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# UNIVERSIDAD CENTRAL DEL CARIBE

## CATALOG 2010 – 2015

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## **AFFIRMATIVE ACTION STATEMENT**

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Universidad Central del Caribe (UCC) recognizes the right of all persons to work and to advance on the basis of their merit, ability and potential, and is therefore committed to taking any and all steps necessary to identify and alter policies, practices, or other institutional barriers which cause or perpetuate inequality or discrimination. It is the policy of this University to recruit, employ, and promote staff and to admit and serve students without regard to race, color, religion, sex, age, national and social origin, or handicap status.

Correspondence and General Mail:

UNIVERSIDAD CENTRAL DEL CARIBE  
P.O. BOX 60327  
BAYAMON, PR 00960-6032

NOTE: 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, fees, policies, academic requirements, regulations, programs, and other subjects, after its publication date.

UCC Switchboard Telephone Number: (787) 798-3001

UCC Web page: [www.uccaribe.edu](http://www.uccaribe.edu)

*Date of Revision: December 20, 2011*

## MESSAGE FROM THE PRESIDENT

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Our University reaffirms its commitment to excellence in the formation of health professionals who will serve humanity with dedication and compassion and the highest ethical and moral standards.

Through its academic programs in medicine, substance abuse counseling, biomedical sciences and technological radiology and medical images, our institution has served our community for over thirty years. UCC has contributed to the enrichment of knowledge with an energetic research program 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 UCC. With the most advanced educational technology and innovations, UCC will better serve our students and enable them to reach their maximum potential. Our progress reflects the visionary efforts of dedicated faculty, 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 UCC has to offer as Puerto Rico's Private Health Sciences University, now, and in the bright future ahead of us.



José Ginel Rodríguez-Irizarry, MD. FAAP  
President

## **GOVERNANCE AND ADMINISTRATION**

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An eleven-member Board of Trustees outlines the general policies and supervises the operations of the University. 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 approved by the Board, upon the recommendation of the president, after consultation with the deans and faculty.

The Dean of Academic Affairs is the University's Chief Academic Officer. The 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 School of Medicine is divided into Basic Science and Clinical Departments, and their chairs report directly to the Dean of Medicine. The Director of the Graduate Program in Biomedical Sciences also responds to the Dean of Medicine. The Certificate in Substance Abuse Counseling and the Master of Health Sciences in Substance Abuse Counseling programs have a Program Director. The Medical Imaging Technology Program, including the specialties of Diagnostic Medical Sonography, Mammography, Computerized Tomography, Magnetic Resonance, Associate degree in Technological Radiology, and a Bachelor's of Science degree in Medical Imaging have a Program Director who reports to the Dean of Academic Affairs.

### **TRUSTEES 2010-2015**

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# ADMINISTRATION OF THE UNIVERSITY

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**José Ginel Rodríguez, MD, FAAP**  
**President and Dean of Medicine**

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Legal Counselor

Yvonne Corsino  
Director, Office of Institutional Development

**Dr. Nereida Díaz-Rodríguez, PhD**  
**Dean of Academic Affairs**

Legier Rojas, PhD  
Director, Learning and Information Resources Center

C. Amalia Marrero, MPH  
Director, Office of Institutional Effectiveness

Elsa Gilbes, MA  
Coordinator, Office of Curriculum and Faculty Development

Nilda Montañez-López, MPH  
Registrar

**Emilia Soto, MSHA**  
**Dean of Administrative Affairs**

Iris Font, BA  
Director, Financial Resources Department

Lourdes Bonilla, MBA  
Sub-Director, Financial Resources Department

María Rivera, MPA  
Director, Office of Human Resources

**Omar Pérez Del Pilar, PhD**  
**Dean of Admissions and Student Affairs**

Irma Cordero, BA  
Director, Admissions Office

Lisandra Viera, MEd  
Director, Financial Aid Office

Yari M. Marrero, MHS  
Guidance Counselor

Minerva Morales, MOC  
Guidance Counselor

## GENERAL INFORMATION

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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 M.D. degree, and the Radiologic Technology Program.

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

The UCC is duly authorized by the Council on Higher Education of Puerto Rico (CHEPR) and accredited by the Middle States Commission on Higher Education (MSCHE). Their review process requires survey visits every five years. The first visit by MSCHE took place in May 2003 resulting in full initial accreditation for five years. The next self-study evaluation is scheduled for academic year 2018-2019.

The program leading to the M.D. holds full accreditation from the Liaison Committee on Medical Education (LCME). As of June 2011, the Medical School has graduated 2201 physicians serving the Commonwealth of Puerto Rico and Hispanic communities in the United States. The School of Medicine houses a Graduate Program in the Biomedical Sciences that initiated in 1989. In 2009, Graduate Program expanded to confer a PhD in Cellular and Molecular Biology and subsequently in 2011, a PhD and a MS in Neurosciences were initiated.

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 Medical Imaging Technology Program (formerly the Radiologic Technology Program) holds full accreditation from the Joint Review Committee on Education in Radiologic Technology. This Program has awarded 1447 degrees from its inception to June, 2011.

As part of the undergraduate education programs, UCC also offers, since 1993, the Post-Associate Degree Certificate in Diagnostic Medical Sonography; since 2000, the Post Associate Degree Certificate in Mammography, and the Post Associate Degree Certificates in Computerized Tomography and in Magnetic Resonance, which were initiated in 2002. The latest undergraduate program, Bachelor in Sciences in Diagnostic Imaging, started in August 2006.

## **MISSION OF THE UNIVERSIDAD CENTRAL DEL CARIBE**

To prepare high-quality and committed health professionals 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. It is characterized by its emphasis on the excellence of its educational programs, research activities and services of health maintenance, prevention, and early detection of illness. It is committed to improving the quality of life of the Puerto Rican community through its services, as well as to developing health care professionals.

### **Core Competencies**

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

1. The fundamental concepts, principles and basic information deemed necessary in their field of specialization.
2. The particular 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.

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

### **LOCATION**

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Bayamón is one of the most important urban centers in Puerto Rico. Nearly 234,000 people live in this, the second largest city of Puerto Rico.

Bayamón is located at the north 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, permitting rapid movement of people and merchandise. This element helps facilitate the commercial, industrial and tourist activity expansion.

The commercial development resulting from the urban growth during the last twenty 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 seven higher education centers and a number of junior colleges and vocational schools.

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## **THE UCC CAMPUS AND ITS FACILITIES**

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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 another structure which houses administrative offices for the School of Medicine, 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 Office of Laboratory Animal Welfare accreditation. Classrooms, teaching laboratories for all academic programs and the Learning and Information Resources Center are also housed within this modern building.

## **LEARNING AND INFORMATION RESOURCES CENTER**

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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. Carrion Pacheco Library, Continuing and Distance Education Unit; Technological Resources Unit, and the Information Systems and Telecommunications Unit. Orientations, consultation and professional development activities are continuously delivered to keep UCC constituents at the forefront in 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 in which the UCC deploy information and, give technical support to students, faculty, researchers, administrators, non-teaching personnel and the community in general. The LIRC is in charge of the electronic communication, Internet, electronic mail, the library and other resources and services highly important to maintain the educational high level achieved in the academic programs running in the UCC. The LIRC have incorporated new methods of interaction with our community based in the trends in the online and offline exchanges between teachers and learners and also have improved the interactions along our community by using alternatively the "Cloud Computing". The 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 new dimension into our learning resources.

The Arturo L. Carrión Pacheco Library is located in first and second floor section of the Basic Sciences Building and provides traditional and online services. In the second floor, the Dr. Salvador Arana Soto' room, is dedicated to Puerto Rican authors; and this room serves as a conference meeting onsite, with support for web conference with capacity of 30 users. The Library has general journal collections, the reserve and reference collection, the current year's serials, research journals, bound serials and warranty the retrieve to any specific journal by the "LoansomeDocs" via "PubMed". Electronic journals and books currently available accessed in the UCC or via RAS are: National Library of Medicine and PubMed services, ScienceDirect, Micromedex, EBSCOhost Electronic Journals Service and EBSCOhost Research Databases, GLAS Web OPAC (UCC Electronic Catalog) and OVID Electronic Books.

Interlibrary loans are provided via Fax and Docline. The library holds agreements for this type of service with libraries in Puerto Rico and off the island. All bibliographical material requested through this system takes a maximum of three (3) working days and, in special cases, no more than eight hours to be processed. The counter service is available during the library hours indicated below.

Complementing the aforementioned services several group study rooms, (small group study rooms) and individual computer working stations and additional individual study space are located are available on the first and second floor.

The Educational Technology & Distance Education Unit provides support for instructional design and development for classroom activities, online courses (distance education) and online exams using LXR® with the collaboration of the Technology Resources Unit. This Unit also provides support to the Continuing Education Program by the design and development of online short courses and training resources under the Moodle-LMS platform. The access and support to Blackboard® and the collection of online distance education courses are maintained by this Unit. The computer laboratory hardware and software is also controlled and maintained by this Unit.

The Technology Resources Unit Services (TRUS) is in charge of the circulation and loan of equipment, media production and audiovisual services, and computer facilities, including a computer in the classrooms and other academic activities, also is in charge of the preparation of instructional materials, presentations, reports, spreadsheets, information search, technology training. The UCC' website elaboration and maintenance is in charge of this Unit, including its guideline production, and the instructional guides to users in charge departmental of pages. This Unit is responsible for the use and implementation of classroom response system. This Unit also makes the postproduction of video conferences by editing and the required post processing to have the video conferences available to any user. The TRUS designs and produces poster to its final elaboration. The online video conference production using cloud alternatives such as WizIQ is also put in place by this Unit.

The Information System and Telecommunication Unit (ISTU) serves the needs of the university community through the support and on-going maintenance of the network, servers, computers and laptops 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, WiFi, IP phones. The implementation of several projects to integrate new technological advances to the UCC infrastructure both hardware and software responds to the ISTU. One example is the implementation of the VIVO project; a National Research Network (NRN) that was generated to produce the most timely and cost effective manner via the collection of Expert Profiling as a high efficient solution.

The 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.

Library Hours:

Monday to Thursday ..... 7:00 am - 11:00 pm  
Friday ..... 7:00 am - 10:00 pm  
Saturday and Sunday ..... 12:00 pm - 7:30\* pm  
Holidays ..... CLOSED

\*Every Sunday (prior to a scheduled examination on Mondays) the Library hours extend to 10:00pm.

All other units within the LIRC have the following working hours:

Monday to Friday	8:00 am - 5:00 pm
Friday	8:00 am - 4:30 pm
Saturday and Sunday	CLOSED
Holidays	CLOSED

## **STUDENT SERVICES**

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### **STUDENT HEALTH SERVICES**

It is mandatory for every student to carry health insurance coverage. Any student without a private health insurance is required to subscribe to the Institutional Health Insurance Plan through the Office of the Dean of Admissions and Student Affairs. Students are encouraged to use this service in the most cost-effective manner. The student who has subscribed to the Institutional Health Insurance Plan may visit the physician, laboratory, or any health care service of his/her choice in accordance to the insurer policies. Minor or mayor emergencies are channeled through the closest Emergency Room accessible to the student. The coverage is also available for family dependents. The cost of the Health Insurance could vary every year depending on the type of insurance and on the analysis of the Insurance Provider. The coverage includes Dental and Pharmacy.

### **COUNSELING PROGRAM**

Counseling services are available through the Dean for Admissions and Student Affairs. The Counseling Program is aimed at assisting students to take maximum advantage of the educational opportunities at the Universidad Central del Caribe, and to contribute to their success in their future professional goals. Students are referred to other specialized counseling and mental health services as needed.

### **STUDENT TUTORIAL PROGRAM**

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

### **ORIENTATION ACTIVITIES FOR ENTERING STUDENTS**

The UCC offers orientation workshops and activities to the entering freshman class in the summer before the beginning of the academic year. Workshops on how to improve study habits, develop better attitudes towards and deal with stressful situations are conducted. Registration occurs at a scheduled time during these activities period. 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, CPR course, among others. The main goal is to assist the incoming student with the adaptation to the academic demand and rigors.

## **PARKING**

Parking is a privilege provided to all students in specific areas of the Institution. This service grants access to the designated parking area. The student must present all required pertinent documents and must agree to fulfill all institutional regulations. In order to maintain a secure campus, students are encouraged to move their vehicles closer to the main building after 6:00pm.

## **EXTRACURRICULAR ACTIVITIES PROGRAM**

Universidad Central del Caribe believes that students should be encouraged to develop an interest towards culture and the arts. With this principle in mind, the Office of the Dean for Admissions and Student Affairs sponsors educational, social, cultural and prevention activities for the student body. Every Thursday from 12:00pm to 2:00pm, 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, 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.

## **HOUSING AND CAFETERIA FACILITIES**

Housing facilities are not available within the Universidad Central del Caribe premises. Students who may need housing facilities are encouraged to visit the vicinity adjacent to the UCC where numerous apartments are available for rent.

A food-stand concessionaire service is located at the Universidad Central del Caribe backyard. There are fast food restaurants in the vicinity of the Institution.

## **STUDENT ORGANIZATIONS**

The official body representing students at Universidad Central del Caribe is the General Student 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 American Student Medical Association (AMSA), the Medical Student Section of the American Medical Association, and an Alpha Omega Alpha chapter. There are also a variety of interest groups related to community services and specialties (Pediatrics, Surgery, Neurology, etc.).

## **STUDENT LOUNGE**

A space for relaxation and for student fraternization is available. A section of the student lounge is prepared with exercise equipment.

# ADMISSIONS OFFICE

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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 with institutional and federal regulations.

## GENERAL REQUIREMENTS

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

1. File an application with the Office of Admissions within the required time limit for all programs except for first year medical degree applicants (only AMCAS is required through [www.aamc.org](http://www.aamc.org)). The Institutional Application form can be obtained by writing to:

Universidad Central del Caribe  
Office of Admission  
PO Box 60327  
Bayamón, PR 00960-6032

2. Have and submit the necessary official transcripts, grades or certifications from accredited Institutions as requested per program.
3. Take and submit the official scores of the corresponding test according to the selected program.
4. Have the minimum admission index established by the Admissions Committee according to the selected program.
5. Pay the applicable non-refundable application fee.
6. Submit the reference letters according to the program.
7. A personal interview is required prior to consideration for admission with members of the faculty (by invitation only).
8. Applicants must demonstrate proficiency in both Spanish and English. This is essential, since lectures are conducted in either language, even though Spanish is the predominant language of the Institution. Furthermore, the required clinical experience is mainly with Spanish speaking people.
9. Certificates of Good Conduct, which may be obtained from the local Police Department of the state of residence. MD students applying through AMCAS requires a Criminal Background Check (CBC) performed by Certiphi as required by the AAMC.
10. A recent 2x2 size photograph (optional).
11. 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, CBC.

12. 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 has not suffered the disease, evidence of two doses of varicella vaccine (Varivax) and seasonal flu vaccination (regular or combine H1N1). All students must complete all immunizations requirements.

## **READMISSION**

1. Students must apply for readmission if they interrupt their studies and do not attend the University for one semester or more. (Summer sessions do not count as interruptions.)
2. The 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 course work taken outside UCC during the time they were absent from the Program.
4. Candidates for readmission might be required to have an interview with the Admissions Committee of their academic program. It is comprised of the Dean of Students or his representative, the Registrar, the Dean of Academic Affairs or his representative and the Department Chair. The Committee will have the final authority to recommend the admission of special cases.
5. All readmission applications must be received 45 calendar days before the start of the session in which the student wants to resume his/her studies.

## **TRANSFER STUDENTS**

Transfer students are considered for admission if they have followed a course of study in an accredited university and have successfully completed the Credit Hours in the institution from which they come. Their Grade Point Average (GPA) must not be below UCC's minimum requirement. The students must not be under academic or disciplinary sanction in the institution from which they come.

In order to be admitted students wishing to transfer must meet the requirements of the Program of their choice. The Admissions Committee will evaluate the applications.

## **SPECIFIC ADMISSION REQUIREMENTS**

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### **SCHOOL OF MEDICINE**

Admission to the School of Medicine is the responsibility of the Admissions Committee, an advisory committee composed of faculty members, which is responsible to the Office of the Dean of the School of Medicine. 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, and letters of recommendation, personal interviews and research community or health related experience. There is no discrimination on the basis of sex, color, race, religion, physical disability, economic status, political ideology or national origin.

### **DOCUMENTS FOR ADMISSION**

1. Nonrefundable processing fee of \$100.00 made payable, in money order, to Universidad Central del Caribe.
2. Official transcript from each college or university attended for all undergraduate and graduate studies. The transcripts must evidence that the applicant has a general academic index of 2.75 or above on a scale where A=4.0.
  - a. Applicants must approve a minimum of ninety (90) credits at an accredited institution of higher education. A Baccalaureate degree is highly recommended.
  - b. Required premedical courses and minimum required semester's credits hours:

General biology or zoology .....	8
General chemistry or inorganic chemistry .....	8
Organic chemistry .....	8
General physics .....	8
College mathematics.....	6
English .....	12
Spanish .....	6
Behavioral Sciences and Social Sciences* .....	12

\*(Course work must be in sociology, psychology, political sciences, economics, or anthropology).
3. Official results of the MCAT scores taken within two years prior to application. Applicants are strongly urged to take the MCAT prior to application, since the Admissions Committee does not review applications until MCAT scores are made available. A minimum MCAT score of 19 is required.
4. A letter of recommendation from the Premedical Committee of the applicant's undergraduate institution, where there is such committee. Otherwise, the applicant must submit two letters of recommendation from two of his/her science professors.

## **APPLICATION PROCEDURE**

The School of Medicine participates in the American Medical College Application Service (AMCAS). Therefore, all applicants must file an AMCAS application only, which can be obtained by Internet at: [www.aamc.org](http://www.aamc.org)

It is the applicant's responsibility to see that the Admissions Office receives all the documentation required including AMCAS, no later than *December 15<sup>th</sup>*.

Once the student is admitted to the Program, he/she must pay a \$100.00 nonrefundable deposit to assure a place in the Program.

## **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 M.D. degree. Applications for transfer or advanced standing to the School of Medicine will be considered 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 Osteopathy Association.

Applicants from non-LCME accredited medical schools will be considered on the basis of individual merits.

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 suggested by the LCME. The Admissions Committee in collaboration with the Evaluation and Promotion Committee will reserve the right to recommend the placement according to UCC-SOM curriculum.

The applicants must fulfill the following requirements and request the indicated documents to be forwarded to UCC, School of Medicine to be eligible for consideration:

1. An Institutional Application with the nonrefundable processing fee of \$100.00 made payable, in money order, to Universidad Central del Caribe.
2. Evidence of all requirements for admission to first year. (See requirements for admission).
3. Official transcripts from all medical colleges attended.
4. A letter of evaluation from the Dean of the School of Medicine currently being attended. The Dean's letter must acknowledge that the applicant has requested to transfer and must certify the applicant's current academic status.
5. All applicants must have passed Step I of the U.S. Medical Licensing Examination and should submit the official results with their application.

Deadline for completed transfer applications is April 1<sup>st</sup>.

## GRADUATE PROGRAM IN BIOMEDICAL SCIENCES

Applicants must fulfill the following requirements and submit the indicated documents in order to be considered eligible for admission to the Program of Graduate Studies in the Biomedical Sciences:

1. The Institutional Application should be accompanied with the nonrefundable processing fee of \$50.00 made payable, in money order, to Universidad Central del Caribe.
2. A Bachelor in Sciences degree or its equivalent (as determined by the Admission's Office) from an accredited institution of higher education with a minimum grade index of 2.75 overall and of 3.0 or above in science. The course work must include the following courses:
  - ♦ 2 courses in Mathematics
  - ♦ 2 courses in Chemistry
  - ♦ 2 courses in Biology
  - ♦ 2 courses in Physics

It is also recommended as part of the undergraduate studies that the student has completed this courses: Calculus 1, Statistics, General Chemistry, Organic Chemistry, General Biology, Biochemistry, Cellular Biology, Molecular Biology or Genetics, General Physics, Microbiology, Immunology and/or other related courses of his/her specialization area.

3. Official transcripts from each college or university attended for all undergraduate and graduate work.
4. Official copy of the Graduate Record Examination (GRE) with an acceptable score to the Program of Graduate Studies in each part. These results are valid for five years.
5. Three letters of recommendation. Two letters should be from former professors in his/her area of specialization.

It is the applicant's responsibility to see that the Admissions Office receives all the documentation required including the completed application form, no later than *April 1<sup>st</sup>* for the class that begins in August and *October 1<sup>st</sup>* for the one that begins in January.

Once the student is admitted to the Program, he/she must pay a \$100.00 non-refundable deposit to assure a place in the Program.

### SPECIAL STUDENTS

If a candidate for admission lacks some of the less critical admission requirements or has a GPA of less than 2.75 or 3.0 in science, he/she can be admitted to the Program as a special student after a careful evaluation and recommendation of the department concerned and of the Graduate Program in Biomedical Sciences Committee. The student will be allowed a maximum of one year to complete the minimum admission requirements.

### READMISSION

Students who have been enrolled in the Program but have not as yet completed all the course work and fails to matriculate for a semester or longer, must apply for readmission to the Program through the Office of Admissions if he/she wishes to continue in the Program.

## **MAINTENANCE OF ACTIVE STATUS**

Students that have fulfilled all the didactic requirements for the Masters Degree, except for the Comprehensive Examination and the Dissertation and Defense of the Thesis, shall be required to pay a fee of \$50.00 per semester in order to maintain the active status as graduate student in the Program. This fee will be charged every semester for a period not exceeding the rest of the time allowed for the completion of the degree, in this case, five years.

## **TRANSFER STUDENTS**

Transfer students will be considered for admission if they fulfill all admission requirements. The applicants must ask the institution from which they want to transfer to submit all pertinent documentation. The Committee of Graduate Studies will study the student academic record and will recommend to the Registrar's office the transfer of course work as follows:

- a. Only 9 Credit Hours will be accepted provided the grades in those courses transferred are B or better, if the courses are equivalent to those offered by the Graduate Program of the UCC, and if they satisfy departmental requirements. No credits shall be transferred from completed MS or MA degrees.

## **PROGRAM OF COUNSELING IN SUBSTANCE ABUSE**

Applicants must fulfill the following requirements and submit the indicated documents to be considered for admission to the Post-Baccalaureate Certificate and to the Master in Science in Substance Abuse Counseling:

1. The Institutional Application should be accompanied with the nonrefundable processing fee of \$50.00 made payable, in money order, to Universidad Central del Caribe.
2. A Baccalaureate degree from an accredited institution of higher education with a minimum grade point average of 2.5 based on a scale of A = 4.0. The student's academic preparation must include the following:
  - a. 9 credit in Behavioral Science including 3 credit in Psychology
  - b. 3 credit in Biology
  - c. 3 credit in Mathematics
3. Official copy of results of the "Exámen de Admisión a Estudios de Posgrado" (EXADEP) or the Graduate Record Examination (GRE).
4. Official transcript from each college or university attended for all undergraduate and graduate work.
5. Three letters of recommendation to be sent directly to the Office of Admissions of the UCC. Two of the letters must be from professors or supervisors in the student's area of specialty.
6. Current curriculum vitae that include any professional experience with substance abuse population.

It is the applicant's responsibility to see that the Admissions Office receives all the documentation required including the completed application form, no later than April 1<sup>st</sup>.

Once the student is admitted to the Program, he/she must pay a \$100.00 non-refundable deposit to assure a place in the Program.

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## **READMISSION**

A student may apply for readmission if he/she have been enrolled in the certificate program but have not as yet completed all the course work and have not attended classes for a period of seven (7) months. If the student have been enrolled in the master degree program but have not as yet completed all the course work and have not attended classes for thirteen (13) months. All the students must apply for readmission to the Program through the Office of Admissions if he/she wishes to continue in the program. All readmission applications must be received 45 calendar days before the start of the session in which the student plans to continue his/her studies. Interested parties should submit transcripts of any course work taken outside UCC during the time they were absent from the program.

## **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 in order 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 in order 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.

## **TRANSFER STUDENTS**

Transfer students will be considered for admission if they fulfill all admission requirements. The applicant must ask the institution from which he/she wishes to transfer to submit all pertinent documentation. The committee of Graduate Studies will study the student's academic record and will recommend to the Registrar's Office the transfer of course work as follows:

- a. For the Certificate, only six (6) Credit Hours will be accepted if and only 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.
- b. For the Master Degree, only nine (9) Credit Hours will be accepted if and only 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.

