hospital-Cornell Medical Center and Memorial Sloan-Kettering Cancer Center, NY, 1998

Sánchez-García, Miguel, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1984
Specialty in Ophthalmology, University of Puerto Rico, School of Medicine, 1988

Santiago-Delpin, Eduardo A., M.D., Professor
M.D., University of Puerto Rico, School of Medicine, 1965
Specialty in General Surgery, University District Hospital (UPR), 1970
Post-Graduate: Transplantation Surgery, University of Minnesota, 1972
Fellowship in Cancer, University District Hospital (UPR)
Special Research Fellow, National Institutes of Health, University of Minnesota, 1972

Santiago, Norma, M.D., Assistant Professor
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Sepúlveda-Abreu, Ramón, M.D., Assistant Professor
M.D., Universidad Santiago de Compostela, Spain, 1975 Specialty in Surgery

Soler-Salas, Antonio H., M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1983
Specialty in Orthopedic, San Juan City Hospital, 1988
Fellowship in Sport Medicine, Temple University, Philadelphia, 1989

Soltero-Venegas, M.D., J.D., Associate Professor
M.D., University of Puerto Rico School of Medicine, 1985
Specialty in Surgery, University District Hospital –Veterans Administration Med Center (UPR), 1990
J.D., University of Puerto Rico, Law School, 2011

Sorrentino, José, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1986 Specialty in Surgery

Sotomayor-Ramírez, Ramón, M.D., Assistant Professor
M.D., University of Puerto Rico, School of Medicine, 1989 Specialty in Surgery

Suárez-Pesante, Juan R., M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1988
Specialty in Orthopedic Surgery, University District Hospital (UPR), 1994
Fellowship in Orthopedic Sports Medicine, Houghton Sports Medicine Hospital, Georgia, 1995

Tort-Saadé, Pedro, M.D., Associate Professor
M.D., Universidad Central del Caribe, School of Medicine, 1998
Fellowship in Minimally Invasive Knee and Hip Replacement, Rush University Medical Center, Chicago, IL. 2005

Valentín-González, Leonardo I, M.D., Assistant Professor
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Specialty in General Surgery, San Juan City Hospital, University District Hospital, 1986

Valentín-Pérez, Leonardo I., M.D., Assistant Professor
M.D., Ponce School of Medicine, PR., 2010
Specialty in Diagnostic & Interventional Radiology, Baylor College of Medicine, Houston, TX 2016
Fellowship in Vascular & Interventional Radiology. Massachusetts General Hospital, Boston, MA, 2017

Vargas-Ramos, Irma, M.D., Assistant Professor
M.D., San Juan Bautista, School of Medicine, 1989
Specialty in Anesthesiology, St. Vincent's Hospital, NY, 1994

Vélez-Cubián, Frank O., M.D., Assistant Professor
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Specialty in General Surgery, University of South Florida, Morsani School of Medicine, 2018

## Biomedical Science Graduate Faculty

Carrasquillo, Yarimar, PhD. Assistant Professor Ad Honorem
PhD in Neuroscience, Baylor College of Medicine, Houston TX, 2005

### Department of Anatomy

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Ph.D, University of Puerto Rico, School of Medicine, 1984
MS, University of Puerto Rico, 1970

Oliver-Sostre, José L., D.M.D., Associate Professor and Assistant Dean of Students Affairs
D.M.D., University of Puerto Rico, School of Medicine, 2002

Ortiz Colón, Ana I, Ph.D., Assistant Professor
Ph.D, University of Puerto Rico, Medical Sciences Campus, 2016
Specialty in Anatomy Neuro-environmental

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## Department of Biochemistry

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Ph.D., Wroclaw Medical University, Porland, 1978

Hann, Richard, M.D., Professoris Eminentis
M.D., University of Oklahoma College of Medicine, 1974

Kucheryavykh, Yuriy V, Ph.D, Associate Professor
Ph.D, Saint Petersburg State University, St. Petersburg, Russia, 2003

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Martínez, Michelle M., Ph.D, Associate Professor
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MS, University of Puerto Rico, Mayagüez Campus, 2001

Méndez-González, Miguel P.D., Ph.D., Assistant Professor
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Rivera-Aponte, David E., Ph.D., Assistant Professor
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Skatchkov, Serguei, Ph.D, Professor (Dual appointment in Physiology)
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M.P.H., Leningrad State University, Russia, 1979

Suárez-Arroyo, Ivette J., Ph.D., Assistant Professor
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Ph.D, Tufts University, Boston, 1998
MS, Tufts University, Boston, 1995