## **ADMISSIONS COMMITTEE**

The Admissions Committee of the Substance Abuse Counseling Program will be responsible for the evaluation and selection of the candidates to be admitted to the Program. The candidates will be evaluated based on the Program established admissions requirements and will not discriminate due to race, sex, age, ethnicity, social condition, religious beliefs or political ideas. The functions of the committee are as follow:

1. The Admissions Committee of the Substance Abuse Counseling Program will follow the enrollment policies and procedures of the UCC.
  2. Responsible for student's recruitment.
  3. Will carefully review and evaluate the applications for admissions to the program, and will recommend to the President of the UCC the candidates to be admitted.
  4. Will reevaluate, as needed, the norms as the circumstances dictate.
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5. Review students eligibility criteria.
6. Review the admission formula based on the criteria that are predictors of student's success.
7. Develop strategies to promote the Program.

## **MEDICAL IMAGING TECHNOLOGY PROGRAM**

The admissions process to the Medical Imaging Technology Program is implemented by its Admissions Committee, an advisory 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, letters of recommendation and personal interviews.

Deadline for applications for admission is May 1<sup>st</sup> of each year for the programs that begins in August and November 1<sup>st</sup> for those that begins in January.

### **GENERAL REQUIREMENTS FOR ALL APPLICANTS**

1. Institutional Application with a non-refundable processing fee made payable in money order for the amount of \$25.00.
2. Essay (Why do you want to study this profession?).
3. Certificate of Good Conduct from the local Police Department (only for students of 18 years or above).

## **ASSOCIATE DEGREE IN RADIOLOGIC TECHNOLOGY PROGRAM AND BACHELOR DEGREE IN SCIENCE ON DIAGNOSTIC IMAGING**

### **ADMISSION OF HIGH SCHOOL GRADUATES**

These are students without prior post-secondary experience who have graduated from accredited private or public high schools, who have completed their high school education with a cumulative grade point average of 2.30 or above. Applicants must have approved Algebra and/or Geometry and two of the following science courses: Biology, Physics and/or Chemistry.

These applicants must fulfill the following requirements and request the following documents to be forwarded to Universidad Central del Caribe to be considered for admission:

1. Official High School Transcript.
2. Official scores of the College Board Entrance Examination.
3. Two letters of recommendation from two professors.

### **ADMISSION FOR TRANSFER STUDENTS**

These are students who come from accredited colleges or universities, students must have a cumulative grade point average of 2.00 or above. Applicants must have approved the same courses as high school students.

These applicants must fulfill the following requirements and request the following documents to be forwarded to the Universidad Central Del Caribe to be considered for admission:

1. Official transcript from each College or University attended.
2. Official High School transcript (if he/she do not have a college degree).
3. Official copy of College Board Entrance Examination, for students who are has less than 25 years old (if he/she do not have a college degree).
4. Two letters of recommendation from two faculty members from the college or university he/she is attending.
5. Letter from Dean of Student Affairs of College or University currently attending, indicating status.

### **ADMISSION TO ADVANCED STANDING**

Applications for transfer in advanced standing will be considered from those who are currently enrolled in a Radiologic Technology Program accredited by the Joint Review Committee on Education in Radiologic Technology. These applicants will be considered on an individual basis.

### **READMISSION**

Readmission is considered for those students who have been out of the program for more than one year. These applicants will be evaluated by both the Student Evaluation and Promotion Committee and the Admissions Committee. This evaluation is conducted on an individual basis, taking into consideration reasons for separation from the Program, activities and/or studies pursued during the absence.

### **CERTIFICATE ON DIAGNOSTIC MEDICAL SONOGRAPHY POST-ASSOCIATE CERTIFICATES ON: MAMMOGRAPHY, COMPUTERIZED TOMOGRAPHY, AND MAGNETIC RESONANCE**

### **ADMISSION REQUIREMENTS**

Students interested in admission to the advance modalities certificates must comply with the following requirements:

1. Satisfactorily completed a degree in Radiologic Technology with a grade point average of 2.50 or more. The degree must be comparable with the Associate Degree Program in Radiologic Technologist of the Universidad Central del Caribe taken in an institution accredited by the Joint Review Committee of Education in Radiologic Technology.
  2. Submit two recommendation letters from Clinical Instructors in the modality of choice.
  3. Participation in an interview with the Program's Faculty.
  4. Comply with all other requirements of admission established by the Dean of Admission and Students Affairs.
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## **FINANCIAL AID OFFICE**

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

### **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.

### **U.S. ARMY HEALTH PROFESSIONS SCHOLARSHIP**

This program covers cost of full tuition, fees, books, and also offers 12 monthly stipend payments for medical students. Requires a commitment of minimum of two years to provide primary health services in a state-designated area.

### **EDUCATIONAL OPPORTUNITIES LAW**

This program is mandated by the Commonwealth of Puerto Rico Legislation. It includes two different scholarship programs. This scholarship fund is administered through the Council of Higher Education of Puerto Rico. The Grant Program requires a minimum grade point average of 3.00 and the recipient must be admitted from a high school. The Supplemental Grant Program requires a minimum grade point average of 2.00. All the applicants must demonstrate financial need.

### **LEVERING EDUCATIONAL ASSISTANCE PARTNERSHIP PROGRAM (LEAP)**

This is a limited fund mandated by Congress and matched by the Commonwealth of Puerto Rico. The student must demonstrate exceptional financial need and must have satisfactory academic progress.

### **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 (one who has not earned a bachelor's degree) to pay for their post-secondary education. The student must be enrolled on at least three (3) credits to receive the benefit and must meet the eligibility requirements of the Program.

## **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.

## **SUBSIDIZED STAFFORD LOAN**

A student who demonstrates financial need is eligible to have the Federal Government pay the interest on the loan to the lender until repayment of the loan begins and during any deferment period. The student is allowed a grace period (usually six months) after leaving school or dropping below half-time attendance before repayment begins.

## **UNSUBSIDIZED STAFFORD LOAN**

A student who does not demonstrate sufficient financial need is typically eligible for an Unsubsidized Stafford Loan. This loan can also be used to supplement a Subsidized Stafford Loan. The borrower does not have any interest paid on his or her behalf by the Federal government; such a borrower is responsible for paying to the lender all interest accrued on the loan from the time the loan is disbursed until it is paid in full.

## **ALTERNATIVE LOAN PROGRAM**

This fund was created by private banking institutions for the students in need of additional help to cover their medical education. To be eligible, the student must be currently enrolled at least halftime 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 ALP loan. The Annual Maximum is the Cost of Education minus other financial aid.

## **EMERGENCY LOANS**

This is an UCC fund that was created by donations from Merck, Sharp and Dohme, other institutions and private sponsors. It provides up to a maximum of \$500.00 per semester to cover unanticipated emergency study expenses.

## **STUDENT WORK AND STUDY PROGRAM**

### **ELIGIBILITY CRITERIA**

In order to meet the eligibility requirements for all of 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 the undergraduate programs.
3. have a bachelor's degree or the premed requirements for the 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 halftime, 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.

Other particular criteria may apply for eligibility to institutional scholarships.

## OFFICE OF THE REGISTRAR

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The Office of the Registrar is part of the Deanship for Academic Affairs. It is responsible for preparing the academic calendar, the registration of students, maintaining the student's academic records and for the preparation and/or remittance of official and unofficial academic transcripts, certifications of student, and certifications of degree 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.

### ADDRESS CHANGE

Students are required to provide a permanent and the 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. In order to become an official student of the University, the registration form must be submitted to the Registrar's Office, where the student will receive a copy of the completed/official registration form.

At the beginning of each academic term, and after the registration process, the Office will send an official class list to the coordinator/professor of the course. At the end of each academic period the Official Grades Lists will be mailed to the professors/coordinator of each course to report the official grade obtained by each student. At the end of each academic period, the Registrar's Office will mail the official grades of the courses taken by the students during that academic period. Students who believe that their grades are incorrect must contact the Registrar's Office no later than the second week of the following term. Students who do not receive their grades by the beginning of the next term shall notify the Registrar's Office.

### 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
P	Passed	0
H	Passed with honors	0
IP	In progress	0
I	Incomplete coursework	0
W	Withdrawal	0

Credit Hours: are assigned to each course based on contact hours.

Quality Points ("QP"): Credit-hours multiplied by Honor points achieved by the student.

Quality Point Index ("QPI"): Total credit-hours divided by total honor points achieved in a semester.

Cumulative Quality Point Index ("CQPI"): Total credit-hours divided by total honor points accumulated by the student in his academic experience.

## **SATISFACTORY ACADEMIC PROGRESS POLICY OF EDUCATIONAL SERVICES FOR VETERANS BENEFICIARIES**

Students registered in each of our academic offerings will be evaluated according to the program specific Rules and Regulations for Student Evaluation and Promotion. According to the regulations established in the Codes of Federal Regulations, Title 38 (38 U.S. Code) related to the educational benefits for veteran's and its beneficiaries, the student must complete its academic program within the regular time-frame. Any student who extends his/her studies beyond the regular time frame 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.

## **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 the pertinent university's officials. The student should explain in the withdrawal form the reason for its decision. The withdrawal becomes official when the Registrar or its representative signs the form.

At the time of withdrawal, authorized withdrawals are to be graded W, WP or WF according to the student's academic performance in the course of 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 if they register during the registration period. They must also pay the corresponding fees and charges.

## **CERTIFICATIONS AND TRANSCRIPTS**

If a student needs an official transcript, certification of studies, and/or certification of degree earned, he/she should request it in writing, 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.

Students, who consider that there are errors in their transcripts, must communicate it to the Registrar's Office within seven (7) days after the receipt of the document.

## **GRADUATION**

Application forms for graduation are obtained from the Registrar's Office, and students must apply and pay the corresponding graduation fee no later than the date set in the Academic Calendar. Non-compliance with these requirements may postpone the conferring of the degree.

## **SPECIFIC GRADUATION REQUIREMENTS**

### **SCHOOL OF MEDICINE**

Refer to the Requirements for Student Promotion and Graduation as specified on the Regulations for Student Evaluation and Promotion.

## **GRADUATE PROGRAM IN BIOMEDICAL SCIENCES**

### **Ph.D. Degree**

Early in the doctoral work, a dissertation subject is chosen in the major field of study and approved by the research committee. The dissertation must represent original investigation that contributes new knowledge to the candidate's field. Upon completion of at least four (4) years of graduate study and a dissertation, the candidate must pass a dissertation defense. In addition the student must fulfill the following:

- a. Grade index: 3.0 or above.
- b. Credits: As stipulated by the program of study, 72 credits minimum.
- c. Residence: A minimum of two year of full-time work must be completed at UCC.
- d. Time limitations: A maximum of 7 years to satisfy all the requirements.
- e. Qualifying examination: Required of all students.
- f. Dissertation defense: Required of all students.
- g. Authorship: Co-author in at least one (1) manuscript accepted for publication.

### **MS/MA Degree**

In order to qualify for the Master in Sciences or a Master in Arts the student must:

- a. Grade index: 3.0 or above
- b. Credits: As stipulated by the program of study, 34 credits minimum.
- c. Residence: A minimum of two year of full-time work must be completed at UCC.
- d. Time limitations: A maximum of 4 years to complete all the requirements.
- e. Comprehensive examination required of all MS and MA candidates.
- f. Thesis defense: Required of all MS candidates.

A MS/MA student must complete all the requirements and have defended his/hers dissertation/thesis in order to participate in the Commencement Ceremony. The student must deliver the approved dissertation/thesis in a CD-ROM, according to the Dissertation/Thesis Manual, to complete the graduation requirements and receive his/hers diploma. The Graduate Programs in Biomedical Sciences will print and bind three (3) copies of the thesis (one for the student, one for the department and one for the library).

## **GRADUATE PROGRAM IN SUBSTANCE ABUSE COUNSELING**

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

The student must: 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; complete a minimum of 18 credits at the UCC, complete all requirements for the Certificate in Substance Abuse Counseling within three (3) years from the date of admission, and comply with all academic and institutional requirements of the Program in Substance Abuse and the UCC.

### **Master of Health Science in Substance Abuse Counseling**

The student must 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. He/she must complete a minimum of 32 credits at the UCC, approve a comprehensive exam with a minimum score of 75% in each component of the exam, comply with all academic and institutional requirements within five (5) years from the date of admission.

## **MEDICAL IMAGES TECHNOLOGY PROGRAM**

In order to obtain the complete requisites for all Medical Images Technology Programs 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 Universidad Central del Caribe.

## **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 before 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 the Program's requirements.

<b>"CQPI"</b>	<b>HONOR</b>
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's graduates academic honors will not be recorded in official documents.

## ACADEMIC CALENDARS

<b>ACADEMIC CALENDAR 2010-2011**</b>	
<b>First Semester</b>	
June 24, 2010 (Thursday)	Last day to apply for authorized withdrawal for RT-203 (Summer Clinical Practice).
June 25, 2010 (Friday)	Last day of classes for RT-203 (Summer Clinical Practice). Last day to apply for Authorized Leave of Absence (LOA) for 1st semester 2010-11 (August-December 2010).
July 1, 2010 (Thursday)	Registration process for: 2nd year MD students (AM), & for 2nd year students of the Assoc. Deg. in Rad. Tech. (PM).
July 2, 2010 (Friday)	Last day of classes and to apply for authorized withdrawal for 3rd year MD students. Registration process for 4th year MD students.
July 4, 2010 (Sunday)*	USA Independence day (Holiday).
July 15, 2010 (Thursday)	Last day of classes and to apply for authorized withdrawal for students in the 4th quarter of Substance Abuse Program.
July 19, 2010 (Monday)	Muñoz Rivera's Day (Holiday).
July 20 & 22, 2010 (Tuesday & Thursday)	Final examination period for students in the 4th quarter of Substance Abuse Program.
July 25, 2010 (Sunday)*	PR's Constitution day (Holiday).
July 26-30, 2010 (Monday-Friday)	Orientation period for new students in the Medicine faculty & in the Graduate Program in Basic Biomedical Sciences.
July 27, 2010 (Tuesday)	José C. Barbosa's day (Holiday).
July 29, 2010 (Thursday)	Registration process for new students in the Medicine faculty (AM), & in the Graduate Program in Basic Biomedical Sciences (PM).
July 30, 2010 (Friday)	Registration process for 3 <sup>rd</sup> year MD (8:30-11:45 AM), & students in the Substance Abuse Program (2:00-4:00 PM).
August 2, 2010 (Monday)	First day of classes for students in the MD faculty & Basic Biomedical Sciences Program.
August 2-6, 2010 (Monday-Friday)	Late registration period for students in the MD faculty & Basic Biomedical Sciences Program. Orientation period for new students in the undergraduate academic programs.
August 3, 2010 (Tuesday)	First day of classes for students in the Substance Abuse Program.
August 3-5, 2010 (Tuesday-Friday)	Late registration period for students in the Substance Abuse Program.
August 4, 2010 (Wednesday)	Registration process for students in the Bachelor in Science in Diagnostic Imaging, & in the undergraduate certificate in Diagnostic Medical Sonography (PM).
August 5, 2010 (Thursday)	Registration process for 1st year students in the Assoc. Deg. in Radiologic Technology (AM), & the Post-Associate Degree Certificates in Mammography & Computerized Tomography (PM).
August 9, 2010 (Monday)	First day of classes for students in the undergraduate academic programs.
August 9-13, 2010 (Monday-Friday)	Late registration period for students in the undergraduate academic programs.
August 12, 2010 (Thursday)	Last day for removal of Incomplete work for students in 4th quarter in Substance Abuse Program
August 20, 2010 (Friday)	Last day for removal of Incomplete work for students in MD & Graduate Program in Basic Biomedical Sciences.
August 27, 2010 (Friday)	Last day for removal of Incomplete work for students in the undergraduate academic programs.
September 6, 2010 (Monday)	Labor day (Holiday).
October 11, 2010 (Monday)	Columbus day (Holiday).
October 14, 2010 (Thursday)	Last day of classes and to apply for authorized withdrawal for students in the Substance Abuse Program.

October 19 & 21, 2010 (Tuesday & Thursday)	Final examination period for students in the 1st & 5th quarters of Substance Abuse Program.
October 26, 2010 (Tuesday)	Registration process for students in the Substance Abuse Program (2:00-4:30 PM). First day of classes for students in the 2nd & 6th quarters in Substance Abuse Program.
October 27-29, 2010 (Wednesday-Friday)	Late registration period for students in the 2nd & 6th quarters in Substance Abuse Program.
November 1, 2010 (Monday)	Last day to apply for admission/reclassification for January 2011.
November 4, 2010 (Thursday)	Last day for removal of Incomplete work for students in the 1st & 5th quarters in Substance Abuse Program.
November 11, 2010 (Thursday)	Veteran's day (Holiday).
November 19, 2010 (Friday)	PR's discovery day (Holiday).
November 24, 2010 (Wednesday)	Last day to apply for authorized withdrawal and last day of classes for the undergraduate academic programs. Last day to apply for Authorized Leave of Absence (LOA) for the second semester (Jan.-June 2011).
November 25 & 26, 2010 (Thursday & Friday)	Thanksgiving recess.
November 29-December 3, 2010 (Monday-Friday)	Final examination period for the undergraduate academic programs.
November 1, 2010 (Tuesday)	Registration process for students in MD: 1st year (AM) & 2nd year (PM).
December 1, 2010 (Wednesday)	Registration process for students in 4th year MD (AM) & Basic Biomedical Sciences Program (PM).
December 10, 2010 (Friday)	Last day to submit to the Office of the Registrar the Official Grades Lists for the undergraduate academic programs. Last day to submit the eligibility qualifications to obtain certificate/degree on December 22, 2010.
December 22, 2010 (Wednesday)	Last day of classes for students in the Substance Abuse Program. (Classes of the Substance Abuse Program will be meeting according Thursday schedule). Last day of classes and to apply for authorized withdrawal for 1st & 2nd year MD students, and the Graduate Program in Basic Biomedical Sciences. Official date for conferring certificate/degree for students who have completed all the requirements during the first semester 2010.
December 23, 2010 to January 7, 2011	Christmas Recess
<b>Second Semester</b>	
January 10, 2011 (Monday)	E. M. de Hostos' day (Holiday).
January 11, 2011 (Thursday)	First day of classes for students in the Medicine Faculty, Graduate Program in Basic Biomedical Sciences & Substance Abuse Program.
January 11-14, 2011 (Tuesday to Friday)	Late registration period for students registered in December 2010.
January 12, 2011 (Wednesday)	Registration process for students of the Associate Degree in Rad. Tech: 1st year (AM), & 2nd year (PM).
January 13, 2011 (Thursday)	Registration process for students in the undergraduate certificate in Diagnostic Medical Sonography (AM), & in the Bachelor in Science in Medical Images, and in the Post-Associate Degree Certificate in Magnetic Resonance (PM).
January 17, 2011 (Monday)	Martin Luther King Jr.'s day (Holiday).
January 18, 2011 (Tuesday)	First day of classes for students in the undergraduate academic programs.
January 18-21, 2011 (Tuesday-Friday)	Late registration period for students in the undergraduate academic programs.

January 20, 2011 (Thursday)	Last day of classes and last day to apply for authorized withdrawal for students in the 2nd & 6th quarters in Substance Abuse Program.
January 28, 2011 (Friday)	Last day for removal of Incomplete work for students in 1st, 2nd & 4th year MD & Basic Biomedical Sciences Program.
January 25 & 27, 2011 (Tuesday & Thursday)	Final examination period for students in the 2nd & 6th quarters in Substance Abuse Program.
January 26, 2011 (Wednesday)	Elective Courses Orientation process for students in 3rd year MD (PM).
January 28, 2011 (Friday)	Last day of classes and last day to apply for authorized withdrawal for 3rd year MD students. Registration process for the 2nd semester of 3rd year MD students. Last day for removal of Incomplete work for students in the undergraduate academic programs.
January 31, 2011 (Monday)	First day of classes for the 2nd semester of 3rd year MD students.
January 31-February 4, 2011 (Monday-Friday)	Late registration period for the 2nd semester of 3rd year MD students.
February 1, 2011 (Tuesday)	Registration process for students in the 3rd & 7th quarters in Substance Abuse Program. First day of classes for students in the 3rd & 7th quarters in Substance Abuse Program.
February 2-4, 2011 (Wednesday-Friday)	Late registration period for students in the 3rd & 7th quarters in Substance Abuse Program.
February 10, 2011 (Thursday)	Last day for removal of Incomplete work for students in students in the 3rd & 7th quarters in Substance Abuse Program.
February 18, 2011 (Friday)	Last day for removal of Incomplete work for students in 3rd year MD.
February 21, 2011 (Monday)	President's day (Holiday).
March 22, 2011 (Tuesday)	Emancipation day (Holiday).
April 14, 2011 (Thursday)	Last day of classes and last day to apply for authorized withdrawal for students in the 3rd & 7th quarters in Substance Abuse Program.
April 18, 2011 (Monday)	De Diego's birthday (Holiday).
April 19 & 20, 2011 (Tuesday & Wednesday**)	Final examination period for students in the 3rd & 7th quarters in Substance Abuse Program. **Classes of the Substance Abuse Program will be meeting according Thursday schedule.
April 20, 2011 (Wednesday)	Last day of classes and last day to apply for authorized withdrawal for students in the 2nd year MD.
April 21 & 22, 2011 (Thursday & Friday)	Easter recess.
April 25-May 20, 2011	Final examination period for 2nd year MD.
April 26, 2011 (Tuesday)	Registration process for 4th quarter in Substance Abuse Program. First day of classes for 4th quarter in Substance Abuse Program.
April 27-29, 2011 (Wednesday-Friday)	Late registration period for students in the 4th quarter of Substance Abuse Program.
May 5, 2011 (Thursday)	Last day for removal of Incomplete work for students in the 3rd & 7th quarters of Substance Abuse Program.
May 6, 2011 (Friday)	Last day of classes & to apply for authorized withdrawal for students in: 1st year MD, Graduate Program in Basic Biomedical Sciences & in the undergraduate academic programs.
May 9-13, 2011 (Monday-Friday)	Final examination period for students in the undergraduate academic programs.
May 9-27, 2011	Final examination period for students in 1st year MD.
May 13, 2011 (Friday)	Registration process for RT-203 (Summer Clinical Practice).
May 16, 2011 (Monday)	First day of classes for RT-203 (Summer Clinical Practice).

May 20, 2011 (Friday)	Comprehensive exam for students in 2nd year MD. Last day to submit to the Office of the Registrar the Official Grades Lists for the students in the undergraduate academic programs.
May 27, 2011 (Friday)	Last day of classes & to apply for authorized withdrawal for students in 4th year MD. Comprehensive exam for students in 1st year MD.
May 30, 2011 (Monday)	Memorial day (Holiday).
June 4, 2011 (Saturday)	Commencement exercises.
June 23, 2011 (Thursday)	Last day to apply for authorized withdrawal for RT-203 (Summer Clinical Practice).
June 24, 2011 (Friday)	Last day of classes for RT-203 (Summer Clinical Practice). Last day to apply for Authorized Leave of Absence (LOA) for 1st semester 2011-12 (August-December 2011).
June 30, 2011 (Thursday)	Registration process for: 2nd year MD students (AM), & for 2nd year students of the Assoc. Deg. in Rad. Tech. (PM).
July 1, 2011 (Friday)	Last day of classes and to apply for authorized withdrawal for 3rd year MD students. Registration process for 4th year MD students.
July 4, 2011 (Monday)	USA Independence day (Holiday).
July 7, 2011 (Thursday)	Last day of classes and to apply for authorized withdrawal for students in the 4th quarter of Substance Abuse Program.
July 12 & 14, 2011 (Tuesday & Thursday)	Final examination period for students in the 4th quarter of Substance Abuse Program.
July 18, 2011 (Monday)	Muñoz Rivera's Day (Holiday).
July 25, 2011 (Monday)	PR's Constitution day (Holiday).
July 26-29, 2011 (Tuesday-Friday)	Orientation period for new students in the Medicine faculty & in the Graduate Program in Basic Biomedical Sciences.
July 26-30, 2011 (Tuesday-Saturday)	Orientation period for new students in the Substance Abuse Program.
July 27, 2011 (Wednesday)	José C. Barbosa's day (Holiday).
July 29, 2011 (Friday)	Registration process for new students in the Medicine faculty (AM), & in the Graduate Program in Basic Biomedical Sciences (PM).
<p>**Subject to change.</p> <p>*Will be celebrate on Monday.</p> <p>The undergraduate academic programs includes: Associate Degree in Radiologic Technology, Bachelor in Sciences in Diagnostic Images, Post-Associate Degree Certificate in Mammography, Magnetic Resonance, Computerized Tomography, and the Undergraduate Certificate in Diagnostic Medical Sonography.</p> <p>The last day to submit the Official Grades Lists for courses and clinical clerkships with subject exam to the Office of the Registrar is <b>one week</b> after receiving the results of the tests.</p> <p>Every Thursday, from 12:00 to 2:00 PM, the "UNIVERSAL HOUR" will be observed for extracurricular purposes.</p>	

<b>ACADEMIC CALENDAR 2011-2012</b>	
<b>First Semester</b>	
August 1, 2011 (Monday)	Registration process for 3 <sup>rd</sup> year MD students (AM) First day of classes for students in the MD faculty & Graduate Program in Biomedical Sciences. Registration process for new students in the Substance Abuse Program (2:00-4:00 PM).
August 3-5, 2011 (Wednesday-Friday)	Late Registration period for students in the MD faculty.
August 1-5, 2011 (Monday-Friday)	Late registration period for students in the Graduate Program in Biomedical Sciences. Orientation period for new students in the Undergraduate Academic Programs.
August 2, 2011 (Tuesday)	First day of classes for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters of the Substance Abuse Program. Registration process for 5 <sup>th</sup> quarter of Substance Abuse Program.

August 3-5, 2011 (Wednesday thru Friday)	Late registration period for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters of Substance Abuse Program.
August 3, 2011 (Wednesday)	Registration process for students in the Bachelor in Sciences in Diagnostic Imaging & Post-Associate Degree Certificates in Diagnostic Medical Sonography and Mammography (PM).
August 4, 2011 (Thursday)	Registration process for 1st year students in the Associate Degree in Radiologic Technology (AM) and the Post-Associate Degree Certificate in Computerized Tomography (PM).
August 8, 2011 (Monday)	First day of classes for students in the Undergraduate Academic Programs.
August 8-12, 2011 (Monday-Friday)	Late registration period for students in the Undergraduate Academic Programs.
August 11, 2011 (Thursday)	Last day for removal of Incomplete work for students in 4th quarter of Substance Abuse Program.
August 19, 2011 (Friday)	Last day for removal of Incomplete Work for students in MD & Graduate Program in Biomedical Sciences.
August 26, 2011 (Friday)	Last day for removal of Incomplete Work for students in the Undergraduate Academic Programs.
September 5, 2011 (Monday)* (Holiday)	Labor Day
September 30, 2011 (Friday)	Last day to apply for admission /reclassification for January 2012.
October 10, 2011 (Monday)* (Holiday)	Columbus Day
October 11 - 13, 2011 (Tuesday -Thursday)	Last day of classes and to apply for authorized withdrawal for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters in the Substance Abuse Program.
October 18- 20, 2011 (Tuesday thru Thursday)	Final examination period for students in the 1st & 5 <sup>th</sup> quarters of Substance Abuse Program.
October 25, 2011 (Tuesday)	Registration process and first day of classes for students in 2 <sup>nd</sup> & 6 <sup>th</sup> quarters of Substance Abuse Program (2:00-4:00 PM).
October 26-28, 2011 (Wednesday-Friday)	Late registration period for students in the 2 <sup>nd</sup> & 6 <sup>th</sup> quarters in Substance Abuse Program.
November 1, 2011 (Tuesday)	Deadline for late application for admission/reclassification for January 2012.
November 3, 2011 (Thursday)	Last day for removal of Incomplete work for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters in Substance Abuse Program.
November 11, 2011 (Friday)* (Holiday)	Veteran's Day
November 18, 2011 (Friday)	Last day to apply for authorized withdrawal and last day of classes for the Undergraduate Academic Programs. Last day to apply for Authorized Leave of Absence (LOA) for the second semester (Jan.- June 2012).
November 24 & 25, 2011 (Thursday & Friday)*	Thanksgiving Recess
November 28- thru December 2, 2011 (Monday-Friday)	Final examination period for the Undergraduate Academic Programs.
November 29, 2011 (Tuesday)	Registration process for 1 <sup>st</sup> year MD students (AM) & 2 <sup>nd</sup> year (PM).
December 9, 2011 (Friday)	Last day to submit to the Office of the Registrar the Official Grade Lists for the Undergraduate Academic Programs. Last day to submit the eligibility qualifications to obtain certificate/degree on December 16, 2011. Last day to apply for authorized withdrawal for students in the Graduate Program in Biomedical Sciences (before the final class test).
December 13, 2011 (Monday)	Registration process for 4 <sup>th</sup> year MD students (AM) & Graduate Program in Biomedical Sciences (PM).

December 14, 2011 (Wednesday)	Registration process for students in the Post-Associate Degree Certificate in Magnetic Resonance. Last day to apply for admission to the MD Program.(first year new students)
December 15, 2011 (Thursday)	Last day of classes for students of Substance Abuse Program. (Classes of the Substance Abuse Program will be meeting according Thursday schedule).
December 16, 2011 (Friday)	Last day of classes and to apply for authorized withdrawal for 1 <sup>st</sup> & 2 <sup>nd</sup> and 4 <sup>th</sup> year MD students. Last day of classes for the Graduate Program in Biomedical Sciences. Official date for conferring Certificate/Degree for students who have completed all the requirements during 2011.
December 22, 2011- January 6, 2012	Christmas Recess
<b>Second Semester</b>	
January 9, 2012 (Monday)* (Holiday)	Eugenio María de Hostos' Day
January 10, 2012 (Tuesday)	First day of classes for students in the MD Faculty, Graduate Program in Biomedical Sciences & Substance Abuse Program. Registration process for students of the Associate Degree in Rad. Tech (1 <sup>st</sup> year (AM), & 2 <sup>nd</sup> year (PM)).
January 10-13, 2012 (Tuesday-Friday)	Late registration period for students registered in December 2011 (4 <sup>th</sup> year MD students, Graduate Program in Biomedical Sciences, Post -Associate Degree Certificate in Magnetic Resonance,).
January 12, 2012 (Thursday)	Registration for students in the Undergraduate Certificate in Diagnostic Medical Sonography (AM), in the Bachelor in Science in Medical Images, and in the Post-Associate Degree Certificate in Magnetic Resonance (PM).
January 16, 2012 (Monday)* Holiday	Martin Luther King's Day
January 17, 2012 (Tuesday)	First day of classes for students in the Undergraduate Academic Programs.
January 17-20, 2012 (Tuesday-Friday)	Late registration period for students in the Undergraduate Academic Programs.
January 24- 26, 2012 (Tuesday-Thursday)	Last day of classes and last day to apply for authorized withdrawal for students in the 2 <sup>nd</sup> & 6 <sup>th</sup> quarters of Substance Abuse Program.
January 27, 2012 (Friday)	Last day of classes and last day to apply for authorized withdrawal for 3 <sup>rd</sup> year MD students. Registration process for the 2 <sup>nd</sup> semester of 3 <sup>rd</sup> year MD students. Last day for removal of Incomplete work for students in the 1 <sup>st</sup> , 2 <sup>nd</sup> & 4 <sup>th</sup> year MD, Graduate Program in Biomedical Sciences and Undergraduate Academic Programs.
January 30, 2012 (Monday)	First day of classes for the 2 <sup>nd</sup> semester of 3 <sup>rd</sup> year MD students.
January 30 – February 3, 2012 (Monday-Friday)	Late registration period for the 2 <sup>nd</sup> semester of 3 <sup>rd</sup> year MD students.
January 31- February 2, 2012 (Tuesday thru Thursday)	Final Examination Period for students in the 2 <sup>nd</sup> & 6 <sup>th</sup> quarters of Substance Abuse Program.
February 3, 2012 (Friday)	Elective Courses Orientation process for students in 3 <sup>rd</sup> year MD (PM).
February 7, 2012 (Tuesday)	Registration process for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program. First day of classes for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program. (2:00-4:00 PM)
February 7-10, 2012 (Wednesday-Friday)	Late registration period for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program.
February 9, 2012 (Thursday)	Last day for removal of Incomplete work for students in students in the 2 <sup>nd</sup> & 6 <sup>th</sup> quarters of Substance Abuse Program.
February 17, 2012 (Friday)	Last day for removal of Incomplete work for students in 3 <sup>rd</sup> year MD.

February 20, 2012 (Monday)* (Holiday)	President's Day
March 22, 2012 (Tuesday)* (Holiday)	Emancipation Day
March 30, 2012 (Friday)	Last day to apply for admission /reclassification for August 2012. (except 1 <sup>st</sup> year MD Program)
April 16, 2012 (Monday)* (Holiday)	José De Diego's Birthday
April 17-19, 2012 (Tuesday thru Thursday)	Last day of classes and last day to apply for authorized withdrawal for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program.
April 18, 2012 (Wednesday)	Last day of classes and to apply for authorized withdrawal for students in 2 <sup>nd</sup> year MD.
April 19 & 20, 2012 (Thursday & Friday)*	Easter Recess.
April 24 - 26, 2012 (Tuesday-Thursday)	Final examination period for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program.
April 24 (Tuesday) - May 18, 2012(Friday)	Final examination period for 2 <sup>nd</sup> year MD.
April 25, 2012 (Wednesday)	Last day to apply for authorized withdrawal for students in the Graduate Program in Basic Biomedical Sciences and in the Undergraduate Academic Programs (before the last course exam).
May 1, 2012 (Tuesday)	Registration and first day of classes for students in 4 <sup>th</sup> quarter of Substance Abuse Program. Deadline for late application for admission/reclassification for August 2012 (except 1 <sup>st</sup> year MD Program).
May 2-4, 2012 (Wednesday thru Friday)	Late registration period for students in the 4 <sup>th</sup> quarter of Substance Abuse Program.
May 3, 2012 (Thursday)	Last day for removal of Incomplete work for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program.
May 4, 2012 (Friday)	Last day of classes & to apply for authorized withdrawal for students in the 1 <sup>st</sup> year MD. Last day of classes for students in the Graduate Program in Biomedical Sciences & in the Undergraduate Academic Programs.
May 7-11, 2012 (Monday-Friday)	Final examination period for students in the Undergraduate Academic Programs.
May 7-25, 2012	Final examination period for students in 1 <sup>st</sup> year MD.
May 11, 2012 (Friday)	Registration process for RT-203 (Summer Clinical Practice).
May 14, 2012 (Monday)	First day of classes for RT-203 (Summer Clinical Practice).
May 18, 2012 (Friday)	Last day to submit to the Office of the Registrar the Official Grades Lists for the students in the Undergraduate Academic Programs.
May 25, 2012 (Friday)	Last day of classes & to apply for authorized withdrawal for students in 4 <sup>th</sup> year MD.
May 28, 2012 (Monday)* (Holiday)	Memorial Day
June 2, 2012 (Saturday)	Commencement Exercises
June 21, 2012 (Thursday)	Last day to apply for authorized withdrawal for RT-203 ( <i>Summer Clinical Practice</i> ).
June 22, 2012 (Friday)	Last day of classes and to apply for authorized withdrawal for 3 <sup>rd</sup> year MD students. Last day to apply for Authorized Leave of Absence (LOA) MD students for 1 <sup>st</sup> semester 2012-13. Last day of classes for RT-203 ( <i>Summer Clinical Practice</i> ).
June 25-29, 2012 (Monday- Friday)	Orientation period for new students in the MD faculty & Graduate Program in Biomedical Sciences.
June 26, 2012 (Tuesday)	Registration for students in the Graduate Program in Biomedical Sciences and for new students (AM).

June 28, 2012 (Thursday)	Registration process for new students in the MD faculty (AM).
July 4, 2012 (Wednesday)*(Holiday)	USA Independence Day
July 5, 2012 (Thursday)	Last day of classes and to apply for authorized withdrawal for students in the 4th quarter of Substance Abuse Program.
July 10-12, 2012 (Tuesday thru Thursday)	Final examination period for students in the 4 <sup>th</sup> quarter of Substance Abuse Program.
July 16, 2012 (Monday)* (Holiday)	Muñoz Rivera's Day
July 17, 2012 (Tuesday)	Registration process for students in the Graduate Program in Biomedical Sciences (AM) and 2 <sup>nd</sup> year of Substance Abuse Program (PM).
July 20, 22, 23, 2012 (Wednesday, Friday & Saturday)	Orientation period for new students in the Substance Abuse Program.
July 19, 2012 (Thursday)	Registration process for 2 <sup>nd</sup> year MD students (AM) & for 2 <sup>nd</sup> year students of the Associate Degree in Radiologic Technology (PM).
July 20, 2012 (Thursday)	Registration process for 3 <sup>rd</sup> (AM) and 4 <sup>th</sup> year MD students (PM).
July 25, 2012 (Wednesday)*(Holiday)	PR's Constitution Day
July 27, 2012 (Friday)* (Holiday)	José C. Barbosa's Day

\*\*\*Subject to change.

The undergraduate academic programs include: Associate Degree in Radiologic Technology, Bachelor in Sciences in Diagnostic Imaging, Post-Associate Degree Certificates in Mammography, Magnetic Resonance, Computerized Tomography, and Diagnostic Medical Sonography.

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 would be administered.

<b>ACADEMIC CALENDAR 2012-2013</b>	
<b>First Semester</b>	
July 30, 2012 (Monday)	First day of classes for students in the MD faculty, Graduate Program in Biomedical Sciences and PhD. Registration process for new students in the Substance Abuse Program (2:00-4:00 PM).
August 1-3, 2012 (Wednesday–Friday)	Late Registration period for students in the MD faculty. Late registration period for students in the Graduate Program in Biomedical Sciences and PhD. Orientation period for new students in the Undergraduate Academic Programs.
August 2, 2012 (Thursday)	Registration process for 5 <sup>th</sup> quarter of Substance Abuse Program. First day of classes for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters of the Substance Abuse Program.
August 3, 2012 (Friday)	Registration process for students in the Bachelor in Sciences in Diagnostic Imaging & Post-Associate Degree Certificates in Diagnostic Medical Sonography and Mammography (PM).
August 6, 2012 (Monday)	Registration process for 1st year students in the Associate Degree in Radiologic Technology (AM) and the Post-Associate Degree Certificate in Computerized Tomography (PM).
August 6-8 (Monday-Wednesday)	Late registration period for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters of Substance Abuse Program.

August 8, 2012 (Wednesday)	First day of classes for students in the Undergraduate Academic Programs.
August 8-10, 2012 (Wednesday-Friday)	Late registration period for students in the Undergraduate Academic Programs.
August 13, 2012 (Monday)	Last day for removal of Incomplete Work for students in 4 <sup>th</sup> quarter of Substance Abuse Program.
August 17, 2012 (Friday)	Last day for removal of Incomplete Work for students in MD & Graduate Program in Biomedical Sciences.
August 24, 2012 (Friday)	Last day for removal of Incomplete Work for students in the Undergraduate Academic Programs.
September 3, 2012 (Monday)* (Holiday)	Labor Day
September 28, 2012 (Friday)	Last day to apply for admission /reclassification for January 2013.
October 9-11, 2012 (Tuesday - Thursday)	Last day of classes and to apply for authorized withdrawal for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters in the Substance Abuse Program.
October 12, 2012 (Friday)* (Holiday)	Columbus Day
October 16-18, 2012 (Tuesday - Thursday)	Final examination period for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters of Substance Abuse Program.
October 23, 2012 (Tuesday)	Registration process and first day of classes for students in 2 <sup>nd</sup> & 6 <sup>th</sup> quarters of Substance Abuse Program (2:00-4:00 PM).
October 24-26, 2012 (Wednesday-Friday)	Late registration period for students in the 2 <sup>nd</sup> & 6 <sup>th</sup> quarters in Substance Abuse Program.
October 26, 2012 (Friday)	Elective Courses Orientation process for students in 3 <sup>rd</sup> year MD (PM).*
October 30, 2012 (Tuesday)	Deadline for late application for admission/reclassification for January 2013.
November 1, 2012 (Thursday)	Last day for removal of Incomplete work for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters in Substance Abuse Program.
November 6, 2012 (Tuesday)* (Holiday)	Election's Day
November 16, 2012 (Friday)	Last day to apply for authorized withdrawal and last day of classes for the Undergraduate Academic Programs. Last day to apply for Authorized Leave of Absence (LOA) for the second semester (Jan.-June 2012).
November 19, 2012 (Monday)* (Holiday)	Puerto Rico's Discovery Day
November 22 & 23, 2012 (Thursday & Friday)*	Thanksgiving Recess
November 26-30, 2012 (Monday-Friday)	Final examination period for the Undergraduate Academic Programs.
December 2,3, 2012 (Monday and Tuesday)	Registration process for 4 <sup>th</sup> year MD students.
November 27, 2012 (Tuesday)	Registration process for 1 <sup>st</sup> year MD students (AM) & 2 <sup>nd</sup> year (PM).
December 7, 2012 (Friday)	Last day to submit to the Office of the Registrar the Official Grade Lists for the Undergraduate Academic Programs. Last day to submit the eligibility qualifications to obtain certificate/degree on December 14, 2012. Last day to apply for authorized withdrawal for students in the Graduate Program in Biomedical Sciences and PhD. (before the final class test).
December 11, 2012 (Tuesday)	Registration process for Graduate Program in Biomedical Sciences and PhD.
December 12, 2012 (Wednesday)	Last day to apply for admission to the MD Program.(first year new students)
December 13, 2012 (Thursday)	Last day of classes for students of Substance Abuse Program. (Classes of the Substance Abuse Program will be meeting according Thursday schedule).

December 14, 2012 (Friday)	Last day of classes and to apply for authorized withdrawal for 1 <sup>st</sup> , 2 <sup>nd</sup> & 4 <sup>th</sup> year MD students. Last day of classes for the Graduate Program in Biomedical Sciences and PhD. Official date for conferring Certificate/Degree for students who have completed all the requirements during 2012.
December 24, 2012 - January 4, 2013	Christmas Recess
<b>Second Semester</b>	
January 7, 2013 (Monday)	First day of classes for students in the MD Faculty, Graduate Program in Biomedical Sciences, PhD & Substance Abuse Program.
January 8,10 & 11, 2013 (Tuesday-Friday)	Late registration period for students registered in December 2011 (4 <sup>th</sup> year MD students, Graduate Program in Biomedical Sciences, PhD).
January 10, 2013 (Thursday)	Registration for students in the Undergraduate Certificate in Diagnostic Medical Sonography (AM), in the Bachelor in Science in Medical Images, and in the Post-Associate Degree Certificate in Magnetic Resonance ( 9:00-2:30pm).
January 11, 2013 (Friday)	Registration process for students of the Associate Degree in Rad. Tech (1 <sup>st</sup> year (AM), & 2 <sup>nd</sup> year (PM).
January 14, 2013 (Monday)* (Holiday)	Eugenio María de Hostos' Day
January 15, 2013 (Tuesday)	First day of classes for students in the Undergraduate Academic Programs.
January 15-18, 2013 (Tuesday-Friday)	Late registration period for students in the Undergraduate Academic Programs.
January 21, 2013 (Monday)* (Holiday)	Martin Luther King's Day
January 22- 24, 2013 (Tuesday-Thursday)	Last day of classes and last day to apply for authorized withdrawal for students in the 2 <sup>nd</sup> & 6 <sup>th</sup> quarters of Substance Abuse Program.
January 25, 2013 (Friday)	Last day of <i>classes</i> and 1 <sup>st</sup> day to apply for authorized withdrawal for 3 <sup>rd</sup> year MD students. Registration process for the 2 <sup>nd</sup> semester of 3 <sup>rd</sup> year MD students. Last day for removal of Incomplete work for students in the 1 <sup>st</sup> , 2 <sup>nd</sup> & 4 <sup>th</sup> year MD, Graduate Program in Biomedical Sciences, PhD and Undergraduate Academic Programs.
January 28, 2013 (Monday)	First day of classes for the 2 <sup>nd</sup> semester of 3 <sup>rd</sup> year MD students.
January 28 – February 1, 2013 (Monday-Friday)	Late registration period for the 2 <sup>nd</sup> semester of 3 <sup>rd</sup> year MD students.
January 29- 31, 2013 (Tuesday - Thursday)	Final Examination Period for students in the 2 <sup>nd</sup> & 6 <sup>th</sup> quarters of Substance Abuse Program.
February 5, 2013 (Tuesday)	Registration process for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program. First day of classes for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program. (2:00-4:00 PM)
February 6-8, 2013 (Wednesday-Friday)	Late registration period for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program.
February 7, 2013 (Thursday)	Last day for removal of Incomplete work for students in students in the 2 <sup>nd</sup> & 6 <sup>th</sup> quarters of Substance Abuse Program.
February 15, 2013 (Friday)	Last day for removal of Incomplete work for students in 3 <sup>rd</sup> year MD.
February 18, 2013 (Monday)* (Holiday)	President's Day
March 22, 2013 (Thursday)* (Holiday)	Emancipation Day
March 27, 2013 (Wednesday)	Last day to apply for admission /reclassification for August 2013. (except 1 <sup>st</sup> year MD Program)

March 28-29, 2013 (Thursday & Friday)*	Easter Recess.
April 15, 2013 (Monday)* (Holiday)	José De Diego's Birthday
April 16-18, 2013 (Tuesday - Thursday)	Last day of classes and last day to apply for authorized withdrawal for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program.
April 17, 2013 (Wednesday)	Last day of classes and to apply for authorized withdrawal for students in 2 <sup>nd</sup> year MD.
April 23-25, 2013 (Tuesday - Thursday)	Final examination period for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program.
April 23 (Tuesday) - May 17, 2013(Friday)	Final examination period for 2 <sup>nd</sup> year MD.
April 24, 2013 (Wednesday)	Last day to apply for authorized withdrawal for students in the Graduate Program in Basic Biomedical Sciences, PhD. and in the Undergraduate Academic Programs (before the last course exam).
April 30, 2013 (Tuesday)	Registration and first day of classes for students in 4 <sup>th</sup> quarter of Substance Abuse Program. Deadline for late application for admission/reclassification for August 2013 (except 1 <sup>st</sup> year MD Program).
May 1-3, 2013 (Wednesday - Friday)	Late registration period for students in the 4 <sup>th</sup> quarter of Substance Abuse Program.
May 2, 2013 (Thursday)	Last day for removal of Incomplete work for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program.
May 3, 2013 (Friday)	Last day of classes & to apply for authorized withdrawal for students in the 1 <sup>st</sup> year MD. Last day of classes for students in the Graduate Program in Biomedical Sciences, PhD & in the Undergraduate Academic Programs.
May 6-10, 2013 (Monday-Friday)	Final examination period for students in the Undergraduate Academic Programs.
May 6-24, 2013	Final examination period for students in 1 <sup>st</sup> year MD.
May 10, 2013 (Friday)	Registration process for RT-203 (Summer Clinical Practice).
May 11, 2013 (Saturday)	Comprehensive Exam for Substance Abuse Program
May 13, 2013 (Monday)	First day of classes for RT-203 (Summer Clinical Practice).
May 17, 2013 (Friday)	Last day to submit to the Office of the Registrar the Official Grades Lists for the students in the Undergraduate Academic Programs.
May 24, 2013 (Friday)	Last day of classes & to apply for authorized withdrawal for students in 4 <sup>th</sup> year MD.
May 27, 2013 (Monday)* (Holiday)	Memorial Day
June 1, 2013 (Saturday)	Commencement Exercises
June 20, 2013 (Thursday)	Last day to apply for authorized withdrawal for RT-203 ( <i>Summer Clinical Practice</i> ).
June 21, 2013 (Friday)	Last day of classes and to apply for authorized withdrawal for 3 <sup>rd</sup> year MD students. Last day to apply for Authorized Leave of Absence (LOA) MD students for 1 <sup>st</sup> semester 2012-13. Last day of classes for RT-203 ( <i>Summer Clinical Practice</i> ).
June 24-28, 2013 (Monday-Friday)	Orientation period for new students in the MD faculty & Graduate Program in Biomedical Sciences and PhD.
June 25, 2013 (Tuesday)	Registration for students in the Graduate Program in Biomedical Sciences, PhD and for new students (AM).
June 27, 2013 (Thursday)	Registration process for new students in the MD faculty (AM).

July 4, 2013 (Thursday)* (Holiday)	USA Independence Day
July 5, 2013 (Friday)	Last day of classes and to apply for authorized withdrawal for students in the 4 <sup>th</sup> quarter of Substance Abuse Program.
July 9-11, 2013 (Tuesday - Thursday)	Final examination period for students in the 4 <sup>th</sup> quarter of Substance Abuse Program.
July 15, 2013 (Monday)* (Holiday)	Muñoz Rivera's Day
***July 17-19-20,2013 (Wednesday, Friday & Saturday)	Orientation period for new students in the Substance Abuse Program.
July 18, 2013 (Thursday)	Registration process for 2 <sup>nd</sup> year MD students (AM) & for 2 <sup>nd</sup> year students of the Associate Degree in Radiologic Technology (PM).
July 19, 2013 (Friday)	Registration process for 3 <sup>rd</sup> (AM) and 4 <sup>th</sup> year MD students (PM).
July 22, 2012 (Monday)* (Holiday)	José C. Barbosa's Day
July 25, 2013 (Thursday)* (Holiday)	PR's Constitution Day

\*Subject to change.

The undergraduate academic programs include: Associate Degree in Radiologic Technology, Bachelor in Sciences in Diagnostic Imaging, Post-Associate Degree Certificates in Mammography, Magnetic Resonance, Computerized Tomography, and Diagnostic Medical Sonography.

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 would be administered.