## Department of Microbiology and Immunology

Alves, Janaina, Ph.D, Assistant Professor
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Post Doc., Molecular Biology/Biochemistry, Universidad Central del Caribe, School of Medicine, 2011

Alvarez, Eduardo, Ph.D, Assistant Professor
Ph.D., Universidad Central del Caribe, School of Medicine, Bayamón, PR, 2023

Boukli, Nawal, Ph.D, Associate Professor
Ph.D, University of Missouri, 1999

Espino, Ana M., Ph.D, Assistant Professor
Ph.D, Instituto de Medicina Tropical, Cuba, 1997

Ríos, Zilka, MS, Professor and Associate Dean for Academic Affairs of Medicine
MS, University of Puerto Rico, School of Medicine, 1978

Valentín-Acevedo, Aníbal J., Ph.D., Assistant Professor
Ph.D, Molecular Immunology, Rutgers, The State University of New Jersey, 2011
Certificate in Pharmaceutical and Clinical Trials Management, Rutgers, The State University of New Jersey, 2012

## Department of Neuroscience

Baccin-Martins, Antonio Henrique,
PhD, Assistant Professor
Ph.D, Federal University of Sao Paulo, 2006

Ferrer-Acosta, Yancy, Ph.D, Assistant Professor and Acting Chairperson
Ph.D in Biology, University of Puerto Rico, Medical Sciences Campus, 2013

Martinez, Solianne, Assistant Professor
Ph.D., Universidad Central del Caribe, School of Medicine, Bayamón, PR, 2022

Sabeva, Nadezhda, Ph.D., Assistant Professor
Ph.D, Pharmaceutical Sciences, University of Kentucky, Lexington, KY, 2011

Schikorski, Thomas,
Ph.D, Associate Professor (Dual appointment in Anatomy)
Ph.D, in Zoology/Neuroscience, Johann-Wolfgang-Goethe University, Frankfurt, Germany,
Postdoctoral in Neuroscience, The Salk Institute, San Diego, CA, 2000

## Department of Pathology

Bonilla de Franceschini, Angelisa, M.D., Associate Professor & Chairperson
M.D. Universidad Central del Caribe, School of Medicine, 1981
Specialty in Pathology, University of Alabama Hospital at Birmingham, 1985

Conte-Miller, María S., M.D. J.D., Associate Professor
M.D., Universidad Católica Madre y Maestra, School of Medicine, 1982
Specialty in Pathology, University of Puerto Rico, Medical Science Campus, 1988
Fellowship in Forensic Pathology, University of Miami, School of Medicine, 1989
Juris Doctor, Interamerican University of Puerto Rico, 1995

Rodríguez-Ortiz, Eveneida, MEd, Instructor
MEd, in Teaching and Curriculum in Science, Universidad del Turabo, Caguas, PR, 2014
MSc, Environmental Sciences, Universidad del Turabo, Caguas, PR, 2015

Silvestrini, Isis, M.D., Associate Professor
M.D., University of Puerto Rico, School of Medicine, 1985
Specialty in Pathology, University District Hospital (UPR), 1989

Simons-García, José A., M.D., Assistant Professor
M.D., Universidad Central del Caribe, School of Medicine, 1987
Specialty in Pathology, University Hospital (UPR), 1992

## Department of Pharmacology

Salgado-Villanueva, Iris K., Ph.D, Assistant Professor
Ph.D. in Physiology, University of Puerto Rico, Medical Sciences Campus

Silva, Walter, Ph.D, Associate Professor
Ph.D, Mount Sinai School of Medicine, CUNY, 1986

Torres-Cruz, José L., Ph.D, Associate Professor
Ph.D, University of Puerto Rico, School of Medicine, 2011
M.S in Science, University of Puerto Rico, School of Medicine, 1976

## Department of Physiology

Escalona-Motta, Gladys, Ph.D, Professor
Ph.D, University of Puerto Rico, 1977

Hendricks, Timothy, Ph.D, Associate Professor
Ph.D in Neuroscience, Case Western Reserve University, 2003

Holmgren, Miguel, Ph.D, Assistant Professor
Ph.D, Physiology and Biophysics, Finch University of Health Sciences, Chicago, ILL, 1994

Inyushin, Mikhail Y., Ph.D, Assistant Professor
Ph.D, Leningrad State University, 1986

Noriega, Ángel, M.D., Associate Professor
M.D., Universidad Autónoma de Santo Domingo, 1968
Specialty in Neurology, University Hospital, 1973
Fellowship in Electroencephalography, Indiana University, 1975