<b>ACADEMIC CALENDAR 2013-2014</b>	
<b>First Semester</b>	
July 29, 2013 (Monday)	First day of classes for students in the MD faculty, Graduate Program in Biomedical Sciences and PhD. Registration process for new students in the Substance Abuse Program (2:00-4:00 PM).
July 31-August 2, 2013 (Wednesday-Friday)	Late Registration period for students in the MD faculty. Late registration period for students in the Graduate Program in Biomedical Sciences and PhD. Orientation period for new students in the Undergraduate Academic Programs.
August 1, 2013 (Thursday)	Registration process for 5 <sup>th</sup> quarter of Substance Abuse Program. First day of classes for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters of the Substance Abuse Program.
August 2, 2013 (Friday)	Registration process for students in the Bachelor in Sciences in Diagnostic Imaging & Post-Associate Degree Certificates in Diagnostic Medical Sonography and Mammography (PM).
August 5, 2013 (Monday)	Registration process for 1 <sup>st</sup> year students in the Associate Degree in Radiologic Technology (AM) and the Post-Associate Degree Certificate in Computerized Tomography (PM).
August 7, 2013 (Wednesday)	First day of classes for students in the Undergraduate Academic Programs.
August 7-9, 2013 (Wednesday-Friday)	Late registration period for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters of Substance Abuse Program and Undergraduate Academic Programs.
August 12, 2013 (Monday)	Last day for removal of Incomplete Work for students in 4 <sup>th</sup> quarter of Substance Abuse Program.
August 16, 2013 (Friday)	Last day for removal of Incomplete Work for students in MD & Graduate Program in Biomedical Sciences.

August 23, 2013 (Friday)	Last day for removal of Incomplete Work for students in the Undergraduate Academic Programs.
September 2, 2013 (Monday)* (Holiday)	Labor Day
September 27, 2013 (Friday)	Last day to apply for admission /reclassification for January 2014.
October 8-10, 2013 (Tuesday -Thursday)	Last day of classes and to apply for authorized withdrawal for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters in the Substance Abuse Program.
October 15-17, 2013 (Tuesday -Thursday)	Final examination period for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters of Substance Abuse Program.
October 22, 2013 (Tuesday)	Registration process and first day of classes for students in 2 <sup>nd</sup> & 6 <sup>th</sup> quarters of Substance Abuse Program (2:00-4:00 PM).
October 23-25, 2013 (Wednesday-Friday)	Late registration period for students in the 2 <sup>nd</sup> & 6 <sup>th</sup> quarters in Substance Abuse Program.
October 25, 2013 (Friday)	Elective Courses Orientation process for students in 3 <sup>rd</sup> year MD (PM).*
October 29, 2013 (Tuesday)	Deadline for late application for admission/reclassification for January 2014.
October 31, 2013 (Thursday)	Last day for removal of Incomplete work for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters in Substance Abuse Program.
November 11, 2013 (Monday) (Holiday)	Veteran's Day
November 15, 2013 (Friday)	Last day to apply for authorized withdrawal and last day of classes for the Undergraduate Academic Programs. Last day to apply for Authorized Leave of Absence (LOA) for the second semester (Jan.-June 2014)
November 19, 2013 (Tuesday)* (Holiday)	Puerto Rico's Discovery Day
November 28 & 29, 2013 (Thursday & Friday)*	Thanksgiving Recess
November 26, 2013 (Tuesday)	Registration process for 1 <sup>st</sup> year MD students (AM) & 2 <sup>nd</sup> year (PM).
December 2,3, 2013 (Monday and Tuesday)	Registration process for 4 <sup>th</sup> year MD students.
December 2-6, 2013 (Monday-Friday)	Final examination period for the Undergraduate Academic Programs.
December 6, 2013 (Friday)	Last day to submit to the Office of the Registrar the Official Grade Lists for the Undergraduate Academic Programs. Last day to submit the eligibility qualifications to obtain certificate/degree on December 13, 2013. Last day to apply for authorized withdrawal for students in the Graduate Program in Biomedical Sciences and PhD. (before the final class test).
December 10, 2013 (Tuesday)	Registration process for Graduate Program in Biomedical Sciences and PhD.
December 11, 2013 (Wednesday)	Last day to apply for admission to the MD Program.(first year new students)
December 12, 2013 (Thursday)	Last day of classes for students of Substance Abuse Program. (Classes of the Substance Abuse Program will be meeting according Thursday schedule).
December 13, 2013 (Friday)	Last day of classes and to apply for authorized withdrawal for 1 <sup>st</sup> , 2 <sup>nd</sup> & 4 <sup>th</sup> year MD students. Last day of classes for the Graduate Program in Biomedical Sciences and PhD. Official date for conferring Certificate/Degree for students who have completed all the requirements during 2013.
December 23, 2013 - January 3, 2014	Christmas Recess

<b>Second Semester</b>	
January 7, 2014 (Tuesday)	First day of classes for students in the MD Faculty, Graduate Program in Biomedical Sciences, PhD & Substance Abuse Program.
January 7-10, 2014 (Tuesday-Friday)	Late registration period for students registered in December 2011 (4 <sup>th</sup> year MD students, Graduate Program in Biomedical Sciences, PhD).
January 9, 2014 (Thursday)	Registration for students in the Undergraduate Certificate in Diagnostic Medical Sonography (AM), in the Bachelor in Science in Medical Images, and in the Post-Associate Degree Certificate in Magnetic Resonance ( 9:00-2:30pm).
January 10, 2014 (Friday)	Registration process for students of the Associate Degree in Rad. Tech (1 <sup>st</sup> year (AM), & 2 <sup>nd</sup> year (PM).
January 13, 2014 (Monday)* (Holiday)	Eugenio María de Hostos' Day
January 14, 2014 (Tuesday)	First day of classes for students in the Undergraduate Academic Programs.
January 14-17, 2014 (Tuesday-Friday)	Late registration period for students in the Undergraduate Academic Programs.
January 20, 2014 (Thursday)* (Holiday)	Martin Luther King's Day
January 21- 23, 2014 (Tuesday-Thursday)	Last day of classes and last day to apply for authorized withdrawal for students in the 2 <sup>nd</sup> & 6 <sup>th</sup> quarters of Substance Abuse Program.
January 24, 2014 (Friday)	Last day of classes and 1st day to apply for authorized withdrawal for 3 <sup>rd</sup> year MD students. Registration process for the 2 <sup>nd</sup> semester of 3 <sup>rd</sup> year MD students. Last day for removal of Incomplete work for students in the 1 <sup>st</sup> , 2 <sup>nd</sup> & 4 <sup>th</sup> year MD, Graduate Program in Biomedical Sciences, PhD and Undergraduate Academic Programs.
January 27, 2014 (Monday)	First day of classes for the 2 <sup>nd</sup> semester of 3 <sup>rd</sup> year MD students.
January 27 – 31, 2014 (Monday-Friday)	Late registration period for the 2 <sup>nd</sup> semester of 3 <sup>rd</sup> year MD students.
January 28- 30, 2014 (Tuesday -Thursday)	Final Examination Period for students in the 2 <sup>nd</sup> & 6 <sup>th</sup> quarters of Substance Abuse Program.
February 4, 2014 (Tuesday)	Registration process for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program. First day of classes for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program. (2:00-4:00 PM)
February 5-7, 2014 (Wednesday-Friday)	Late registration period for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program.
February 6, 2014 (Thursday)	Last day for removal of Incomplete work for students in students in the 2 <sup>nd</sup> & 6 <sup>th</sup> quarters of Substance Abuse Program.
February 14, 2014 (Friday)	Last day for removal of Incomplete work for students in 3 <sup>rd</sup> year MD.
February 17, 2014 (Monday)* (Holiday)	President's Day
March 26, 2014 (Wednesday)	Last day to apply for admission /reclassification for August 2013. (except 1 <sup>st</sup> year MD Program)
April 14-16, 2014 (Monday-Wednesday)	Last day of classes and last day to apply for authorized withdrawal for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program.
April 17-18, 2014 (Thursday & Friday)	Easter Recess.
April 16, 2014 (Wednesday)	Last day of classes and to apply for authorized withdrawal for students in 2 <sup>nd</sup> year MD.
April 21, 2014 (Monday)* (Holiday)	José De Diego's Birthday
April 22-24, 2014 (Tuesday -Thursday)	Final examination period for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program.

April 22 (Tuesday) - May 16, 2014(Friday)	Final examination period for 2 <sup>nd</sup> year MD.
April 23, 2014 (Wednesday)	Last day to apply for authorized withdrawal for students in the Graduate Program in Basic Biomedical Sciences, PhD. and in the Undergraduate Academic Programs (before the last course exam).
April 29, 2014 (Tuesday)	Registration and first day of classes for students in 4 <sup>th</sup> quarter of Substance Abuse Program. Deadline for late application for admission/reclassification for August 2014 (except 1 <sup>st</sup> year MD Program).
April 30 (Wednesday)-May 2, 2014 (Friday)	Late registration period for students in the 4 <sup>th</sup> quarter of Substance Abuse Program.
May 1, 2014(Thursday)	Last day for removal of Incomplete work for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program.
May 2, 2014 (Friday)	Last day of classes & to apply for authorized withdrawal for students in the 1 <sup>st</sup> year MD. Last day of classes for students in the Graduate Program in Biomedical Sciences, PhD & in the Undergraduate Academic Programs.
May 5-9, 2014 (Monday-Friday)	Final examination period for students in the Undergraduate Academic Programs.
May 5-23, 2014	Final examination period for students in 1 <sup>st</sup> year MD.
May 9, 2014 (Friday)	Registration process for RT-203 (Summer Clinical Practice).
May 10, 2014 (Saturday)	Comprehensive Exam for Substance Abuse Program
May 12, 2014 (Monday)	First day of classes for RT-203 (Summer Clinical Practice).
May 16, 2014 (Friday)	Last day to submit to the Office of the Registrar the Official Grades Lists for the students in the Undergraduate Academic Programs.
May 23, 2014 (Friday)	Last day of classes & to apply for authorized withdrawal for students in 4 <sup>th</sup> year MD.
May 26, 2014 (Monday)* (Holiday)	Memorial Day
June 7, 2014 (Saturday)	Commencement Exercises
June 19, 2014 (Thursday)	Last day to apply for authorized withdrawal for RT-203 ( <i>Summer Clinical Practice</i> ).
June 20, 2014 (Friday)	Last day of classes and to apply for authorized withdrawal for 3 <sup>rd</sup> year MD students. Last day to apply for Authorized Leave of Absence (LOA) MD students for 1 <sup>st</sup> semester 2014-2015. Last day of classes for RT-203 ( <i>Summer Clinical Practice</i> ).
June 23-27, 2014 (Monday-Friday)	<i>Orientation</i> period for new students in the MD faculty & Graduate Program in Biomedical Sciences and PhD.
June 26, 2014 (Thursday)	Registration process for new students in the MD faculty (AM).
July 3, 2014 (Thursday)	Last day of classes and to apply for authorized withdrawal for students in the 4 <sup>th</sup> quarter of Substance Abuse Program.
July 4, 2014 (Friday)* (Holiday)	USA Independence Day
July 8-10, 2014 (Tuesday - Thursday)	Final examination period for students in the 4 <sup>th</sup> quarter of Substance Abuse Program.
July 15, 2014 (Tuesday)	<i>Registration</i> process for 3 <sup>rd</sup> year MD students (AM). Registration for students in the Graduate Program in Biomedical Sciences PhD and for new students (PM)
***July 16-18-19,2014 (Wednesday, Friday & Saturday)	Orientation period for new students in the Substance Abuse Program.
July 17, 2014 (Thursday)	<i>Registration</i> process for 2 <sup>nd</sup> year MD students (AM) & for 2 <sup>nd</sup> year students of the Associate Degree in Radiologic Technology (PM).

July 18, 2014 (Friday)	Registration process for 4 <sup>th</sup> year MD students (PM).
July 21, 2014 (Monday)* (Holiday)	Muñoz Rivera's Day
July 25, 2014 (Friday)* (Holiday)	PR's Constitution Day
July 28, 2014 (Monday)* (Holiday)	José C. Barbosa's Day

\*Subject to change.

The undergraduate academic programs include: Associate Degree in Radiologic Technology, Bachelor in Sciences in Diagnostic Imaging, Post-Associate Degree Certificates in Mammography, Magnetic Resonance, Computerized Tomography, and Diagnostic Medical Sonography.

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 would be administered.

<b>ACADEMIC CALENDAR 2014-2015</b>	
<b>First Semester</b>	
August 4, 2014 (Monday)	First day of classes for students in the MD faculty, Graduate Program in Biomedical Sciences and PhD. Registration process for new students in the Substance Abuse Program (2:00-4:00 PM).
August 4-8, 2014 (Monday-Friday)	Late Registration period for students in the MD faculty. Late registration period for students in the Graduate Program in Biomedical Sciences and PhD. Orientation period for new students in the Undergraduate Academic Programs.
August 5, 2014 (Tuesday)	Registration process for 5 <sup>th</sup> quarter of Substance Abuse Program. First day of classes for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters of the Substance Abuse Program.
August 6, 2014 (Wednesday)	Registration process for students in the Bachelor in Sciences in Diagnostic Imaging & Post-Associate Degree Certificates in Diagnostic Medical Sonography and Mammography (PM).
August 6-8, 2014 (Wednesday-Friday)	Late registration period for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters of Substance Abuse Program.
August 7, 2014 (Thursday)	Registration process for 1st year students in the Associate Degree in Radiologic Technology (AM) and the Post-Associate Degree Certificate in Computerized Tomography (PM).
August 11, 2014 (Monday)	First day of classes for students in the Undergraduate Academic Programs. Last day for removal of Incomplete work for students in 4 <sup>th</sup> quarter of Substance Abuse Program.
August 11-15, 2014 (Monday-Friday)	Late registration period for students in the Undergraduate Academic Programs.
August 15, 2014 (Friday)	Last day for removal of Incomplete Work for students in MD & Graduate Program in Biomedical Sciences.
August 22, 2014 (Friday)	Last day for removal of Incomplete Work for students in the Undergraduate Academic Programs.
September 1, 2014 (Monday)* (Holiday)	Labor Day
September 26, 2014 (Friday)	Last day to apply for admission /reclassification for January 2015.
October 7-9, 2014 (Tuesday - Thursday)	Last day of classes and to apply for authorized withdrawal for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters in the Substance Abuse Program.

October 14- 16, 2014 (Tuesday thru Thursday)	Final examination period for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters of Substance Abuse Program.
October 21, 2014 (Tuesday)	Registration process and first day of classes for students in 2 <sup>nd</sup> & 6 <sup>th</sup> quarters of Substance Abuse Program (2:00-4:00 PM).
October 22-24, 2014 (Wednesday-Friday)	Late registration period for students in the 2 <sup>nd</sup> & 6 <sup>th</sup> quarters in Substance Abuse Program.
October 24, 2014 (Friday)	Elective Courses Orientation process for students in 3 <sup>rd</sup> year MD (PM)*
October 28, 2014 (Tuesday)	Deadline for late application for admission/reclassification for January 2015.
October 30, 2014 (Thursday)	Last day for removal of Incomplete work for students in the 1 <sup>st</sup> & 5 <sup>th</sup> quarters in Substance Abuse Program.
November 11, 2014 (Tuesday)* (Holiday)	Veteran's Day
November 14, 2014 (Friday)	Last day to apply for authorized withdrawal and last day of classes for the Undergraduate Academic Programs. Last day to apply for Authorized Leave of Absence (LOA) for the second semester (Jan.-June 2015).
November 27-28, 2014 (Thursday & Friday)*	Thanksgiving Recess
December 1, 2014 (Monday)	Registration process for 1 <sup>st</sup> year MD students (AM) & 2 <sup>nd</sup> year (PM).
December 1-5, 2014 (Monday-Friday)	Final examination period for the Undergraduate Academic Programs.
December 5, 2014 (Friday)	Last day to submit to the Office of the Registrar the Official Grade Lists for the Undergraduate Academic Programs. Last day to submit the eligibility qualifications to obtain certificate/degree on December 19, 2014.. Last day to apply for authorized withdrawal for students in the Graduate Program in Biomedical Sciences and PhD. (before the final class test).
December 4-5, 2014 (Thursday and Friday)	Registration process for 4 <sup>th</sup> year MD students (AM)
December 9, 2014 (Thursday)	Registration process for Graduate Program in Biomedical Sciences and PhD. (PM).
December 10, 2014 (Wednesday)	Last day to apply for admission to the MD Program.(first year new students)
December 11, 2014 (Thursday)	Last day of classes for students of Substance Abuse Program. (Classes of the Substance Abuse Program will be meeting according Thursday schedule).
December 19, 2014 (Friday)	Last day of classes and to apply for authorized withdrawal for 1 <sup>st</sup> , 2 <sup>nd</sup> & 4 <sup>th</sup> year MD students. Last day of classes for the Graduate Program in Biomedical Sciences and PhD. Official date for conferring Certificate/Degree for students who have completed all the requirements during 2014.
December 22, 2014 - January 5, 2015	Christmas Recess
<b>Second Semester</b>	
January 7, 2015 (Wednesday)	First day of classes for students in the MD Faculty, Graduate Program in Biomedical Sciences, PhD & Substance Abuse Program.
January 7-9, 2015 (Wednesday-Friday)	Late registration period for students registered in December 2014 (4 <sup>th</sup> year MD students, Graduate Program in Biomedical Sciences, PhD).
January 12, 2015 (Monday)* (Holiday)	Eugenio María de Hostos' Day
January 8, 2015 (Thursday)	Registration for students in the Undergraduate Certificate in Diagnostic Medical Sonography (AM), in the Bachelor in Science in Medical Images, and in the Post-Associate Degree Certificate in Magnetic Resonance (PM).

January 19, 2015 (Monday)* (Holiday)	Martin Luther King's Day
January 13, 2015 (Tuesday)	First day of classes for students in the Undergraduate Academic Programs.
January 13-16, 2015 (Tuesday-Friday)	Late registration period for students in the Undergraduate Academic Programs.
January 20- 22, 2015 (Tuesday-Thursday)	Last day of classes and last day to apply for authorized withdrawal for students in the 2 <sup>nd</sup> & 6 <sup>th</sup> quarters of Substance Abuse Program.
January 23, 2015 (Friday)	Last day of classes and last day to apply for authorized withdrawal for 3 <sup>rd</sup> year MD students. Registration process for the 2 <sup>nd</sup> semester of 3 <sup>rd</sup> year MD students. Last day for removal of Incomplete work for students in the 1 <sup>st</sup> , 2 <sup>nd</sup> & 4 <sup>th</sup> year MD, Graduate Program in Biomedical Sciences, PhD and Undergraduate Academic Programs.
January 26, 2015 (Monday)	First day of classes for the 2 <sup>nd</sup> semester of 3 <sup>rd</sup> year MD students.
January 26-30, 2015 (Monday-Friday)	Late registration period for the 2 <sup>nd</sup> semester of 3 <sup>rd</sup> year MD students.
January 27-29, 2015 (Tuesday thru Thursday)	Final Examination Period for students in the 2 <sup>nd</sup> & 6 <sup>th</sup> quarters of Substance Abuse Program.
February 3, 2015 (Tuesday)	Registration process for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program. First day of classes for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program. (2:00-4:00 PM)
February 4-6, 2015 (Wednesday-Friday)	Late registration period for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program.
February 5, 2015 (Thursday)	Last day for removal of Incomplete work for students in students in the 2 <sup>nd</sup> & 6 <sup>th</sup> quarters of Substance Abuse Program.
February 13, 2015 (Friday)	Last day for removal of Incomplete work for students in 3 <sup>rd</sup> year MD.
February 16, 2015 (Monday)* (Holiday)	President's Day
March 25, 2015 (Wednesday)	Last day to apply for admission /reclassification for August 2015. (except 1 <sup>st</sup> year MD Program)
April 20, 2015 (Monday)* (Holiday)	José De Diego's Birthday
April 13-15, 2015 (Tuesday - Thursday)	Last day of classes and last day to apply for authorized withdrawal for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program.
April 15,2015 (Wednesday)	Last day of classes and to apply for authorized withdrawal for students in 2 <sup>nd</sup> year MD.
April 2-3, 2015 (Thursday & Friday)*	Easter Recess.
April 21-23, 2015 (Tuesday-Thursday)	Final examination period for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program.
April 21 (Tuesday) - May 15, 2015(Friday)	Final examination period for 2 <sup>nd</sup> year MD.
April 22, 2015 (Wednesday)	Last day to apply for authorized withdrawal for students in the Graduate Program in Basic Biomedical Sciences, PhD. and in the Undergraduate Academic Programs (before the last course exam).
April 28, 2015 (Tuesday)	Registration and first day of classes for students in 4 <sup>th</sup> quarter of Substance Abuse Program. Deadline for late application for admission/reclassification for August 2012 (except 1 <sup>st</sup> year MD Program).
April 29- May 1, 2015 (Wednesday thru Friday)	Late registration period for students in the 4 <sup>th</sup> quarter of Substance Abuse Program.

April 30, 2015 (Thursday)	Last day for removal of Incomplete work for students in the 3 <sup>rd</sup> & 7 <sup>th</sup> quarters of Substance Abuse Program.
May 1, 2015 (Friday)	Last day of classes & to apply for authorized withdrawal for students in the 1 <sup>st</sup> year MD. Last day of classes for students in the Graduate Program in Biomedical Sciences, PhD & in the Undergraduate Academic Programs.
May 4-8, 2015 (Monday-Friday)	Final examination period for students in the Undergraduate Academic Programs.
May 4-22, 2015	Final examination period for students in 1 <sup>st</sup> year MD.
May 8, 2015 (Friday)	Registration process for RT-203 (Summer Clinical Practice).
May 9, 2015 (Saturday)	Comprehensive Exam for Substance Abuse Program
May 11, 2015 (Monday)	First day of classes for RT-203 (Summer Clinical Practice).
May 15, 2015 (Friday)	Last day to submit to the Office of the Registrar the Official Grades Lists for the students in the Undergraduate Academic Programs.
May 22, 2015 (Friday)	Last day of classes & to apply for authorized withdrawal for students in 4 <sup>th</sup> year MD.
May 25, 2015 (Monday)* (Holiday)	Memorial Day
June 6, 2015 (Saturday)	Commencement Exercises
June 18, 2015 (Thursday)	Last day to apply for authorized withdrawal for RT-203 ( <i>Summer Clinical Practice</i> ).
June 19, 2015 (Friday)	Last day of classes and to apply for authorized withdrawal for 3 <sup>rd</sup> year MD students. Last day to apply for Authorized Leave of Absence (LOA) MD students for 1 <sup>st</sup> semester 2015-2016.. Last day of classes for RT-203 ( <i>Summer Clinical Practice</i> ).
June 22-26, 2015 (Monday-Friday)	Orientation period for new students in the MD faculty & Graduate Program in Biomedical Sciences and PhD.
June 25, 2015 (Thursday)	Registration process for new students in the MD faculty (AM).
July 2, 2015 (Thursday)	Last day of classes and to apply for authorized withdrawal for students in the 4 <sup>th</sup> quarter of Substance Abuse Program.
July 7-9, 2015 (Tuesday-Thursday)	Final examination period for students in the 4 <sup>th</sup> quarter of Substance Abuse Program.
July 14, 2015 (Tuesday)	Registration process for 3 <sup>rd</sup> year MD students (AM). Registration process for students in the Graduate Program in Biomedical Sciences (PM)
July 20, 2015 (Monday)* (Holiday)	Muñoz Rivera's Day
***July 15, 17 & 18, 2015 (Wednesday, Friday & Saturday)	Orientation period for new students in the Substance Abuse Program.
July 16, 2015 (Thursday)	Registration process for 2 <sup>nd</sup> year MD students (AM) & for 2 <sup>nd</sup> year students of the Associate Degree in Radiologic Technology (PM).
July 17, 2015 (Friday)	Registration process for 3 <sup>rd</sup> (AM) and 4 <sup>th</sup> year MD students (PM).
July 27, 2015 (Monday)* (Holiday)	José C. Barbosa's Day

\*Subject to change.

The undergraduate academic programs include: Associate Degree in Radiologic Technology, Bachelor in Sciences in Diagnostic Imaging, Post-Associate Degree Certificates in Mammography, Magnetic Resonance, Computerized Tomography, and Diagnostic Medical Sonography.

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 would be administered.

# BURSARS OFFICE

## GENERAL FEES

The following fees are applicable for all students:

ID Cards.....	\$15.00
Parking per year.....	\$40.00
Parking label replacement .....	\$10.00
Activity fee (per year) evening classes .....	\$50.00
CPR course (if applicable).....	\$50.00
Late Registration.....	\$100.00
Accident insurance (per year).....	\$12.00
Health Insurance*	

\*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.