Rivera, Amelia, Ph.D, Professor
Ph.D, University of Puerto Rico, 1982

Rojas, Legier, Ph.D, Professor
Ph.D, University of Puerto Rico, Medical Sciences Campus, 1987

Sanabria, Priscila, Ph.D, Professor and Chairperson
Ph.D, University of Puerto Rico, Medical Sciences Campus, 1986

Zueva, Lidia Vladimirovna, Ph.D, Assistant Professor
Ph.D in Biology Sciences, Russian Academy of Sciences, St Petersburg, Russia, 1982

## Doctor of Chiropractic Program Faculty

Abella, Richardo, DC, Assistant Professor
DC, Palmer College of Chiropractic, 2011
Specialty in Sports Chiropractic, CCSP

Bigas-Morales, Frances M., DC, Assistant Professor
DC, New York Chiropractic College
Post doctorate in MUA, Sports physician, Chiropractic pediatrics

Bonilla, Fernanda, DC, Assistant Professor
DC, Universidad Central del Caribe, 2022
Certificate in Webster Technique

Bonilla, Jennifer, D.C., Assistant Professor
DC, Palmer College of Chiropractic (Florida), 2019

Carmichael, Joel, D.C., PhD, Associate Professor
DC, Logan University, 1985
Diplomate of the American Chiropractic Board of Sports Physicians (DACBSP)
PhD in Clinical Science, University of Colorado School of Medicine

Crespo Nazario, Lyliana, D.H.Sc., Assistant Professor
D.H.Sc. Bridgerton University Doctor of Health Science, 2021
MAES, Metropolitan University, 2012

Crespo Rivera, Waleska, DrPH, MHSA, Professor
DrPH, Medical Sciences Campus, UPR, 2017
MHSA, Medical Sciences Campus, UPR, 2000

Colón-Ramos, Janairis, D.C. Assistant Professor
DC, Life University, 2020
Postgraduate certificates, pediatric and perinatal care

Colón-Romero, Karla M.S., EdD, Instructor
EdD, Instructional Technology & Distance Education Nova Southeastern University, 2021
MS, Evaluative Research in Health Service, University of Puerto Rico, Graduate School of Public Health, 2012

Concepción-Betances, Indhira G., DC. Assistant Professor
MS in Nutrition, 2020-present
DC, Life University 2018

Dávila-Toro, Francisco, MD, Assistant Professor
Forensic Sciences Fellow, Institue of Forensic Sciences of PR., 2003-2004
Clinical Chemistry Fellow, Mayo Clinic, Rocherter, Minnesota USA, 1993-1994
Anatomical and Clinical Pathology, Medical Sciences Campus, University of Puerto Rico, 1989-1993
MD, Universidad Central del Caribe 1988

Dueño-Berrios, María E. DC. Assistant Professor
DC, Southern University of Health Sciences, 2001

García-Carballo, María E. DC. Assistant Professor
DC, Universidad Central del Caribe 2023

García-Osorio, Martha E., M.D., Associate Professor
M.D., Universidad Pontificia Bolivariana de Antioquia, Medellín, Colombia SA., 1992
MHSA, Public Health School of Health State Department, Medellin, Colombia SA., 1994
MSc in Immunology, Universidad de Antioquia, School of Medicine, Colombia SA., 1998

Halverson Jake, Assistant Professor
DC, Palmer College of Chiropractic-West 2018
Medical Assistant, Jordan Applied Technology Center 2010
Clinical Dental Assistant, Jordan Applied Technology Center 2009

Lasanta-Ortiz, Paola Z. DC. Assistant Professor
DC, Universidad Central del Caribe 2022

Lozada-Sierra, José J. DC. Assistant Professor
DC, Universidad Central del Caribe 2022

Malpica-Nieves, Christian J. PhD Assistant Professor
PHD, Universidad Central del Caribe, 2021

Ortiz-Aponte, Noelia DC Assistant Professor
MA, Possitive Psichology, Life University, Marrietta GA, 2017
DC, Life University, Marrieta, GA, 2016
MBA, Business Administration, Interamerican University, 2011
Professional Certificate: Health Care Risk Management, Ineramerican University, 2011

Paniagua-Castro, Virgilio, DC. Assistant Professor
DC, Texas Chiropractic College, Pasadena, TX, 2006

Pedroza-Diaz, Alexandra DC. Assistant Professor
DC, Life University, Marrieta, GA, 2014
Ceritified Functional Diagnostic Medicine Practitioner, 2016

Piñeyro-Ruiz, Coriness, PhD., Assistant Professor
PhD, Medical Sciences Campus University of Puerto Rico 2020
MS, Master in Sciences, Anatomy, Medical Sciences Campus, University of Puerto Rico, 2015