## OTHER FEES

Transcripts .....	\$5.00
Dean's Letter.....	\$10.00
Study Certification.....	\$10.00
Grade Certification .....	\$10.00
Diploma Certification.....	\$10.00
Translation of Medical School Diploma.....	\$25.00
Copy of the Diploma for:	
Medicine.....	\$75.00
All the other programs.....	\$50.00
Affidavit .....	\$55.00
Student File Copy (per sheet).....	\$2.00
Graduate Medical Education Certification .....	\$50.00
Mail:	
Priority Mail .....	\$5.00
Express Mail.....	\$20.00
Lockers (non-refundable).....	\$10.00
Fax (per sheet).....	\$1.00
Dosimeter.....	\$50.00
School Badge .....	\$10.00

## APPLICABLE TUITION AND FEES FOR:

### SCHOOL OF MEDICINE

Tuition for resident medical students of Puerto Rico is \$10,000.00 per semester while tuition for non-resident medical students is \$15,038.50 per semester. Other fees are:

Admission, with application (non-refundable).....	\$100.00
Readmission, with application.....	\$100.00
Deposit to hold place (non-refundable).....	\$100.00
Clinical laboratory (per year).....	\$2,000.00
General fee (per year).....	\$700.00
Technology Resources (per year).....	\$700.00
Orientation activity fee (First year).....	\$400.00
Graduation fee .....	\$500.00
NBME Reposition Exam.....	\$225.00

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## **PROGRAM OF GRADUATE STUDIES IN BIOMEDICAL SCIENCES**

Tuition for the Program of Graduate Studies in Biomedical Sciences is \$300.00 per credit. Fees are the following:

Admission, with application (non-refundable).....	\$50.00
Late admission.....	\$150.00
Deposit to hold place .....	\$100.00
Maintenance of "active status", per semester....	\$50.00
Technology Resources (per year).....	\$600.00
General fee (per year).....	\$400.00
Laboratory fee (per year).....	\$500.00
Graduation fee .....	\$250.00
Endowment fee (per student).....	\$275.00
Software fee per year.....	\$30.00
Comprehensive test .....	\$50.00
Thesis printing.....	\$200.00
Reclassification .....	\$50.00

## **GRADUATE PROGRAM IN PHC (CELL & MOLECULAR)**

Tuition for the Program of Graduate Program in Ph.D is \$300.00 per credit. Fees are the following:

Admission, with application (non-refundable).....	\$50.00
Late admission.....	\$150.00
Deposit to hold place .....	\$100.00
Technology Resources (per year).....	\$600.00
General fee (per year).....	\$400.00
Laboratory fee (per year).....	\$500.00
Graduation fee .....	\$250.00
Endowment fee (per student).....	\$275.00
Software fee per year.....	\$30.00
Comprehensive test .....	\$50.00
Thesis printing.....	\$200.00
Reclassification.....	\$50.00

## **PROGRAM OF SUBSTANCE ABUSE**

Tuition for the Program of Substance Abuse is \$170.00 per credit. Fees are the following:

Admission, with application (non-refundable).....	\$50.00
Late admission.....	\$150.00
Deposit to hold place.....	\$100.00
Maintenance of active status, per trimester.....	\$33.00
Technology Resources (per year).....	\$600.00
General fee (per year).....	\$400.00
Graduation fee.....	\$200.00
Reclassification.....	\$50.00

**MEDICAL IMAGES TECHNOLOGY PROGRAM  
 ASSOCIATE DEGREE IN RADIOLOGIC TECHNOLOGY,  
 CERTIFICATE IN DIAGNOSTIC MEDICAL SONOGRAPHY,  
 POST ASSOCIATE CERTIFICATES IN: MAMMOGRAPHY, COMPUTER  
 TOMOGRAPHY, AND MAGNETIC RESONANCE AND BACHELLOR OF  
 SCIENCE IN DIAGNOSTIC IMAGES**

Tuition for the Radiologic Technology Program is \$153.00 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
Readmission, with application.....	\$25.00
Late admission.....	\$100.00
Deposit to hold place .....	\$100.00
Technical Resources (per year).....	\$500.00
General Fee (per year).....	\$150.00
Graduation Fee .....	\$100.00
Reclassification.....	\$50.00
Late reclassification .....	\$30.00

**REIMBURSEMENT OF TUITION FEES**

**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 upon when the student withdraws.

<b>Time of Withdrawal</b>	<b>% of Charges Refunded</b>
Before the 1 <sup>st</sup> 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

- Registration deposit guaranteeing admissions is not refundable.

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

As an Institution that participates and distributes students' financial aid Title IV Funds, Universidad Central del Caribe adheres to the 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.

The formula used to determine the total amount to be refunded is as follows:

1. Determine the percentage of period of enrollment the student attended.
2. Determine the amount of Title IV funds earned by multiplying the total amount of Title IV aid (other than FWS) for which the student qualified by the percentage of time enrolled.
3. Compare the amount earned to the amount disbursed, if less aid was disbursed than was earned the student may receive a post-withdrawal disbursement by the institution for the difference. If more aid was disbursed than was earned, the Institution will determine the amount of Title IV aid that must be returned (i.e., that was unearned) by subtracting the earned amount from the amount actually disbursed. The difference will be refunded to the appropriate Title IV Funds Program.
4. If the student received an amount of funds that had been considered due prior to withdrawal and upon withdrawal it is determined the student received an overpayment, the student will be responsible for the reimbursement of the amount determined to be an overpayment.

If the student has received an overpayment, the Financial Aid Office will communicate to the student the existence of his situation and that he/she is responsible to return the overpayment amount.

## **RESEARCH ACTIVITIES**

### **R e s e a r c h   C e n t e r s**

#### **Center for Addiction Studies**

The Center for Addiction Studies was established with the purpose of expanding scientific knowledge on substance abuse, HIV/AIDS and related topics. The objectives of the Center are: 1) To estimate the prevalence of drug use, abuse and dependence in the Puerto Rican population, 2) Describe the patterns of drug use and associated factors and, 3) Examine the relationship between substance abuse and other physical and mental health conditions. The Center aims to provide empirical knowledge as the base for the preparation of health professionals that provide substance abuse and drug treatment services. The Center also maintains scientific databases that serve as reference for public policy making.

#### **Cellular and Molecular Biology Center**

The Cellular and Molecular Biology Center is an interdisciplinary group of researchers from all the basic sciences departments at our Institution with common and interrelated research interests in cell and molecular biology. The Center coordinates two core facilities, the Optical Imaging Facility and the Protein and DNA Core Facility, which offer services to Center members and the general scientific community. The Center also coordinates seminars, workshops and an Annual Retreat for UCC researchers, where conceptual and technical advances in cell and molecular biology are presented and demonstrated by distinguished visiting scientists and commercial instrumentation representatives. Center researchers mainly work in the areas of signal transduction and functional genomics.

#### **Center for Translational Neuroscience Research (CTNR)**

The purpose of the CTNR is to facilitate research on translational neuroscience at UCC. The goal of the Center is to develop novel therapeutic agents and markers for the treatment and diagnostic of neurodegenerative diseases in collaboration with the Caribbean Primate Research Center and the Morehouse School of Medicine in Atlanta, Georgia. The Center pursues this goal through basic neuroscience research and preclinical studies of candidate drugs for neuroprotection. Currently, the Center focuses on the role of neuronal nicotinic acetylcholine receptors (AChRs) and AChRs linked neuroprotective pathways to develop new approaches to the treatment of neurological disorders.

#### **Neuroscience Research Center (NRC)**

The primary mission of the Neuroscience Research Center is to foster and conduct science of the highest caliber that advances the understanding of brain function and diseases that affect the nervous system. The Center maintains a quality research environment highly conducive to productive and clinically-oriented basic research focused on Neuroscience. The Center's scientists share common interests in understanding the biology of neurological disorders and work toward the shared goal of ultimately developing novel methods of diagnosis and treatment of the disorders.

The Center originally named Center for Molecular and Behavioral Neuroscience (CMBN) was established in 1990 for the purpose of promoting neuroscience research in Puerto Rico and organized as an inter-institutional association of neuroscientists with headquarters at the UCC. Currently, composed of 17 scientists from four Puerto Rican universities, in addition to associate and student members. Close to 20 research projects address issues ranging from the basic mechanism(s) of cocaine addiction, excitotoxicity and neuroprotection, to ion channel function and signal transduction pathways. This center also organizes the Puerto Rico Neurosciences Conference, held annually since 1992.

## **Retrovirus Research Center (RRC)**

The RRC is a multidisciplinary research center for the study of HIV/AIDS and other retroviruses. Its general goal is to promote and facilitate HIV/AIDS and other retrovirus research in Puerto Rico. The RRC promotes the study of HIV infection as a multidisciplinary research arena in which the clinical features, immunological, 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.

The RRC laboratory provides clinical laboratory service, under RCMI support and a fee-for-service system, as part of an institutionalizing plan. The laboratory provides the research community with: a) standardized methodology for the rapid detection, identification, and quantification of HIV infection; b) standardized methodology for the characterization of sexually transmitted diseases, viral hepatitis, and mycobacterium; c) immunological services and expertise in the analysis and delineation of lymphocyte populations; d) facility for the determination of cytokines, chemokines, and proliferative response; e) facility to continue a repository of lymphocyte, plasma, and serum from HIV infected individuals registered in the Data Core Facility; f) anti-retroviral drug susceptibility genotyping pattern in the HIV-infected population; and g) organized clinical laboratory support to the Data Core Facility and individual pilot projects.

## **R e s e a r c h I n f r a s t r u c t u r e S u p p o r t**

### **Extramural Associates Research Development Award (EARDA)**

The National Institute of Child Health and Human Development (NICHD) Extramural Associates Research Development Award (EARDA) provides support for the UCC Extramural Associate Program. The EARDA program aims to enhance faculty opportunities to conduct biomedical and behavioral research, develop skills in the fundamentals of preparing research grant applications, and develop collaborative arrangements with other academic institutions for the purpose of promoting biomedical and behavioral research.

### **Research Centers in Minority Institutions (RCMI)**

RCMI support is provided by the NCRR Division of Research Infrastructure (DRI). It provides funding to recruit established and promising researchers, acquire advanced instrumentation, modify laboratories for competitive research, fund core research facilities, and other research support. Because many investigators at RCMI institutions study diseases that disproportionately affect minorities, NCRR support serves the dual purpose of bringing more minority scientists into mainstream research and enhancing studies of minority health.

## **R e s e a r c h S u p p o r t P r o g r a m s**

### **Minority Biomedical Research Support (MBRS)**

The purpose of the MBRS programs is to increase the numbers of underrepresented minority faculty, investigators, and students engaged in biomedical or behavioral research and to broaden the opportunities for participation in biomedical or behavioral research of underrepresented minority faculty and students.

### **Minority Institutions' Drug Abuse Research Development Program (MIDARP)**

The overall goal of the MIDARP is to develop the capacity to support drug abuse research by providing under-represented minority faculty with drug abuse research knowledge and skill development through the conduct of research projects and other professional development activities; and strengthening the underlying institutional infrastructure needed to support drug abuse research.

### **Specialized Neuroscience Research Programs (SNRP)**

The Specialized Neuroscience Research Programs at Minority Institutions strives to help minority institutions develop state-of-the-art neuroscience research programs; to increase ongoing research, stimulating academic and intellectual milieu that will inspire and prepare students and fellows to pursue research careers in neuroscience; and to provide support for the pilot research needed to show the skills and abilities of investigators by obtaining the preliminary data and publications that can help ensure successful competition for traditional research project grants during the performance period of the award.

## **R e s e a r c h   S u p p o r t   F a c i l i t i e s**

### **Animal Resource Center (ARC)**

The Animal Resource Center is staffed with specialized personnel trained in animal care and handling to support research and education activities. The Center houses small and large animals in its 7,700 square foot 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 the 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**

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 facility has two major components: A) the equipment infrastructure and B) the technical support division. The facility offers equipment for remote behavior visualization (RBV).

### **Biomedical Proteomic Facility**

The mission of the BPF is to accelerate discovery by giving UCC investigators access to cutting edge technologies in proteomics and in mass spectrometry. The facility stimulates the use of 2D gels and protein analysis, via a proteomic imaging software, 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**

Is a core area housing major equipment such as ultracentrifuges, freezers, spectrophotometers, beta and gamma counters, HPLC, dry ice maker, etc, as well as the centralized cell culture facility. The unit 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. The DMSRSU has a strong infrastructure which includes the following subunits: 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, the DMSRSU counts on a highly experienced and reliable consulting team.

### **HIV and Substances of Abuse Laboratory**

The laboratory supports research in the areas of HIV/AIDS and substances of abuse. Specialized facilities are made available to researchers for scientific studies in fields of immunology, drugs of abuse, HIV/AIDS and related infectious diseases. The core lab provides researchers with assays for nucleic acids detection, virus genotyping, flow cytometric phenotyping, lymphocyte proliferation, cytotoxic and non-cytotoxic activity, cytokine and chemokine determinations, and drugs of abuse quantification.

### **Immunocytochemistry Laboratory**

The immunocytochemistry laboratory specializes in the qualitative identification and localization of cells bearing selective markers by employing specific antibodies to these molecules.

### **Integrated Research Information Support System (IRISS)**

IRISS provides a computer communications network environment, with related technology and resources, to support the acquisition and management of information by the faculty involved in research. The system provides faculty with connection and access to worldwide information resources to facilitate the expansion, strengthening, exchange, and dissemination of their biomedical research work and findings.

### **Neuronal Glia Culture Facility**

The goal of the facility is to assist UCC investigators in the use of cultured neurons, glias and organotypic cultures. The cultures are used for patch clamping after italisize treatments with drugs of addiction or inhibitors and for italisize models of neurodegenerative diseases. The core facility consists of a coordinator and a technician. Neuronal cultures are prepared from fetal cortex, hippocampus or astrocytes from cerebral cortex.

### **Optical Imaging Facility**

The facility offers microscope-based systems that allow the assessment of cellular responses, such as calcium signaling with fast temporal resolution. The facility offers: 1) Confocal imaging services, 2) Brightfield, darkfield, phase contrast, Nomarski and epi-fluorescence imaging, 3) High spatial and temporal resolution imaging, 4) Collection of serial sections (Deconvolution capabilities) and 5) Morphometric analysis.

### **Protein and Nucleic Acid Core Facility**

The Protein and Nucleic Acid Core Facility (PNACF) aids in the transition from classical to molecular analysis of the problems being addressed by faculty members. PNACF focuses on faculty training, seminars, training on specialized molecular biology techniques, protein expression and protein purification and characterization.

### **Transmission Electron Microscopy Laboratory (TEM)**

The TEM laboratory provides access to ultrastructural analysis of biological specimens via a Jeol 100 CX transmission electron microscope. The TEM is equipped with 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.

# **THE SCHOOL OF MEDICINE**

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## **SCHOOL OF MEDICINE**

José Ginel Rodríguez, M.D., FAAP  
Dean of Medicine

Omar Pérez Del Pilar, Ph.D.  
Dean of Admission and Student Affairs

Emilia Soto, MHSA  
Dean of Administration

Zilka Ríos, M.S.  
Associate Dean for Academic Affairs of the School of Medicine

Harry Marrero, M.D.  
Associate Dean for Clinical and Faculty Affairs

Luis Cubano, Ph.D.  
Assistant Dean for Research and Graduate Studies

Frances García, M.D.  
Director, Bioethics and Medical Humanities Center  
Director, Graduate Medical Education Office  
Director, Continuing Medical Education

Michael Vélez Crespo, M.S.  
Director of Academic Research & Assessment Office

## **DEPARTMENT CHAIRPERSONS**

### **CHAIRPERSONS OF THE PRECLINICAL SCIENCES DEPARTMENTS**

Anatomy and Cell Biology .....	Sofía Jiménez, Ph.D.
Biochemistry.....	Richard Hann, M.D.
Microbiology and Immunology .....	Eddy O. Ríos Olivares, MPH, Ph.D.
Pharmacology .....	Héctor Maldonado, Ph.D.
Physiology.....	Priscila Sanabria, Ph.D.

### **CHAIRPERSONS OF THE CLINICAL SCIENCES DEPARTMENTS**

Family Medicine and Community Health .....	Eric González, M.D.
Psychiatry.....	José A. Franceschini, M.D.
Internal Medicine.....	Melba Colón, M.D.
Obstetrics-Gynecology.....	Stanley Asensio, M.D.
Pathology and Laboratory Medicine .....	Angelisa Franceschini, M.D.
Pediatrics .....	Fermín Sánchez, M.D.
Surgery .....	Julio Soto, M.D.

## **MISSION AND SCOPE**

To form competent diverse health professionals with an 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 and to offer service to Puerto Rico and Hispanic communities in the mainland.

The School of Medicine is committed to providing our students with integrated knowledge in the sciences basic to medicine; with critical thinking and analytical skills; with a dedication to lifelong learning; and with the attitudes of compassion, cultural sensitivity, professionalism in their clinical practice, 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 in specialized curative and rehabilitative services in a cost-effective and accessible manner to the population it serves.

## **EDUCATIONAL GOAL AND OBJECTIVES**

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### **GOAL**

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

### **GENERAL EDUCATIONAL OBJECTIVES**

In order to meet this goal the School of Medicine provides the necessary resources for the students to:

#### **Patient Care**

1. Develop the clinical skills and attitudes to provide patient care in an appropriate and culturally sensitive manner.
2. Demonstrate a doctor-patient relationship that facilitates patients' abilities for the decision making and management of their own health maintenance and disease treatment.

#### **Medical Knowledge**

3. Develop knowledge and skills of the biomedical, clinical, epidemiological, social-behavioral, ethics, biostatistics and public health sciences.
4. Demonstrate mastery of key concepts and principles in the basic sciences and clinical disciplines that are the basis of current and future medical practice.

#### **Interpersonal and Communication Skills**

5. Develop effective interpersonal and communication skills to exchange information with patients, families, colleagues and other members of the health team.
6. Integrate knowledge from the basic sciences, clinical disciplines, evidence-based medicine, and population-based medicine with specific information about the patient and the patient's life situation.

## **Professionalism**

7. Develop the professional attitudes, manners and ethical values of integrity and respect for human dignity; compassion, dedication and social responsibilities towards the interaction with peers, patients, families, and health professionals.
8. Apply basic precepts of the medical profession: altruism, respect, compassion, honesty, integrity and confidentiality, to the needs of patients that supersedes self-interest.

## **Practice-based Learning and Improvement**

9. Develop the skills and attitudes required for professional and life-long learning through appraisal and assimilation of scientific evidence, and improvement in patient care.
10. Understand health systems and how physicians can work effectively in health care organizations, including:
  - Electronic communication and database management for patient care.
  - Quality assessment and improvement.
  - Cost-effectiveness of health interventions.
  - Assessment of patient satisfaction.
  - Identification and alleviation of medical errors.

## **System-Based Practice**

11. Develop knowledge and skills of the health care system to provide optimal services in ambulatory and hospital settings.
12. Understand the healthcare needs of society to contribute to society both in the medical field and in the broader contexts of societal needs. Develop the fundamental concepts and competencies in the basic, clinical, behavioral and public health sciences required to enter an accredited post-graduate medical education program.

# **PATIENT CARE GOAL AND OBJECTIVES**

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## **GOAL**

Offer health services of optimal quality to the community with the emphasis on Health Promotion and Preventive Medicine, with a humanistic outlook in a cost effective context.

## **GENERAL OBJECTIVES**

In harmony with this goal, the School of Medicine directs resources to:

1. Offer healthcare services of the highest quality in diverse clinical settings; ambulatory, in patient, intensive care, etc.
2. Emphasize care within the context of the community to stimulate the utilization of primary care.
3. Provide service directed to conditions of higher prevalence in the populations.
4. Stimulate the development of a rational and cost effective health service.
5. Promote an optimal state of health in the community served by the School of Medicine.

Develop the skills and attitudes required for continued professional development through research, continued medical education and self study.

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## **RESEARCH GOAL AND OBJECTIVES**

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### **GOAL**

Develop an interest in scientific research among the members of the school aimed at the generation of preventive and therapeutic modalities of care that will serve to improve the health of the population served.

### **GENERAL OBJECTIVES**

For the achievement of this goal, the members of the school should be able to:

1. Develop scientific research, both individually and collaboratively in the areas of the biomedical and psychosocial sciences.
2. Utilize research methodology as a tool for problem-solving in a variety of situations.
3. Develop the capacity to design and develop a research scheme from its conception to final presentation of results.
4. Develop scientific research in the biomedical and psychosocial sciences with emphasis on prevention and therapeutics in the holistic context of disease.

## **AFFILIATED INSTITUTIONS**

### **MAJOR AFFILIATIONS**

1. Dr. Ramón Ruiz Arnau University Hospital (Formerly Bayamón Regional Hospital)  
Bayamón, Puerto Rico
2. San Juan City Hospital  
San Juan, Puerto Rico
3. Veterans Administration Medical Center  
San Juan, Puerto Rico
4. HIMA-San Pablo Caguas  
Caguas, Puerto Rico

### **LIMITED AFFILIATIONS**

1. HIMA-San Pablo Bayamón  
Bayamón, Puerto Rico
  2. First Hospital Panamericano  
Cidra, Puerto Rico
  3. San Jorge Childrens Hospital  
San Juan, Puerto Rico
  4. Hospital Hermanos Meléndez  
Bayamón, Puerto Rico
-

5. Hospital Metropolitano  
Río Piedras, Puerto Rico
6. Puerto Rico Children's Hospital  
Bayamón, Puerto Rico

In addition, we have approximately 40 affiliations for clinical experiences in the program conducive to the MD degree throughout Puerto Rico.

### EDUCATIONAL PROGRAM

The curriculum of the School of Medicine consists of four years of studies. In the first two years it provides students with a basic 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 evaluation from the patients and faculty during the sessions in which standardized patients are used.

Figure 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 and de Curriculum Committee who meet regularly for this purpose.

**Figure I FIRST YEAR COURSE SEQUENCE**

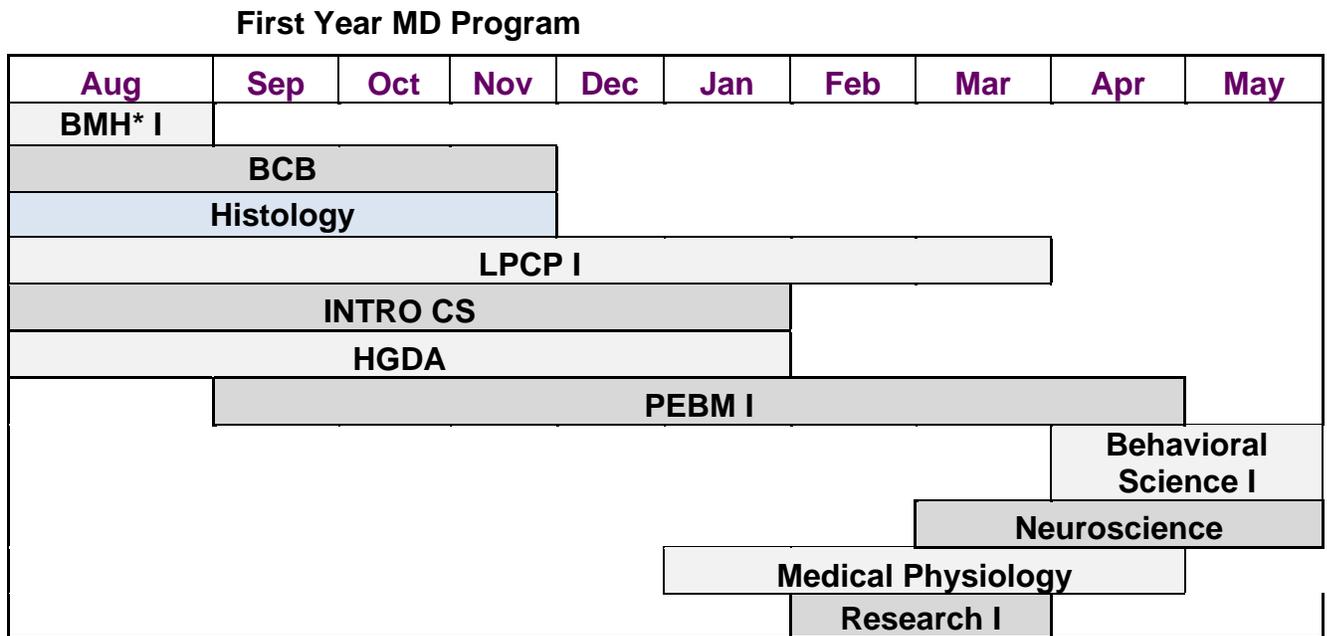


Figure II: SECOND YEAR COURSE SEQUENCE

Year 2 Based on Organ System

	General Principles		Hema	Respi	GI	Skin/ Muscle	CNS	Cardio	Renal	Endo/ Repro		
Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
	<b>Mechanism of Disease /Pathology</b>											
	<b>Medical Microbiology &amp; Immunology</b>											
	<b>Medical Pharmacology</b>											
Summer Research Opportu- nity /Internat- ional Medicine						<b>BMH II</b>		<b>Behavioral Science II</b>				STE P I
			<b>Clinical Skills II</b>									
			<b>Longitudinal Primary Care Preceptorship II</b>									
				<b>PEBM II</b>								
	<b>Research II</b>											

**Table I** illustrates some of the instructional strategies used in our curriculum. The Problem and Evidence Based Medicine courses in the first and second years facilitate integration of the material covered in other courses. Small-group discussions are used in courses such as Bioethics and Humanities in Medicine, Biochemistry and Cell Biology, Medical Physiology, and Human Gross and developmental Anatomy, in which students interact with faculty and have the opportunity to receive direct feedback.