Quidgley-Nevares José A. PhD., Associate Professor
PhD, Medical Sciences Campus University of Puerto Rico, 2014
MS, Pharmacology, Medical Sciences Campus University of Puerto Rico, 2005

Rios Pelati, Myrangelisse, MD
MD, Universidad Central del Caribe, 2004
Specialty, Psychiatry

Rivera-Ortíz, Edgar, DC. Assistant Professor
DC, Parker University, 2009
MBA Phoenix University, 2005

Rivera Martinez, Edgardo, MD
MD, Veracruzana University, School of Medicine, 1978

Rolón-Reyes, Kimberleve, Ph.D., Assistant Professor and Associate Director of Academic Affairs and Basic Scieence
Ph.D. in Cellular and Molecular Biology, Universidad Central del Caribe, 2016
MHA, Masters in Health Administration, University of Phoenix, Phoenix, AZ, 2024

Román-Guzmán, Ibis M., DC. Assistant Professor
DC, Life University, Marietta, GA, 2017
MS, Environmental Risk Management and Assessment, Universidad Ana G. Méndez, 2010

Santiago-Román, Jaime, Ph.D., MBA, Assistant Professor
Ph.D. in Business Administration, Northcentral University, Prescott Valley, AZ, 2013
MBA, University of Phoenix, Guaynabo Campus, Guaynabo, PR, 2005

Serrano-Alvarez, Miguel, DC, Assistant Professor
DC, New York Chiropractic College, 2005

Soto-González, Vilmarie, DC, Assistant Professor
DC, Life University, Marietta, GA, 2016

Torres-Claudio, José O. DC, Assistant Professor
DC, Parker University, Dallas, TX, 2021
Masters in Clinical Neuroscience, Parker University Dallas, TX, 2023

Vazquez Raul M. DC, Assistant Professor
DC, Logan University, Chesterfield, MO, 2021

Ventura-Guzmán, Erica, DC. Assistant Professor
DC, Universidad Central del Caribe, 2022

Villafañe, Federico E., DC, Assistant Professor
DC, Southern California University of Health Sciences, 2014
Residency in Diagnostic Imaging, Logan University, 2017
Fellowship in Diagnostic Imaging, 2018

Villamil Catalina I., PhD. Assistant Professor
PhD, Biological Anthropology, New York University, 2017
MS, Physical Anthropology, University of Pennsylvania, 2011

Wiles, Michael, DC, Med, MS, EdD, FCCS(C), FICC, FRCC, Professor
EdD, University of Liverpool, UK, 2019
MS, Medical Education Leadership, University of New England, College of Osteopathic Medicine, Portland, ME 2010
MEd, Brock University, St. Cathariness, Ontario, Canada, 1983
CertCCS, Certificate, Chiropractic Clinical Specialist, Canadian Memorial Chiropractic College, Toronto, Ontario, Canada, 1978
DC, Canadian Memorial Chiropractic College, Toronto, Ontario, Canada, 1976

## Substance Abuse Counseling Faculty

Alemán Rodríguez, Gilberto, MHS, Instructor
MHSAC, Universidad Central del Caribe, School of Medicine, 2016

Cabán-Ruiz, Michelle A., Ph.D., Assistant Professor
Ph.D. Clinical Psychology, University of Puerto Rico, 2022

Cancel-Guerra, Javier, E., Ph.D., Assistant Professor
Ph.D. in Clinical Psychology, Interamerican University of PR, 2014

Colón-Rosario, Fabiola, M., MHS, Instructor
MHSAC, Universidad Central del Caribe, 2021

Díaz-Rodríguez, Nereida, Ph.D, Associate Professor and Dean of Academic Affairs
Ph.D, University of Puerto Rico, 1997
Clinical Psychology Internship, Bellevue Hospital-NYU Medical Center, 1989
MA, University of Puerto Rico, 1986

Feliberty, Evelyn, Ed,Dc, Assistant Professor
Ed.Dc., Interamerican University of P.R., At Present
MA, University of Puerto Rico, 1991

Galán-Colón, Charlinet, MHS, Instructor
MHSAC, Universidad Central del Caribe, 2016

Lespier-Torres, Zahira, Psy.D. Assistant Professor
Psy.D, Caribbean Center for Advanced Studies in Psychology, San Juan, PR, 1996

Justiniano-Burgos, Emily, MHS, Instructor
MHSAC, Universidad Central del Caribe, 2015

Maldonado-Ríos, Gertrudis, Ph.D, Assistant Professor
Ph.D, University of Puerto Rico, School of Medicine, 1997

Marrero-Pagán, Yari, MHS, Instructor
MHS, Universidad Central del Caribe, School of Medicine

Marrero-Rodríguez, Carmen Amalia, Ed.D, Associate Professor
Ed.D, University of Puerto Rico, Rio Piedras Campus, 2013
MPH, University of Puerto Rico, Medical Sciences Campus, 1989

Miranda-Jiménez, Lisa A., Psy.D, Assistant Professor
Pontifical Catholic University, Ponce, PR, 2008

Quidgley-Nevárez, José A., Ph.D., Associate Professor
Ph.D, Medical Physiology, University of Puerto Rico, 2014
MS, Pharmacology, University of Puerto Rico, 2005

Quiñones-Berríos, Areliz, Ed.D, Instructor
Ed.D., Interamerican University, 2007
MSH, Universidad Central del Caribe, School of Medicine, 1999

Ramos Vargas, Luz N., Ph.D, Assistant Professor and Dean of Health Sciences and Technology
Ph.D, Clinical Psychology, Ponce School of Medicine, 2013
MHSAC, Universidad Central del Caribe, 2008

Reyes-Pulliza, Juan Carlos, Ph.D Assistant Professor
Ed.D University of Puerto Rico, 2003
MS, University of Puerto Rico, 1990

## Medical Images Technology Faculty

Bermúdez, Carlos, MA, Instructor
MA, Río Piedras Campus, University of Puerto Rico, 1978

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EdD. Nova Southeastern University, 2021
MS. Medical Science Campus, University of Puerto Rico, 2012

Colón Aquino Jahayra, MEd, Instructor
MEd., Caribbean University, 2022

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MPH Public Health School, Medical Science Campus, University of Puerto Rico
BsHS, College of Health Allied Professions, Medical Science Campus, UPR
TR, University Regional Hospital of Puerto Rico

Fernández-Mora, Rosa Marina, TR, MPH; Instructor
MPH, Public Health School, Medical Science Campus, UPR, 1986
BsHS, College of Health Allied Professions, Medical Science Campus UPR, 1984
ASRT, Collage of Health Allied Professions, UPR, 1983

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Post Associate Certificate in Mammography, UCC, 2021
BSDI, Universidad Central del Caribe, 2022

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MS Naturopathic, EDP University
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MHSA in Colegio Universitario del Este 2016
BSN in Interamerican University 2006
RT in Universidad Central del Caribe, 2003

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MHS, Substance Abuse Counseling, UCC, 2015
Phd. Clinical Vascular Sonography, Cambridge University, 2022

Morales-Torres, Minerva, MS, Instructor
MS, in Counseling, Universidad Central de Bayamón, 2001

Moscoso-Álvarez, José Rafael, TR, BSc, MPH, EdD, Professor
EdD, Río Piedras Campus, University of Puerto Rico (UPR), 2005
MPH, School of Public Health, Medical Science Campus, UPR, 1985
BSc, Río Piedras Campus, UPR, 1979
ADRT, College of Allied Health Professions, Medical Science Campus, 1978

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PhD. Mathematics, Washington University, St Louis, 2020
BS. Mathematics, UPR Cayey PR 2014

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MS in Education, Inter American University, 1984

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BS RT Interamerican University , Barranquitas PR 2011
Certificado CTscan MRI Universidad Central Caribe 2012

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MPH, Public Health School, Medical Science Campus, University of Puerto Rico, 2003
BS in Biology, Rio Piedras Campus, University of Puerto Rico, 1990
AS, Universidad Central del Caribe, 1992

Piñeyro-Ruiz, Coriness, Ph.D., Assistant Professor
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CIS, Universidad de Puerto Rico, Rio Piedras Campus, 2003
MA Library Sciences, Universidad de Puerto Rico, Rio Piedras Campus, 1986
MA Hispanic Civilization, University of California at Santa Barbara, 1982
BA in Economics, Universidad de Puerto Rico, Rio Piedras Campus, 1977

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MPH, School of Public Health, Medical Science Campus, UPR, 1999
RT(R), Universidad Central del Caribe, School of Medicine, 1993
BS in Biology University of Puerto Rico, Rio Piedras Campus, 1991

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BSDI, Universidad Central del Caribe, 2020

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MS in Demography, Universidad de Puerto Rico, Medical Science Campus: 1995
BA in Education (Mathematics), Universidad de Puerto Rico, Rio Piedras Campus, 1989

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BHS in Public Health School, Medical Science Campus, UPR 1992
Associate Grade in Sonography, Colegio Universitario del Este, 1990