**TABLE 1. BASIC SCIENCES CURRICULUM INSTRUCTIONAL STRATEGIES**

<b>First and Second Years</b>
Assessment Sessions Clinical Correlations Clinical Exercises Large Group Discussions Lectures Problem Solving Problem Evidence Based Medicine Patient Oriented Problem Solving (POPS) Review Sessions Small Group Discussions Structured Sessions with Anatomic Simulators

The School of Medicine faculty is using a course management system for distance learning – Blackboard – to complement their courses and enhance the teaching/learning experience with online resources. A computerized testing system known as LXR\*Test is also used by faculty to develop and offer online exams. As part of their assessment strategies, the use of infrared wireless transmitters known as PRS (Personal Response System) is encouraged to enhance classroom productivity. Students can answer questions and record their responses for real-time feedback and lesson refinement.

### **Third and Fourth Year Curriculum**

The third year is composed of clinical rotations. 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 experiences; however, students have some flexibility in terms of the order in which they take the clerkship. Students spend 10 weeks in Surgery, 9 weeks in Internal Medicine, 6 weeks in Pediatrics, 6 weeks in Psychiatry, 6 weeks in Family Medicine, 6 weeks in Obstetrics/Gynecology and 2 weeks in Transition to Clinical Years. 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.

Fourth year students have required experiences that were specifically designed to address the needs for physician to practice in the new health environment. Students spend 6 weeks in Ambulatory Medicine and Community Research, 4 weeks in Clinical Neurology, 2 weeks in Selected Topics and 2 weeks in Bioethics and 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

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### FIRST YEAR

\*Credit Hours

635	Behavioral Science I	2.0
510D	Biochemistry and Cell Biology	10.0
514B	Bioethics and Humanities in Medicine I	1.0
503B	Histology	4.0
502	Human Gross and Developmental Anatomy	10.0
619A	Introduction to Clinical Skills	1.0
590-1C	Longitudinal Primary Care Preceptorship I**	3.0
580A	Neuroscience	5.0
530C	Medical Physiology	5.0
515C	Problem Evidence Based Medicine I (PEBM)**	2.0
505RI	Research I	1.0

### SECOND YEAR

514 C	Bioethics and Humanities in Medicine II	1.0
620 D	Clinical Skills II**	3.0
590-2A	Longitudinal Primary Care Preceptorship II**	5.0
540 A	Medical Pharmacology	6.0
520 A	Medical Microbiology and Immunology**	9.0
553	Pathology and Mechanism of Disease**	13.0
516 B	Problem Evidence Based Medicine II (PEBM)**	1.0
632 A	Behavioral Science II	2.0
505 RII	Research II	1.0

### THIRD YEAR

Weeks

615A	Transition to Clinical Years	2.0
670B	Family Medicine	1.0
623A	Internal Medicine	6.0
660B	Obstetrics-Gynecology	4.0
650B	Pediatrics	4.0
631B	Psychiatry	4.0
640C	Surgery (including Subspecialties)	6.0

### FOURTH YEAR

675 A	Ambulatory Medicine and Research Clerkship	4.0
518	Bioethics and Humanities in Medicine IV	2.0
700	Electives courses	18
629A	Clinical Neurology	4
607	Selected Topics	2

\*Each credit hour is equivalent to 15 hours of lecture or 30 laboratory hours or 72 hours of clinical experience.

\*\*One-year duration course

## DESCRIPTION OF COURSES

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### FIRST ACADEMIC LEVEL

UCC 635 Behavioral Science I  
2 Credit Hours

Its content includes the importance of behavioral factors in health and illness; the life cycle; theories of personality development and personality disorders; human sexuality and sexual disorders; aggressions and violence; and psychotherapy. Lectures and class discussion are the main teaching strategies. Evaluation assessment is done by student presentations and an objective exam.

UCC 510E Biochemistry and Cell Biology  
10 Credit Hours

The Biochemistry and Cell Biology for Medical Students course integrates the five disciplines of biochemistry, molecular genetics, genetics, cell biology and nutrition and presents the most important concepts of each. The course is divided into 3 units. The course features scheduled student conferences. In these classes, the course faculty present and discuss the most important course concepts and include many clinical correlations carefully chosen to illustrate these concepts. Student interaction with the presenting faculty is encouraged. Computer-based self-instruction modules present essential material that cannot be presented in conferences due to time constraints. The course also features 9 active-learning exercises and 3 examination discussions, which are conducted in the afternoons. Student knowledge is evaluated with 3 unit examinations and a comprehensive final examination.

UCC 514B Bioethics and Humanities in Medicine I  
1 Credit Hour

The first year of the Bioethics and Humanities in Medicine is devoted 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 the film Wit using a basic method for the analysis of narratives specially 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.

UCC 503        Histology  
                  4 Credit Hours

The Histology course is designed to cover the discipline at an appropriate level. The course meets the educational mission/curriculum requirements 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. In the practical part of the course 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 didactic lectures, small group discussion sessions, and textbook independent study, in addition to library research.

UCC 502        Human Gross and Developmental Anatomy  
                  10 Credit Hours

This course surveys the regional, functional and developmental anatomy of the human body with emphasis on the anatomical correlates of clinical medicine. The study and visualization of the different components of the human body is accomplished through a 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 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; (4) case studies in clinical and surgical anatomy. Special attention is given to the principles of building a broad medical vocabulary. Laboratory sessions include aimed at integrating medical knowledge while improving interpersonal and communication skills and professionalism in the first year medical student. The strategy consists of a team-work activity where students explain among themselves the different dissected anatomical body structures using prosected specimen prepared by faculty members. The study of the prosected-dissected material is 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 strategies are used to evaluate the performance of the students such as written exams, announced laboratory quizzes, 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  
                  1 Credit Hour

The course focuses on preparing the student to perform an organized, thorough history physical examination and case presentation. The student learns to select elements of the complete examination for application in problem specific situations. Topics are arranged as systems basis and parallels systems covered in other concurrent course work. Material presented in one area should be recognized as complementary to that presented in other areas. Structured observations using standardized patients are used for formative and summative activities. OSCE is given as the final practical exam.

UCC 590-1C    Longitudinal Primary Care Preceptorship I  
                  3 Credit Hours

The Longitudinal Primary Care Preceptorship is a course that integrates knowledge, attitudes, basic clinical skills and community intervention or service learning in a way that our first year medical students will give the first steps in Primary Care Medicine. This course is multidisciplinary in nature and exposes the students to innovative learning and service methods. 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 be introduced to the field of urban medicine, and will develop knowledge, professional skills and strategies in health promotion and disease prevention regarding this high risk population.

UCC 580A Neuroscience  
5 Credit Hours

Neuroscience is a multidisciplinary course integrating the areas of Anatomy, Biochemistry, Physiology, Pharmacology, Neurology, Neuropathology and Neuroradiology. The order of presentation follows from the basic ultra structural level to normal anatomy and physiology that provide the student with the information required to understand the pathologic process that affects the nervous system. The course objectives are attained through lectures, wet laboratories, small as well as large group discussions, and multimedia assisted exercises. Also, clinical correlation sessions familiarize the students with core knowledge of diseases. The course has implemented a LXR-Computer-Based Testing program to enable the students with the opportunity to gain experience with the USMLE-like questions. The students will also be introduced to a new avenue in Neurosciences delineated by the development of non-invasive approaches and instruments for the in-vivo study and analysis of brain tissue such as MRI, CT and PET scans, EEG, polysomnogram and evoked potentials which, according to ACGME, are an example of Practice Based Medicine. Finally, this knowledge shall lead the student to a better understanding of the principles underlying the rational pharmacological therapy of diseases related to the nervous tissue and the new perspectives in therapy of these pathological conditions. An outcome measure is the NBME Neuroscience Shelf Examination at the end of the course.

UCC 530C Medical Physiology  
5 Credit Hours

The Medical Physiology course presents the current biological, chemical and physical concepts underlying the normal function of organ systems. The course objectives are attained through lectures and clinical cases discussions. The topics discussed in the course include the physiology of muscle tissues, hemostasis, cardiovascular, respiratory, renal, gastrointestinal, endocrine and reproductive systems as well as acid-base balance and basic concepts of cellular physiology. During clinical cases discussions typical medical situations illustrating abnormal system function will be presented to emphasize the importance of mastery of physiological concepts to understand their underlying mechanisms. Clinically oriented discussions are programmed for each major system. The discussion sessions are designed to increase student interaction with faculty and peers and it is expected that it will help students integrate physiological principles to other basic sciences.

UCC 515C Problem and Evidence Based Medicine I  
2 Credit Hours

The class will be divided in 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 patient's 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 needed information, 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, CD-ROMs, Internet sites, etc.); Clinical Skills Center (models, videos), private and government agencies, as well as faculty members (as experts on a given matter).

UCC 505 RI Research I  
1 Credit Hours

This course is required as part of the basic science curriculum and prepares the student with the background in clinical/translational research needed for the clinical years and life-long practice in medicine. The course introduces the student to the basic concepts and principles in research.

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## SECOND ACADEMIC LEVEL

### UCC514C Bioethics and Humanities in Medicine II 1 Credit Hours

The second year of the Bioethics and Humanities in Medicine course is devoted to the beginning and the end of life. The contents of this course, along with the contents of the first year course constitute the indispensable foundations for the application of bioethical principles in the rotations that will begin on the third year. The following topics are presented and discussed: a) bioethical issues concerning the beginning and the end of life; b) bioethical issues concerning the treatment of fetus, newborns, infants, and children; c) bioethical issues concerning end of life care; d) bioethical issues concerning euthanasia and assisted suicide and HIV. The presentation and discussion of these bioethical issues will be complemented with the discussion of the movie *Mar Adentro* (The Sea Inside) and role playing exercises.

### UCC 620D Clinical Skills II 3 Credit Hours

The principal objectives of the Clinical Skills II course are to refine students' required skills for the practice of medicine and to prepare them for the clinical clerkships. This course builds up in the competences developed during the first year course in terms of knowledge, the skills of interviewing and communication, physical examination, oral and written case presentation and clinical reasoning, in addition to attitudes such as professionalism and self-directed learning. Emphasis is placed on providing students with a rational, effective, practical and thorough approach to history and physical examination. A complete medical history and a comprehensive physical examination are still the best tools that a differential diagnosis and initial plan of action. Topics are arranged as parallel systems are covered in other concurrent course work. Structured observation using real and standardized patients are used for formative and summative evaluation. An OSCE is given as the final practical exam.

### UCC 590-2A Longitudinal Primary Care Preceptorship II 6 Credit Hours

The Longitudinal Primary Care Preceptorship II is a multidisciplinary course in nature and exposes the students to innovative learning and service methods. We use lectures and case presentations as learning strategies. The case presentations will be organized in a manner that the topic correlate clearly with the ones discussed in the year courses. It serves as an integration activity of the different concepts related with the discussed themes in these presentations. In this course the student will be exposed to several medical conditions throughout the academic year as experiences obtained through the case presentations, community interventions, and the longitudinal experience in the preceptorship are encountered. Students learn and apply the core concepts of ambulatory medicine with preceptors at different community sites (private offices or health care centers). It also provides for the development of students teaching skills through health promotion and disease prevention, epidemiology and biostatistics concepts. The student is exposed to primary care medicine interventions and service learning.

### UCC 540A Medical Pharmacology 6 Credit Hours

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, and 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 includes lectures and conferences on blocks of material such as general pharmacological principles, autonomic pharmacology, cardiovascular drugs, CNS pharmacology, pharmacology of chemo-therapeutic agents, endocrine pharmacology, gastrointestinal pharmacology, autacoids and antihistamines, prostaglandins, drug interactions and clinical toxicology.

UCC 520A      Medical Microbiology and Immunology  
9 Credit Hours

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. 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 in order to foster students' ability to solve problems in their future clinical career. Repeatedly through the course, the Faculty makes appropriate correlations between fundamental principles of medical microbiology and infectious processes, although emphasis is directed toward the understanding of basic principles needed now as a student and in the future as a practicing physician. Moreover, it is the responsibility of the Department to acquaint the student with enough information that enable him/her to follow, as professional, scientific advances in the medical and medical related sciences. The course is divided into: medical immunology, virology, cell & molecular microbiology, bacteriology, 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. Assessment methods, which enable students to demonstrate the learning outcomes, are: surveys in Blackboard, Patient Oriented Problem Solving (POPS) and quizzes among others.

UCC 553      Pathology and Mechanism of Diseases  
13 Credit Hours

This course presents all aspects of the development of disease, with special reference to the causes and its 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 discussion. It also includes activities with interactive computer programs, and clinical correlation. The grading methodology will include: integrated partial exams, formative quizzes, group clinical cases discussions, laboratory computer exam, and final exam (NBST). This course has as prerequisite the first year curriculum of medicine, computer literacy, and the basics of evidence based medicine (research, appraisal of validity and reliability of information, and basics of statistical analysis of such information).

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

This is an integration course in which students draw from the content presented in other courses, to analyze sequential simulations of patient's problems. The course activities promote the development of clinical reasoning as well as medical informatics skills. The course uses a small-group format. Students take responsibility for the discussion of the problems, analyzing available data, making questions, proposing hypothesis, determining what they need to know to better understand and manage the problem, identifying what resources can be used to acquire new information, and searching for new information. Clinical analysis and self-study skills are promoted, and students are encouraged to look for information from a variety of sources such as: Academic Resources Center (books, journals, CD-ROMs, credible Internet sites, etc.); Clinical Skills Center (models, videos), private and public agencies, as well as faculty members (as experts on a given matter).

UCC 632A Behavioral II  
2 Credit Hours

Its contents include discussion of subjects such as the psychiatric evaluation; infancy, childhood and adolescence disorders; related disorders; anxiety disorders and others; biological therapies. Teaching strategies include lectures and class discussion. Evaluation is based on objective exams.

UCC 505 R II Research II  
1 Credit Hour

The Research II course builds on the contents and objectives of the Research I course. The course is designed to provide second-year medical students with basic principles of clinical and translational research. The course follows a journal club format allowing students to evaluate research articles. These exercises are rooted in the belief that the ability to critically read, understand, and discuss the scientific literature are valuable and essential outcomes of a good medical education and the foundation of lifelong learning. The journal club sessions are intended to promote a high degree of preparation for discussion of specific papers, their results, and the implications thereof. The students have to develop a concept paper following the instructions provided in class. The concept paper aims to introduce the students as to how to develop a future research proposal that may be, if the students wish, completed in the next two years.

### **THIRD ACADEMIC LEVEL**

UCC 615A Transition to Clinical Years (TCY) Course  
3 Credit Hours, 2 Weeks

This course has been designed to introduce the rising third year medical student to the complexities and new environment of the clinical years. This course emphasizes active rather than passive learning, where small group and self directed study sessions give students the opportunity to apply and evaluate learned concepts and apply acquired skills in a controlled environment. The course introduces the medical student to the clinical environment, the interaction with residents and faculty in a clinical environment and what is expected for his level of training and experience. It introduces the student to the possible emergent situations in the clinical environment and the basic established protocols they should follow under such situations. The course introduces the student to the appropriate level concepts in and application of imaging techniques as well as the initial evaluation of patients in emergency scenario

UCC 675B Family Medicine  
4 Credit Hours, 6 Weeks

This six-week clerkship gives third year medical students an opportunity to practice under the supervision of a Family Physician in outpatient settings. The main emphasis is on acquiring knowledge and skills in assessing and managing common health problems. Students are expected to provide continuous care for families, emphasizing prevention, patient education, and health promotion. The clerkship emphasizes the active, intervening and anticipatory role that Family Physicians must bring to their work when providing health care to the aged population. Seminars, clinical discussions, case presentations, home visits, and audiovisual materials are some of the strategies used to communicate the information. The evaluation component of this clerkship includes departmental exams, daily performance, clinical case presentations, oral presentations on a topic relevant to primary care, a videotaped encounter with a standardized patient, OSCE, and NBME Subject Exam.

UCC 623A Internal Medicine  
6 Credit Hours, 9 Weeks

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 diagnoses as well as identify and interprets the essential laboratory test and other procedures necessary to compliment his clinical observations, for the management to make recommendations concerning management of a condition; (3) perform laboratory test done by physicians; (4) analyze all the data collected on the record and outline the salient features for the establishment of a reasonable management program.

UCC 660B Obstetrics and Gynecology  
4 Credit Hours, 6 Weeks

The student is exposed to obstetrical and gynecological experiences under close supervision. The class is divided into small groups assigned to gynecology services, normal and complicated obstetrics services, the labor room, emergency services, and out-patient clinics. At these stations they rotate for a period of six weeks with responsibility for the admission of patients, history and physical examination, daily rounds, follow-up of patients, attendance at surgical procedures, post operative care and discharge summary.

UCC 650B Pediatrics  
4 Credit Hours, 6 Weeks

The Pediatric Clerkship experience introduces the student to a unique, complex and challenging field of medicine. It emphasizes aspects of general pediatrics important for all medical students and provides a foundation for those who elect to further study the health care of infant, children and adolescents. Students have the opportunity to participate in the clinical activities, of both general pediatrics and its subspecialties. Emphasis is placed on basic issues, common illnesses and aspects of subspecialties that are important in the education of the general physician.

UCC 631B Psychiatry  
4 Credit Hours, 6 Weeks

The third year rotation in psychiatry is designed to be an introduction to the basic principles of clinical psychiatry. It comprises a wide range of teaching experiences meant to cover the range of psychiatric patients and various treatment modalities. This clerkship provides the third year medical student with 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. The goal is to provide an exposure that will instill some of the fundamental principles of psychiatry into each student by the end of the clerkship.

UCC 640C Surgery  
6 Credit Hours, 9 Weeks

The surgical clerkship introduces the medical student to the complex, unique and demanding world of General Surgery and its useful subspecialties. General surgical principles, evaluation and initial basic analysis and management concepts of the potentially patient are explored.

## **FOURTH ACADEMIC LEVEL**

UCC 675 A      Ambulatory Medicine and Research Clerkship  
4 Credit Hours, 6 Weeks

This clerkship emphasizes training in ambulatory care knowledge and skills in one of three primary fields: Family Practice, Pediatrics and Internal Medicine. The major part of the student's time is spent in clinical practice with a faculty preceptor in general internal medicine, pediatrics or family medicine. Many of these practices are located in the San Juan Metropolitan Area, and adjacent towns. Students also attend teaching sessions once a week, for workshop and case presentations on a variety of topics relevant to primary practice. Concomitantly with the clinical experience students work on a research project, chosen at the beginning of the rotation and based on their clinical experience or need. Students are expected to collect data directly from the patients (and/or their medical records), analyze and present the information, and write a final report. The duration of the rotation is six weeks.

UCC 518            Bioethics and Humanities in Medicine IV  
2 Credit Hours, 1 Week

This is the last component of the longitudinal curriculum Bioethics and Biomedical Humanities. The subjects covered in this course include Health and Disease in Culture, Organizational Ethics, Managed Care and Justice which represent the Ethics component. The Humanities in Medicine segment is based on workshops that are held on filming, acting and production of videos. Students then are divided into three groups and each group must produce, direct, act, film and edit a five minute video depicting an ethical situation and each must end in an open ethical question. These videos are used to develop case analysis and resolution skills in the BHM I and II courses.

UCC 700            Elective courses  
No credit, 18 Weeks required

Elective courses are offered in scheduled periods throughout the fourth year. These electives are available for students who have satisfactorily completed all the specific prerequisites. Students at UCC School of Medicine are required to approve 18 weeks in elective courses. UCC medical elective courses are available in 2-4 week periods, unless otherwise specified. In order to enroll in electives outside the UCC School of Medicine's affiliated institutions, 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 UCC medical electives currently offered is available at the UCC School of Medicine's website and the UCC Library.

UCC 629A          Clinical Neurology  
3 Credit Hours, 4 Weeks

The neurology specialty is an ever changing and constantly growing field in medicine. In the last decade significant advances in the treatment and management of many neurological diseases has been achieved. During the four-week clerkship the student acquires the knowledge and clinical skills necessary to evaluate and manage patients with neurological disorders. The major part of the student's time is spent in clinical practice with a faculty preceptor. Also, the student attends teaching sessions for lectures on the most common neurological diseases and symptoms, neurological examination workshop and case presentations. Daily performance, case presentations, attendance and a final exam are the strategies for evaluating this clinical experience.

UCC 607      Selected Topics  
                  3 Credit Hours, 2 Weeks

This course is designed for fourth year medical students with the purpose of presenting those topics necessary to fulfill the professional training in accordance with the new tendencies or modalities in medicine (legal, alternative medicine, domestic violence, impaired physicians). This is a student centered course focusing on preparing the student for successful postgraduate training. Topics discussed are presented by guest speakers and the students participate in an active educational experience.

## **REGULATIONS FOR STUDENT EVALUATION AND PROMOTION**

### **I. STUDENT EVALUATION**

#### **A. INDIVIDUAL COURSE PERFORMANCE**

1. The evaluation of individual student performance in a given course is the responsibility of the department(s) supervising the course. The final course grade will be determined by applying impartial and nondiscriminatory academic standards and procedures. The final course grade will be a product of the student's academic achievement reflecting whether or not the student has complied with the pre-established requirements necessary to pass the course. Expressed opinions will not affect the evaluation or final course grade of the student. However, professional attitudes are evaluated as part of some courses and may affect the final course grade.
2. The student has the right to be informed of his/her grades on examinations or any other evaluative activities within a period not later than one week after their administration. In addition, the student has the right to review the examinations and other required work, duly corrected and graded, within ten working days after the grades are notified to the students.

#### **3. Quizzes**

Quizzes are given in order to monitor the learning progress of the student. They are to be used as an assessment strategy with or without grade. If used without grade they may be given at any time with or without notice. If used for grading, they must be announced at least one day in advance and their grade value stated in the course syllabus. Each department will determine the use of quizzes as stated in the syllabus.

4. Any student absent from an examination must submit a valid written excuse with adequate evidence, no later than three days after returning to classes. He or she must take a make-up exam, which will be given according to the policies of the department. The grade obtained in the make-up examination will be the final grade. If the student fails to appear for the make-up without valid justification a zero will be awarded. A student who is absent from an examination and fails to present a valid excuse during the specified period will be awarded a zero for that examination.
5. Repeat Examinations

A remedial or repositional examination will not be given to substitute any failed course examination, except for the National Board Subject Exam for Clinical Year courses.

6. Attendance and punctuality

Attendance and punctuality in all classes, laboratories, clinics, examinations or other educational activities are compulsory. Each student is responsible for adhering to this regulation. The Registrar's Office will monitor attendance of courses. Each department will determine how attendance in a course will be assessed and how it will affect student evaluation. The departments must ensure that students are oriented on these policies at the beginning of the course. Students who will be absent due to their participation in official meetings of the Institution will be responsible for the missed coursework and must make proper arrangements with the course coordinator prior to the absence. Absences due to other causes must be discussed with the course professor or supervisor to comply with the course requirements.

**B. GRADE SCALE**

1. Requisite letter graded courses

For each non-pass/fail requisite course taken during the semester the student will receive a letter grade. Grades A, B and C will be considered as *passing grades*. Grade F will be considered as a *non-passing grade*. Grades will be based on the following criteria:

GRADE	GRADE VALUE	DESCRIPTION
A	4	Excellent
B	3	Good
C	2	Satisfactory
F	0	Failure

2. Requisite courses pass/fail and elective courses

For each pass/fail requisite course and each elective course taken the student will receive a pass or fail grade based on the following criteria:

GRADE	DESCRIPTION
H	Superior (Honors)
P	Satisfactory (Pass)
F	Unsatisfactory (Fail)

Grades for elective courses will be reported officially at the end of the semester provided all evaluative documents have been received by the Office of Electives at the Office of the Dean of the Medical School.

3. Final course grades cannot be changed once they have been officially submitted to the Registrar Office. In the event of an error in the final course grade originally submitted for a student, the course coordinator must submit to the Office of the Associate Dean of Medicine a written justification of the grade change with the signature of both the course coordinator and the director of the department concerned, no later than one month after the beginning of the next semester following the submission of the grade.

**C. RECORD KEEPING**

1. Each academic department of the Medical school will be responsible for maintaining an overall record of individual student performance for each of the courses supervised by the department. These records will be maintained for five years. Student's answer sheet and paperwork assigned will be maintained for one year.

Original evaluation forms of students in clerkships will be forwarded to the Registrar's Office to be placed in the student's academic file.

2. The official transcript of each student at the Registrar Office will include:
  - a. the final grade received by the student in each course
  - b. the full description of the grading scale as defined in the section I. B.
  - c. a complete explanation of quality points calculation as presented in Section I.G., and a complete explanation of the quality point index as presented in section I. H.
  - d. any leave(s) of absence taken by the student
  - e. academic status (good standing, not good standing or academic dismissal)

**D. CONTACT HOUR**

The term *contact hour* refers to a fifty-minute period of academic experience.

**E. CREDIT HOUR**

1. The value used to calculate the total credit hour value for each requisite course is equal to the assigned period of contact hours allotted to a course each week and defined as lecture, laboratory, discussion, clinical clerkship, or supervised independent study.
2. The total credit hour value for each requisite course will be determined using the following criteria:

One credit hour =	Fifteen contact hours of lecture, discussion or examination Or
	Thirty-contact hours of laboratory Or
	Seventy two-contact hours of clinical clerkship or supervised independent study

**F. SEMESTER**

One semester will consist of 15 working weeks comprised of 90 days (5 days/week) of academic work. However as stated in section I.E.2., 15 contact hours of lecture, irrespective of the days or weeks used to cover them, will receive the value of one credit. Other activities (*i.e.*, laboratories, etc.) will be evaluated by using the conversion stated in section I. E.

### G. QUALITY POINTS (QP)

The Quality Points obtained by the student in each requisite course will be calculated by multiplying the total credit hour value of the course by the numerical value of the grade earned by the student in the course.

<b>QP =</b>	Total Credit Hours of the course x Numerical value of the grade earned
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### H. QUALITY POINTS INDEX (QPI)

The Quality Point Index (QPI) is calculated by dividing the total number of quality points received by the student during a semester by the total number of Credit Hours of requisite courses taken during that semester.

	Total number of quality points
	Total number of Credit Hours of requisite courses taken during a semester.

### I. CUMULATIVE QUALITY POINTS INDEX (CQPI)

1. The cumulative quality point index is calculated by dividing the total number of quality points earned by the total number of Credit Hours of requisite courses taken beginning with the student's original enrollment at the school.

<b>CQPI =</b>	Total number of quality points earned
	Total number of Credit Hours of requisite courses taken from the beginning of the student's medical school education.

2. The total number of Credit Hours used to calculate the CQPI for a student will not include quality points corresponding to any original course that was repeated by the student either during the academic year or as a summer course.
3. Until the official grade of a repeated course is received the original course value will be used to calculate the CQPI for the student.

### J. INCOMPLETE COURSEWORK (I)

1. All coursework must be completed no later than the date of the final examination. When this is not possible due to illness or other valid reasons, the student may ask the course or clerkship coordinator to assign a temporary grade of Incomplete (I) for the course.

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/clerkship coordinator, accompanied by supporting evidence of illness or other serious event that prevented the completion of the coursework.
- b. The student must have completed at least 75% of the total required coursework and its corresponding evaluations with a cumulative passing grade up to that moment.

- c. Each course/clerkship syllabus must specify which activities are to be completed in order to be eligible for an incomplete.
2. The deadline for the removal of an incomplete grade from a course and for the submission of the final course grade by the department will be the last day of the third week of classes of the following semester as set in the official academic calendar. An incomplete grade will automatically become an F (Failure) if it is not removed by the deadline.
3. The registration of any student with incomplete coursework will be provisional and conditioned to the removal of the incomplete grade before the stated deadline.
5. Upon submission of a final course grade to replace an incomplete, the student's academic status for the semester will be determined in accordance with section II of these regulations.
6. In the case that a student with an excused absence fails to take the National Board Special Subject Examination, in a course where this exam is a factor in determining the final course grade, the student will receive an (I) (incomplete) and must sit for this examination within the time period established for removing incomplete grades.

**K. LEAVE OF ABSENCE (LOA) and WITHDRAWAL FROM THE MEDICAL DEGREE PROGRAM**

1. Leave of Absence
    - a. The Associate Dean of Medicine with the approval of the Dean of Medicine may grant Leave of Absence status from the Medical School.
      - i. If there is a need for a student to be on leave for a period no longer than one month, he or she must submit a written request to the Associate Dean of Medicine immediately when the need for the leave arises, but not later than seven working days prior to the leave. The student will be responsible for all course/rotation responsibilities to be fulfilled during his/her absence. The student will be responsible for making the necessary arrangements with each of the professors.
      - ii. Students requiring a leave longer than one month must request that status in writing to the Associate Dean of Medicine stating the reason for the request. Final decision concerning any request for leave of absence must be communicated, in writing, to the student.
    - b. The first and second year student, to be eligible to receive a LOA, may not have an Incomplete in any course of the previous semester at the time of the beginning of the leave and must not be a candidate for academic dismissal under any part of Section II of these regulations.
    - c. The third and fourth year student to be eligible to receive a LOA, must have completed all courses and/or clerkships by the time of the beginning of the leave and must not be a candidate for academic dismissal under any part of Section II of these regulations.
      - i. The student who completes all requirements for promotion to the third year except for passage of the USMLE Step 1 may request a LOA (see I.K.1.d).
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- ii. The student who completes all requirements for graduation except for passage of the knowledge component of the USMLE Step 2 may request a LOA (see I.K.1.d).
- d. A leave of absence can be granted for a maximum of one year, which must be stated in the official authorization by the Institution. A leave of absence for a period longer than one year may be granted under extraordinary circumstances upon approval by the Dean of Medicine. A LOA granted due to failure to pass the USMLE Step 1 and/or Step 2 cannot exceed two years total (I.K.4.c). The student who is granted an official LOA can neither register for/nor attend any course in the Medical Degree Program during the LOA period. (See section II.D.2.)
- e. Maternity, paternity and adoption leave:

Maternity, paternity and adoption leaves may be granted by the Associate Dean of Medicine, with the approval of the Dean of the Medical School, in accordance with the stipulations in section I.K.1.

## 2. Authorized Withdrawal

A registered student may withdraw from the Medical Degree Program with an official authorization, if requested, before the deadline for total withdrawal. The Office of the

Associate Dean of Medicine will request from each academic department supervising the courses in which the student is registered, a written report on the student's current academic status based on work completed up to that date. This status will be reported as P if the student is currently maintaining a passing grade, F if the student is failing the course, or N if the department is unable to determine current status due to insufficient completion of work by the student. Based on these reports, the student's status will be classified either as withdrawal failing (WF), if the reported grade in one or more courses is F, or as withdrawal passing (WP), if the student does not have a grade of F in any of the courses.

## 3. Unauthorized Withdrawal (UW)

- a. The classification of unauthorized withdrawal will be applied in the following cases:
  - (1) Any student who has completed at least one semester of courses in the Medical Degree Program but fails to register in the following semester without having been granted official LOA by the Institution.
  - (2) Any student on official LOA who fails to register immediately after the leave period expires.
  - (3) Any student on authorized withdrawal passing (WP) who fails to register the following semester.
  - (4) Any registered student who withdraws from the Medical Degree Program without official authorization prior to the deadline for total withdrawal.

- (5) Any registered student who abandons the Medical Degree Program after the deadline for total withdrawal will be considered as having completed the semester and must receive final grades in all the courses for which he or she registered. The student's academic status will be determined following Section II of these regulations. If the student is eligible to register in the subsequent semester but fails to do so, he or she will be classified UW as defined in Section I.K.3.
- b. Any student classified as unauthorized withdrawal (UW) may only reenter the Medical Degree Program in the same manner as the student classified as withdrawal failing (WF).

#### **L. REENTERING AND READMISSION TO THE MEDICAL DEGREE PROGRAM**

- a. Any student classified as WP may reenter the medical degree program within one year after the withdrawal by following the usual registration norms and procedures. The student must register for the semester from which he or she withdrew unless the academic status of the student is otherwise changed by termination of incomplete coursework. If the student fails to register within the allowable period of time, he or she will be required to apply for readmission at the academic level recommended by the Admissions Committee of the Medical School.
- c. In order to reenter the medical degree program, any student who is classified either as UW or WF must apply for readmission and may do so only one time following the established norms and procedures for readmission. If the individual applies within one year following the withdrawal, the readmission must be to the semester indicated by
- d. The student's academic status as defined under Section II of these regulations as applicable. If a student applies more than one year following withdrawal, he or she must apply for readmission to the first year of studies.
- f. Any student returning from LOA may register at the beginning of the semester dependent on the student's academic status at the time the LOA was granted. The student granted a LOA for health reasons must furnish written certification, prior to registration, that the original reason for granting the LOA has been remedied.
- g. A student on withdrawal status, whose academic status changes due to incomplete coursework such as to make the student subject to academic dismissal under any part of Section II of these regulations, may not reenter the medical degree program.

### **II. REQUIREMENTS FOR STUDENT PROMOTION AND GRADUATION**

#### **A. ACADEMIC YEAR DEFINITION**

1. The academic year will consist of the fall and spring semesters, and the summer period of each of the four academic levels in the medical degree program.
  2. At the termination of each semester the final grade in all completed courses and the CQPI achieved by each student will be summarized by the Registrar. The Committee on Student Evaluation and Promotion will review the summary and make recommendations on individual student academic status to the Office of the Dean of the Medical School.
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3. Students will be evaluated for promotion as needed during the academic year. The academic status of students who are subject to dismissal based on their performance at the completion of remedial or repeated courses during the academic year will be evaluated and revised after the completion of the course.

## **B. PROMOTION AND GRADUATION**

1. A student is achieving satisfactory academic progress when he or she has obtained at least a minimum grade of C in all required courses during the academic year.
2. The first and third year students who are maintaining satisfactory academic progress will be unconditionally promoted to the next level of the Medical Degree Program.
3. Second-year students must take the United States Medical Licensing Examination (USMLE) Step 1 following completion of second-year courses but no later than 3 weeks prior to the beginning of the fall semester in order to be promoted to the third year.
  - i. The student who achieves a passing score on USMLE Step 1 and is not subject to academic dismissal or non-promotion will be unconditionally promoted to the third year of the medical degree program.
  - ii. The student in a non-promotion status with a passing score of USMLE Step 1 will be eligible for unconditional promotion to the third year only after successful completion of failed second year coursework.
4. The fourth year student who completes the academic year in satisfactory academic progress status will be granted the medical degree provided all other requirements for graduation in section II.D.1. have been met and approval of the medical school faculty is granted.

## **C. NON-PROMOTION (NP), COURSE REPETITION AND DISMISSAL (D)**

1. Single Required Course Failure
  - a. A student in the first, second or third year who is not repeating courses and obtains a *non-passing grade* in a single required course/clerkship during the academic year, will not be promoted to the next academic level until he or she repeats that course and obtains a satisfactory grade. Repetition of failed courses/clerkships will be allowed after all required courses/clerkships have been completed.
  - b. The fourth year student who is not repeating courses and obtains a *non-passing grade* in a single required course/clerkship during the academic year will not be eligible for graduation until he or she repeats that course and obtains a satisfactory grade.

2. Multiple Required Course Failure

A student in the first, second, third or fourth year who is not repeating courses, has not previously been on Non-Promotion status, and in a single academic year fails two or more courses or clerkships will not be promoted. The student will be placed on Non-Promotion status for the subsequent academic year and will be required to repeat all courses in which he or she obtained a non-passing grade. Failure of any repeated course will result in academic dismissal. (See: Dismissal after course repetition; Article II. Section C. Subsection 4.)

### 3. Failure to pass the USMLE Step 1

- a. Second year students must take the USMLE Step 1 in the third year prior to the beginning of the fall semester. Students who do not sit to take the USMLE Step 1 prior to the fall term will be placed on non-promotion status.
- b. In order to be eligible to sit for the USMLE Step 1, students must continue to be enrolled in this school.
- c. Any second year student who completes a summer remedial course and is not subject to academic dismissal or non-promotion and does not pass the USMLE Step 1 prior to the beginning of the fall semester will be allowed to register in third year rotations during the first semester of the third year on a "Conditional Promotion Status."
  - i. If the student passes the USMLE Step 1 during the first semester of the third year, he or she will be unconditionally promoted to the third year.
  - ii. If a student fails to pass the USMLE Step 1 in the first semester of the third year he or she will be allowed to complete the courses of the first semester of the third year but will be placed on a non-promotion status for the remainder of the academic year.
- d. To register in a rotation during the second semester of the third year, the student must have passed USMLE Step 1 before the end of the first semester.

### 4. Dismissal after course or clerkship repetition

Any student who repeats a course or clerkship, including summer course, and receives a *non-passing grade* in the repeated course will be dismissed from the medical degree program.

### 5. Dismissal After Second Non-Promotion

Any student who fails to be promoted a second time due to course or clerkship failure will be dismissed from the Medical School.

### 6. Dismissal due to Failure to pass USMLE Step 1 or USMLE Step 2

- a. The student who is granted a LOA due to failure to pass the USMLE Step 1 and who fails to pass the USMLE Step 1 within the maximum allowed period of two years will be dismissed from the medical school.
- b. The student who is granted a LOA due to failure to pass the USMLE Step 2 and who fails to pass the USMLE Step 2 within the maximum allowed period of two years will be dismissed from the medical school.

### 7. No Readmission After Dismissal

Any student dismissed for academic reasons may not apply for readmission to the medical school.

## 8. Repetition of Elective Courses

Repetition of a specific elective course in which the student received a final grade of Failure will not be a mandatory requirement for promotion or graduation of the student.

However, the total clock hour requirement for elective work specified in the Medical School Curriculum must be satisfied with a grade of Pass or Honors prior to graduation.

## 9. Remedial Courses

### a. Eligibility

Any student receiving one or two *non-passing grades* during an academic year will be eligible to take only one remedial course during the summer of that academic year for transcript credit.

- i. If a student obtains one non-passing grade, the course may be repeated during the summer of the same academic year, during the next academic year, or during the summer session of the following academic year. (Section II. C. 1. a. )
- ii. If a student obtains two non-passing grades, one of the courses may be repeated during the summer session of the same academic year, while the other course may be repeated during the following academic year, or in the summer session of the following academic year. Alternatively, both courses may be repeated during the following academic year or one course may be repeated during the academic year and the other during the summer session of this academic year. (Section II. C.2.a.)

The student may decide on the most suitable option to repeat the failed course(s).

Any student who completes the academic year with only passing grades is not eligible to take remedial course(s) for transcript credit. It is stated in Section II.C.2.b. of these regulations that the repetition of failed courses/clerkships in a given academic year will only be allowed after all required clerkships/courses for that year have been completed.

### b. Course Selection and Completion

Eligible students may choose remedial courses from those courses offered by or approved by the department, which supervised the original course, subject to final approval by the Associate Dean of Medicine. Only courses offered by LCME-accredited institutions will be considered for approval. The student will be responsible for making all arrangements and covering all costs relevant to the remedial course, including travel, housing, registration and tuition.

The remedial courses must be completed prior to registration to the next academic level and will be officially recorded as repetition of the original course, so that the student's transcript will record the final grades in both the original and remedial courses, and so that only the repeated course will be used for calculation of the academic index (CQPI). In the event that the final grade in a

remedial course is not received prior to registration, the registration of the student will be provisional pending receipt of the final grade and determination of the student's final academic status.

c. Final Grade Determination

The student's final letter grade for a summer remedial course will be the final grade given by the institution teaching the remedial course. A maximum grade value of C (2.0) will be applied to any successfully repeated course in order to calculate the CQPI, regardless of the actual grade received in the repeated course. The student's transcript will show both the original failing grade and the actual grade received in the repeated course with a note of clarification explaining that the grade valued of 2.0 was applied to the repeated course to calculate the student's grade index.

d. Final Grade Registration

Upon repetition of any required or elective course, the permanent record and the official transcript of the student will show the final course grade received by the student both in the original course and in the repeated course, indicating the semester in which each course was conducted. As specified in Section I.I. of these regulations, in the case of a requisite course that is not pass/fail, the Credit Hours and quality points corresponding only to the repeated course will be utilized in the calculation of the CQPI value for the student.

#### **D. DEGREE REQUIREMENTS**

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, to pass the USMLE Step 1 and to pass the knowledge component of USMLE Step 2.

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. In order to obtain a medical degree from this medical school, the student must be enrolled in this institution for the final two academic years.

2. Time-Frame to Obtain the MD Degree

The normal time-frame for completion of required coursework in the MD Degree Program is four academic years. A student may require additional time to complete his/her degree due to academic or personal reasons, which will encompass a maximum time frame of six academic years. Time spent on LOA and time lapsed during authorized withdrawal will not be counted as part of the six academic years of study. In such situations, the Committee on Evaluation and Promotion of Students will make recommendations to the Dean of the Medical School.

3. To be eligible to receive honors on graduation the student must have completed at least two years of study at this Medical School. Honors that a student may receive on graduation will include:

HONORS	CQPI
Summa Cum Laude	3.75 to 4.00
Magna Cum Laude	3.50 to 3.74
Cum Laude	3.25 to 3.49

### III. DUE PROCESS POLICY AND PROCEDURE IN CASES INVOLVING ADVERSE ACTION UNDER THE REGULATIONS FOR STUDENT EVALUATION AND PROMOTION OF THE SCHOOL OF MEDICINE

#### A. INTRODUCTION

This Due Process Policy and Procedure is intended to describe the course of action and protections available at the Universidad Central del Caribe School of Medicine (UCCSOM), should a member of the faculty or administration take an adverse action against a student for failure to maintain academic standards. Expected academic standards for medical students are described in detail in the *Regulations for Student Evaluation and Promotion* of the School of Medicine (RSEP).

The due process for any actions not considered under this policy is outlined in the *General Student Rules and Regulations* under Chapter V (Standards of Student Conduct and Ethics), Articles 15 through 21.

#### B. RELEVANT DEFINITIONS

##### a. Due Process

Any student whose rights or privileges as defined in the *Regulations for Student Evaluation and Promotion* are affected by the action of a member of the faculty or administration has the right to be informed in a timely fashion of the impending adverse action, should be provided with disclosure of the evidence on which the action would be based, and must be given an opportunity to respond and to appeal to the pertinent authority of the institution. The due process comprises all of these protections, provisions, and courses of action.

The right to appeal may be exercised by the student personally or through the General Student Body Council, elevating the appeal before the concerned Department Chair, Year Coordinator, Associate Dean of Medicine and the Dean of the Medical School, or other designated individual.

##### b. Adverse Action

At the UCCSOM an adverse action is defined as any action undertaken by an institutional authority that 1) requires repetition of 1 or more courses or clerkships, 2) delays by at least one semester a student's completion of the MD degree, or 3) separates the student from the School of Medicine. Adverse actions include: academic dismissal from the School of Medicine, temporary enforced leave of absence, nonpromotion and required repetition of all or part of the curriculum.

## C. PROVISIONS

### a. Student Access to Support Services

Any student at the UCCSOM will be informed by the Dean of Student Affairs (DSA) of the available services to support him/her in reaching his/her academic and professional goals. The DSA or a designated person will inform the student of his/her academic situation at the UCCSOM and the anticipated implications of his/her academic status. The DSA will inform the student regarding the courses of action and protections available at the UCCSOM, should he/she be in a position of facing an adverse action due to failure to maintain academic standards.

### b. Student Right to Challenge a Grade

Any student has the right to be informed of his/her grades on examinations or any other evaluative activities within a reasonable time frame. In addition, the student has the right to review the examinations and other required work, duly corrected and graded (section I.A.2). The student has the right to challenge a grade in the case it is inaccurate or miscalculated. The student request to resolve an academic problem should be addressed to the concerned Faculty,

Course Coordinator, Departmental Chair, Year Coordinator, and Associate Dean of Medicine in that order. All of these claims should be in writing and responded to (in writing) by the UCCSOM academic administrators within 15 days of receipt of any challenge.

### c. Consideration of an Adverse Action

Recommendation of an adverse action may be made by the Committee on Student Evaluation and Promotion (CSEP) to the Dean of Medicine through their periodic evaluation of student academic progress. Prior to recommending an adverse action, the CSEP will conduct a detailed investigation and review all available information from the student and or concerned faculty. Substance of the issues considered will be included in the minutes of the meeting at which the student's performance is discussed. The CSEP will arrive at a decision by a simple majority vote.

### d. Imposition of an Adverse Action

The decision whether or not to impose an adverse action rests with the Dean of Medicine. In such cases the Associate Dean of Medicine will submit a written warning to each student facing an adverse action due to failure to maintain academic standards. Within 15 days of the CSEP meeting at which the adverse action was recommended, the student will be notified of the action by certified letter (and in addition by any other expeditious means such as electronic mail, fax or personal hand delivery of letter) from the Associate Dean of Medicine. In the written letter the Associate Dean of Medicine will inform the student under which specific regulations the adverse action has been taken. The Associate Dean of Medicine will maintain a confidential students' file to keep and protect all the corresponding documentation under consideration through the due process.

## **D. APPEALS**

### **a. Appeal of an Adverse Action**

A student on whom an adverse action is being imposed has the right to appeal the decision. The student must make a written request for an appeal to the Associate Dean of Medicine, stating the reasons why the student disagrees with the decision. Student's request for an appeal must be received in writing within 30 days after receipt of the adverse action letter. In preparing for the appeal, the student may request a copy of the relevant portion of the minutes of the CSEP meeting at which the student's performance was discussed.

Should the student fail to notify in writing the Associate Dean of Medicine of the appeal within thirty (30) days, this shall be considered a waiver of the right to an appeal and the decision shall become final for the School of Medicine.

The Associate Dean of Medicine will submit the formal appeal to the CSEP by writing, providing all information and any new evidence provided by the student. The CSEP will convene a meeting (within 15 days of receipt of the formal appeal) to evaluate in detail the student's appeal. The CSEP may invite the student to present the reasons for disagreement with the adverse action.

The CSEP will arrive at a decision by a simple majority vote. If in light of the new evidence the CSEP recommends that the adverse action not be imposed, the student will be notified by the Associate Dean of Medicine in writing (within 5 days of the meeting). If after evaluation of new evidence the CSEP ratifies the adverse action, the student will be notified by the Associate Dean of Medicine in writing within 5 days of the meeting.

### **b. Appeal to the Dean**

If the student disagrees with the result of the CSEP decision, he/she may appeal to the Dean of the School of Medicine in writing within thirty (30) days of receipt of the ratification of the adverse action by the CSEP. Should the student fail to notify the DSoM in writing of the appeal within thirty (30) days, the student has waived his/her right to appeal to the DSoM and the decision shall be final for the School of Medicine.

The DSoM will review the student's academic record, the recommendation of CSEP and the decision of the Associate Dean of Medicine and any other documents in the student's appeal file. The DSoM has the prerogative to meet with the student.

The DSoM will communicate his/her decision to the student in writing within 3 days of conclusion of the appeal process. The Dean's decision is final for the School of Medicine.

### **c. Discretionary Review of the DSoM's decision by the President and the Board of Trustees**

The DSoM's decision is subject to discretionary review by the President of the UCC and the Board of Trustees. The President and the Trustees will normally accept review only in extraordinary cases, such as where proper procedures have apparently not been followed, contractual rights are being breached, where the decision appears to be unsupported by the facts, or where the decision appears to violate UCCSOM policy. Procedures for such appeals shall be according to the General Regulations (Reglamento General) of the UCC.

#### **IV. GENERAL REGULATIONS**

##### **A. AUTHORITY AND ENFORCEMENT**

The Office of the Associate Dean of Medicine will bear the responsibility and authority to enforce all provisions of this document. Amendment to these regulations may be proposed in writing only through the Office of the Associate Dean of Medicine for consideration by the Committee on Student Evaluation and Promotion. Following the recommendations of the Committee, the Dean of the Medical School will submit the recommended amendments for the approval of the Faculty of the Medical School in meeting. The Office of the President of the University will submit any amendments to this document approved by the Faculty of the Medical School within a period of thirty calendar days following faculty approval for consideration by the Board of Trustees of the university. Any amendment to these regulations will apply to every student of the medical school regardless of the date of initial registration of the student in the medical school, unless a specific condition of applicability is stated in a particular provision of this document.

##### **B. REGULATIONS AS PART OF THE CONTRACT OF STUDIES**

These regulations, as with all regulations of this institution, will form part of the contract of studies between this institution and all registered medical students.

##### **C. SUPERSEDING OF PREVIOUS REGULATIONS**

Any section, paragraph, or sentence of any previously approved regulations relating to evaluation, promotion, or graduation of students at the Medical School that is inconsistent or in conflict with any provision of this document will be superseded by this document.

##### **D. VOIDING OF A SPECIFIC PROVISION**

The voiding of any provision of these regulations by the pertinent authority will not affect any other provision of the document unless directly related to the voided provision.

*(Approved by the Faculty on June 22, 2011)*

## **CONTINUING EDUCATION OFFICE**

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The Universidad Central del Caribe has a commitment to provide and sponsor continuing education activities for the health professionals in the Northeast Health Region of Puerto Rico.

Since 1985, the Institution is provider number 00024 of the Puerto Rico Department of Health for continuing education for health professionals, such as physicians, psychologists, nurses, health educators, health service administrators, physical and occupational therapists and their assistants, dentists and their assistants, nutritionists, radiology technicians, pharmacists, medical technicians, and others.

The Continuing Education activities are also available for medical students, residents of the different programs and for other professionals groups such as social workers, teachers, counselors and other professionals in the social developmental areas.

## **GRADUATE MEDICAL EDUCATION**

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The School of Medicine and the University Hospital sponsor an accredited residency program in Internal Medicine. This program is accredited by the Accreditation Council on Graduate Medical Education (ACGME).

Affiliations with other major medical institutions have been established by all educational programs. Our residency program follow, and is in accordance with the UCC's philosophy of training competent physicians, which complies with the current needs of the Puerto Rican Health Reform, and current health education trends worldwide.

The Institutional Graduate Medical Education Office (GMEO) is located in the Deanship of Medicine. This office was recertified with the ACGME accreditation in May 2000. The GMEO is responsible for the oversight of all residency program activities in terms of quality, curriculum and all other requisites also in compliance with the ACGME. There is a Committee for Graduate Medical Education (GMEC) chaired by the GMEO Director. The GMEC is composed of the program director, program associate director, program coordinator, the Hospital's medical director, hospital chief executive officer, the chief resident, and a peer-elected resident representative from the program.

Inquiries for the medical residency program should be addressed to the Office of Graduate Medical Education at the UCC School of Medicine.

## **MEDICAL SCHOOL 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
- CUBANO-ROJAS, Luis A., Ph.D., Associate Professor and Associate Dean for  
Research & Graduate Program  
Ph.D., Kansas State University, 2000
- CHINEA-MARTINO, José J., D.M.D., Professor  
D.M.D., University of Puerto Rico, School of Medicine, 1969  
M.S. University of Indiana, 1972
- DARMAWARDHANE-FLANAGAN, Suranganie, Ph.D., Associate Professor  
Ph.D., University of Massachusetts, Amherst, MA, 1987  
MS, Northeastern University, Boston, MA., 1985
- DE LEÓN-OLMEDA, Elizabeth, M.D., Associate Professor  
M.D., Universidad Autónoma de Santo Domingo, 1996
- GÓMEZ-PINZÓN, Héctor F., M.D., Associate Professor  
M.D., Universidad Militar Nueva Granada, Bogotá, Colombia, 1984  
Specialty in General Surgery, Instituto Nacional de Cancerología, 1995
- HAIFFE, Rosa M., M.D., Associate Professor; (Dual appointment in Pathology)  
M.D., Universidad Autónoma (Dominican Republic), 1968  
Specialty in Pathology, University District Hospital (UPR), 1974  
Fellowship in Neuropathology, Indiana University, 1975
- JIMÉNEZ, Sofía, Ph.D., Associate Professor and Chairperson  
Ph.D., University of Puerto Rico, School of Medicine, 1984  
MS, University of Puerto Rico, 1970
- MARTE, Erlin J., M.D., Assistant Professor  
M.D., Pontificia Universidad Católica Madre y Maestra, RD., 1998
- OLIVER-SOSTRE, José L., D.M.D., Associate Professor  
D.M.D., University of Puerto Rico, School of Medicine, 2002
- TORRES-VÁZQUEZ, Armando, M.D., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1980  
Specialty in Ophthalmology, Bronx-Lebanon Hospital Center, 1986
- SÁNCHEZ-SÁNCHEZ, Vivian, D.M.D., Assistant Professor  
University of Puerto Rico, School of Dentistry, 1979
- VERAS-TAVAREZ, Wilson, M.D., Associate Professor  
M.D., Universidad Autónoma de Santo Domingo, 1989
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VILLARUBIA, Héctor J., M.D., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 2002  
Specialty in Ophthalmology, University of Puerto Rico, SOM, 2006  
Fellowship in Glaucoma, University of Texas, Health Science Center, 2007

WASHINGTON, Anthony V., Ph.D., Assistant Professor  
Ph.D., Southern Methodist University, 1998

## **DEPARTMENT OF BIOCHEMISTRY**

BACCIN-MARTINS, Antonio Henrique, Ph.D., Assistant Professor  
Ph.D., University Federal of Sao Paulo, 2006

EATON, Misty, Ph.D., Professor  
Ph.D., University of Texas Southwestern Medical Center, 1990

ETEROVIC, Vesna A., Ph.D., Professor  
Ph.D., National University Córdoba, Argentina, 1971

FERCHMIN, Pedro A., Ph.D., Professor  
Ph.D., National University Cordova, Argentina, 1971

HANN, RICHARD, M.D., Professor and Chairperson  
M.D., University of Oklahoma College of Medicine, 1974

KUCHERYAVYKH, Yuriy V, Ph.D., Assistant Professor  
Ph.D., Saint Petersburg State University, St. Petersburg, Russia, 2003

KUCHERYAVYKH, Lilia, Ph.D., Assistant Professor  
Ph.D., Saint Petersburg State University, St. Petersburg, Russia, 2001

MARTÍNEZ, Michelle M., Ph.D., Assistant Professor  
Ph.D., Michigan State University, 2004  
M.S., University of Puerto Rico, Mayagüez Campus, 2001

SKATCHKOV, Serguei, Ph.D., Professor (Dual appointment in Physiology)  
Ph.D., Leningrad State University, Russia, 1991  
M.P.H., Leningrad State University, Russia, 1979

SZETO, Ada, Ph.D., Assistant Professor  
Ph.D., University of Puerto Rico, Medical Sciences Campus, San Juan, 2005  
M. Phil, Columbia University, New York, 1988  
MA, Columbia University, New York, 1986

VÉLEZ-CARRASCO, Wanda, Ph.D., Associate Professor  
Ph.D., Tuft University, Boston, 1998  
M.S., Tufts University, Boston, 1995

## **DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY**

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

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FRAME, Ann, Ed.D, Associate Professor  
Ed.D, Nova University, 1983

OTERO, Miguel, Ph.D., Assistant Professor  
Ph.D., University of Puerto Rico, School of Medicine, 1998

RAMÍREZ-RONDA, Carlos H., M.D., Associate Professor  
M.D., Northwestern University, 1967  
Specialty in Internal Medicine, 1970

RÍOS, Zilka, MS, Associate Professor and Associate Dean for Academic Affairs of Medicine  
MS, University of Puerto Rico, School of Medicine, 1978

RÍOS-OLIVARES, Eddy O., Ph.D., MPH, Professor and Chairperson  
Ph.D., University of Puerto Rico, School of Medicine, 1976  
MPH, Sanitation Microbiology, University of Minnesota, 1967

RODAS-GONZÁLEZ, Arcady R., Assistant Professor  
M.D., Universidad del Zulia, Maracaibo, Venezuela, 1985  
Specialty in Internal Medicine,  
Fellowship in Infectious Diseases, Hospital Militar Dr. Carlos Arvelo, Caracas, Venezuela,  
1996

RODRÍGUEZ, José W., Ph.D., Associate Professor  
Ph.D., Morehouse School of Medicine, Atlanta, Georgia, 1998  
MS, Emporia State University, 1989

SAAVEDRA, Sonia, M.D., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1980

## **DEPARTMENT OF NEUROSCIENCE**

Bykhovskaia, María, Ph.D., Professor & Chairperson  
Ph.D. in Neuroscience, Russian Academy of Science, Russia, 1992  
Postdoctoral in Neuroscience, University of Virginia, 1997

Schikorski, Thomas, Ph.D., Associate Professor  
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**

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M.D. Universidad Central del Caribe, School of Medicine, 1981  
Specialty in Pathology, University of Alabama Hospital at Birmingham, 1985

CONDE-STERING, Daniel, M.D., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1992  
Specialty in Pathology, Beth Israel Medical Center, New York, NY, 1997  
Fellowship in Callender-Binford, Armed Forces Institute of Pathology, Washington, DC, 1999

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

MARCIAL-ROJAS, Raúl A., M.D., JD, Professor, Emeritus Dean  
M.D. Marquette University, 1949  
Specialty in Pathology, San Juan City Hospital, 1949-1952;  
Pondville Cancer State Hospital, Walpole, Mass., 1952-53  
MPH University of Puerto Rico, 1972  
JD, Interamerican University of Puerto Rico, 1978

RODRÍGUEZ-RAMOS, Luz M., M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1982  
Specialty in Pathology, University District Hospital and VA Hospital, 1986

SILVESTRINI, Isis, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1985  
Specialty in Pathology, University District Hospital (UPR), 1989

SIMMONS-GARCÍA, José A., M.D., Assistant Professor  
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Specialty in Pathology, University Hospital (UPR), 1992

## **DEPARTMENT OF PHARMACOLOGY**

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SANTOS-MARTÍNEZ, Jesús, Ph.D., Professor Emeritus  
Ph.D., Purdue University, 1954  
Postdoctoral Fellow, Indiana University Medical Center,  
Specialty in Renal Physiology, 1966-67

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

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RIVERA, Amelia, Ph.D., Associate Professor  
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ROJAS, Legier, Ph.D., Professor  
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## **CLINICAL SCIENCES DEPARTMENTS**

### **DEPARTMENT OF EMERGENCY MEDICINE**

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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

ALONSO-SERRA, Héctor M., M.D., Associate professor  
M.D., University of Puerto Rico, School of Medicine, 1989  
Specialty in Emergency Medicine, University District Hospital (UPR), 1992

ARROYO-MARRERO, Blas C., M.D., Assistant Professor  
Specialty in Emergency Medicine, University District Hospital (UPR), 1984

BOU, Carmen Inés, M.D., Assistant Professor  
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Specialty in Emergency Medicine, New York Medical College, 2003

COLÓN-MÉNDEZ, Manuel J., M.D., Assistant Professor  
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Specialty in Emergency Medicine, 1988

CRUZ-CALDERON, Myriam, M.D., Assistant Professor  
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Specialty in Internal Medicine, José M. Gándara Hospital, 1997

CRUZ-RESTO, Olga I., M.D., Assistant Professor  
M.D., Universidad Autónoma, Santo Domingo, RD, 1978  
Specialty in Obstetrics and Gynecology, Bayamón Regional Hospital, 1995

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

GARCÍA-MORALES, José J., M.D., Assistant Professor  
M.D., Universidad Nordeestana, San Francisco de Macoris, RD, 1986  
Specialty in Emergency Medicine, University District Hospital (UPR), 1997

GASCOT-ZAYAS, Javier, M.D., Assistant Professor  
M.D., San Juan Bautista, School of Medicine, 2003

LÓPEZ-ROCAFORT, Jorge L., M.D., Assistant Professor  
M.D., Ponce School of Medicine, 2000  
Specialty in Emergency Medicine, University District Hospital (UPR), 2003

MARCANO-CENTENO, Geovannie, M.D., Assistant Professor  
M.D., Ponce School of Medicine, 1998  
Specialty in Emergency Medicine, University District Hospital (UPR), 2001

MARÍN- DE GRACIA, Jesús M., M.D., Assistant Professor and Chairperson  
M.D., University of Seville, Spain, 1981  
Specialty in Emergency Medicine, University District Hospital (UPR), 1995

RAMÍREZ-VEGA, Moises, M.D., Assistant Professor  
M.D., Universidad Autónoma de Guadalajara, 2003

RODRÍGUEZ-COLLAZO, Víctor M., M.D., Assistant Professor  
M.D., San Pedro de Macorís, Dominican Republic, 1978  
Specialty in Emergency Medicine, 1984

RODRÍGUEZ-DE JESÚS, Mónica, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 2002  
Specialty in Emergency Medicine, University Hospital (UPR), 2005

RODRÍGUEZ-MARTÍNEZ, Maribel, M.D. Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1989  
Specialty in Emergency Medicine, Boston City Hospital, Massachusetts, 1993  
Fellowship in Pediatric Emergency Medicine, Fairfax Hospital, 1995

RODRÍGUEZ-ROSELLO, Luis E., Assistant Professor  
M.D., Universidad Iberoamericana, UNIBE, 2001

ROSA-CARTAGENA, Félix J., M.D., Assistant Professor  
M.D. University of Puerto Rico, School of Medicine, 1985  
Specialty in Emergency Medicine, University District Hospital (UPR), 1988

SEPULVEDA-SERRA, Raymond, M.D., Associate Professor  
M.D., Santiago de Compostela University, Spain, 1975  
Specialty in Emergency Medicine, University District Hospital (UPR), 1981

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## DEPARTMENT OF FAMILY MEDICINE

- ALONSO-DE LA CRUZ, Angelita, M.D., Instructor  
M.D., Universidad Autónoma de Santo Domingo, RD, 1986
- BERRÍOS-MARCANO, Rafael, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1989  
Specialty in Obstetrics and Gynecology, University District Hospital, PR, 1993
- CARDONA, Flores, M.D., Assistant Professor  
M.D., Universidad Central del Este San Pedro de Macorís, 1984  
Specialty in Pediatrics, Hospital Reginal Gándara, Ponce, PR, 1996
- CARRIÓN-GONZÁLEZ, Ibis S. PsyD., Assistant Professor  
PsyD., Psychology with Specialization in Clinical Psychology, Universidad Carlos Albizu, 2002
- CASTRO-ÁVILA, Rosa, M.D., Assistant Professor  
M.D., Universidad Autónoma de Guadalajara, 2000
- CEDEÑO, RAFAEL, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1981  
Specialty in Family Medicine, San Pablo Hospital (UCC) 1988
- CEDEÑO-QUINTERO, Gustavo, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1993  
Specialty in Family Medicine, University Hospital Dr. R. Ruiz Arnau (UCC), 1996
- CHICO, Francisco, M.D., Instructor  
M.D., Universidad Santiago de Compostela, School of Medicine, 1980  
Specialty in Family Medicine, San Pablo Hospital (UCC) 1984
- COLÓN-CASTILLO, Milagros, Ed.D., Assistant Professor  
Ed.D., Interamerican University, 1996
- COPPOLA-MUÑOZ, Angelo, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1984  
Specialty in Family Medicine, San Pablo Hospital, Bayamón, PR, 1987
- COX-McCLEARY, Evadne, MSN, MHS, Assistant Professor  
MSN, Catholic University of Puerto Rico, 1983  
MHS, Governors State University, Chicago, Illinois, 1996
- CUADRADO-FIGUEROA, Fernando, M.D., Assistant Professor  
Specialty in Family Medicine
- DE LA TORRE, Irene G., CNM, MS, Assistant Professor  
MS, Northern Illinois University, Dekalb, ILL, 1974  
Certificate in Nurse-Midwifery, University of Southern, California, 1983
- DÍAZ-HERNÁNDEZ, Jaime M., M.D., Assistant Professor  
M.D. University of Puerto Rico, School of Medicine, 1975  
Specialty in Family Practice, University Hospital (UPR), 1978
- DÍAZ-PÉREZ, Luis R., M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1980  
Specialty in Family Medicine, San Pablo Hospital Residency Program, 1987
-

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

ECHEVARRIA-SANTOS, Ramonita, RN, Assistant Professor  
RN, University of Puerto Rico, 1977

FELIBERTY, Evelyn, Ed, Dc, Assistant Professor  
Ed.Dc., Interamerican University of P.R., At Present  
MA, University of Puerto Rico, 1991

FELICIANO, Héctor, M.D., Profesor  
M.D., Hahnemann University, 1953

FLORES-BAER, Gustavo, M.D., EMT-P, Assistant Professor  
M.D., Iberoamerican University, School of Medicine, 2008

FUCILE, Michael L., M.D., Assistant Professor  
M.D., Temple University, School of Medicine, 1982  
Specialty in Family Medicine, Caguas Regional Hospital (UPR), 1985

FUENTES-APONTE, Anselmo, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 19786  
Specialty in Family Medicine, San Pablo Hospital, Bayamón, PR, 1989

GARCÍA-FELICIANO, Arturo T. M.D., Assistant Professor  
M.D., Universidad Autónoma de Guadalajara, México, 1995

GARCÍA-GOYCO, Carlos, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1978  
Specialty in Family Medicine

GARCÍA-RODRÍGUEZ, María del Mar, MSW, MHS., Assistant Professor  
MSW, La Salle Graduate School of Social Work, University of Puerto Rico, 1970

GARCÍA-ROSARIO, Luis, M.D., Assistant Professor  
M.D., University of Puerto Rico, 1994  
Specialty in Family Medicine,

GIRONA-LOZADA, Mariely D., M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 2003  
Specialty in Family Medicine, University Hospital Dr. R. Ruiz Arnau, 2006

GONZÁLEZ, Eric M., M.D., MPH, Professor and Acting Chairperson  
M.D., Universidad Central del Caribe, School of Medicine, 1980  
MPH, University of Puerto Rico, 1985

IRIZARRY, Moises D., M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 2001  
Specialty in Family Medicine, University Hospital Dr. Ramón Ruiz Arnau (UCC), 2005

IZQUIERDO-MORA, Luis, M.D., Professor Emeritus  
M.D., University of Puerto Rico, School of Medicine, 1956

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LACOMBA-HERNÁNDEZ, Rafael, M.D., Assistant Professor  
M.D., Universidad Central del Este, San Pedro de Macorís, RD, 1981

MALDONADO-RÍOS, Gertrudis, Ph.D., Assistant Professor  
Ph.D., University of Puerto Rico, School of Medicine, 1997

MARRERO, Carmen Amalia, MPH, Assistant Professor  
MPH, University of Puerto Rico, School of Medicine, 1989

MARTIR, Sylvia A., M.D., Assistant Professor  
M.D., Ponce School of Medicine, 2002  
Specialty in Emergency Medicine, University of Puerto Rico, Carolina Campus, 2005

MATOS-RIVERA, Tomás, M.S., Instructor  
M.S., University of Puerto Rico, 1989

MATEO-REYES, Enid, M.D., MPH, Adjunct Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1975  
Specialty in Family Medicine, University District Hospital (UPR), 1978  
Fellowship Faculty Development, Michigan State University, 1986

MEDINA-AVILÉS, Miguel, M.D., Instructor  
M.D., Universidad Central del Caribe School of Medicine, 1993  
Specialty in Family Medicine, Dr. R. Ruiz-Arnau University Hospital (UCC), 1997

MERCADO, Harry, M.D., Professor and Associate Dean for Clinical & Faculty Affairs  
M.D., University of Puerto Rico, School of Medicine, 1980  
Specialty in Family Medicine, University District Hospital (UPR), 1983

MOSCOSO, Margarita, Ph.D., Associate Professor  
Ph.D., University of Michigan, 1992  
M.Ed., University of Puerto Rico, School of Medicine, 1987

MUÑOZ-VEGA, Elaine, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 2008

MURPHY-RIVERA, Francisco, M.D., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1991  
Specialty in Family Medicine, 1994

NICOLAU-GÓMEZ, Yania, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 2010

NIEVES-DÍAZ, Gil, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1976  
Specialty in Family Medicine, Caguas Regional Hospital, 1983

OLIVER-PICHARDO, José L., M.D., Assistant Professor  
M.D., Universidad Santiago de Compostela, Escuela de Medicina, 1973

OQUENDO, Leyda, M.D., Assistant Professor  
M.D., Ponce School of Medicine, 1994  
Specialty in Family Medicine, San Pablo Hospital, 1997

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ORTIZ-DÍAZ, Carlos, M.D., Assistant Professor  
M.D., Universidad Central del Este, School of Medicine, Dominican Republic, 1982  
Specialty in Pediatrics, Caguas Regional Hospital (UPR), 1992

PAGÁN-MERCADO, Ketsy L., Assistant Professor  
M.D., Universidad Autónoma de Guadalajara, México, 1999

PAGÁN-MIRANDA, Miguel, Psy.D., Assistant Professor  
Psy.D., Centro Caribeño de Estudios Post Graduados

PARRILLA, Iris, MS, Associate Professor  
MS, Demography, University of Puerto Rico, 1980

PÉREZ-DEL PILAR, Omar, Ph.D., Assistant Professor and Dean of Admissions and Student  
Affairs  
Ph.D., Clinical Psychology, University of Puerto Rico, 2002

PESANTE-PINTO, José L., M.D., Associate Professor  
M.D. University of Zaragoza, Spain, 1979  
Specialty in Family Medicine, San Pablo Hospital (UCC) 1986

QUIÑONES-BERRIOS, Areliz, Ed.D, Instructor  
Ed.D., Interamerican University, 2007  
MSH, Universidad Central del Caribe, School of Medicine, 1999

REYES-PULLIZA, Juan Carlos, Ph.D. Assistant Professor  
Ph.D. University of Puerto Rico, School of Medicine, 2003  
MS, University of Puerto Rico, School of Medicine, 1990

RIVERA-ANAYA, Carmen V., M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 2008

RIVERA-LINARES, Anthony R., M.D., Instructor  
M.D., UCETEC, School of Medicine, Dominican Republic,

RIVERA-RIESTRA, Víctor, M.D., Assistant Professor  
M.D., San Juan Bautista, School of Medicine, 2007

RIVERO, Luis M., M.D., Assistant Professor  
M.D. Universidad Autónoma de Guadalajara, 1977  
Specialty in Family Medicine, San Pablo Hospital (UCC) 1987

RODRÍGUEZ, Carmen E., M.D., Instructor  
M.D., Seville Medical University, 1972  
Specialty in Family Medicine, 1982

RODRÍGUEZ-POMBAR, Miriam, M.D., Assistant Professor  
M.D., University of Valladolid, Spain, 1991  
Specialty in Family Medicine, 2008

RODRÍGUEZ, Wanda, JD, Assistant Professor  
JD, Interamerican University of Puerto Rico, School of Law, 1985

RODRÍGUEZ-REYES, Sylvia E., M.D., Assistant Professor, 1989  
M.D. University of Puerto Rico, School of Medicine  
Specialty in Family Medicine, University District Hospital (UPR), 1993

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RUIZ-MUÑIZ, Lynnette, M.D., Instructor  
M.D., Universidad Autónoma de Guadalajara, México, 2000  
Integrate Course of Traditional Chinese Medicine and Medical Acupuncture, Medical Surgeons College, San Juan, PR., 2006

SIERRA-QUIÑONEZ, Yolanda, M.D., Assistant Professor  
M.D., Zaragoza Medical School, 1977  
Specialty in Internal Medicine, Bayamón Reginal Hospital, PR, 1982

SOTOMAYOR, Antonio, M.D., Assistant Professor  
M.D., Facultad de Medicina, Valencia, España, 1980  
Specialty in Family Medicine, San Pablo Hospital, 1987

SUÁREZ, Carmen M., M.D., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1987  
Specialty in Family Medicine, Lebanon Hospital, New York, 1990

SUÁREZ, Ramón A., M.D., Professor Emeritus  
M.D. University of Puerto Rico, School of Medicine, 1977  
Specialty in Family Medicine, University District Hospital (UPR), 1979  
Fellowship Faculty Development, University of Illinois, 1981

TASCH-RAMÍREZ, Raymond J., M.D., Instructor  
M.D., Universidad Autónoma, Guadalajara, México, 1986  
Specialty in Family Medicine, University Hospital Dr. Ramón Ruiz Arnau, 1996

TOCUYO, Carmen M., M.D., Assistant Professor  
M.D., Universidad Autónoma de Guadalajara, 1987  
Specialty in Family Medicine, San Pablo Medical Center, 1994

TORRES, Francisco, Ph.D., Assistant Professor  
Ph.D., Union Graduate School, Ohio, 1973

TORO, Ismael, M.D., ABFP, ABG, Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1980  
Specialty in Family Medicine, Lutheran Medical Center, 1983  
Fellowship in Faculty Development, Michigan State University, 1984  
Fellowship in Geriatrics, New York University, 1984

TORT-ORTIZ, Bernat, Ph.Dc., Instructor  
Ph.Dc., Universidad Complutense, Madrid, Spain, (at present)

VARGAS-VIDOT, José A., M.D., Assistant Professor  
M.D., Eugenio María de Hostos University, Dominican Republic, 1986

VEGA-SUÁREZ, Lorna I., M.D., Assistant Professor  
M.D., Universidad Autónoma de Guadalajara, México, 1991  
Specialty in Pediatrics, University Hospital Dr. Ramón Ruiz Arnau, 1996

VELÁZQUEZ-VALLE, Miguel Ali, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 2000  
Specialty in Family Practice, University of Puerto Rico, School of Medicine, 2003

VÉLEZ CRESPO, Michael, MS, Assistant Professor  
MS, University of Puerto Rico, 1995

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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

ZAYAS, Iliá, M.D., Assistant Professor  
M.D. Universidad Central del Caribe, School of Medicine, 1980  
Specialty in Family Medicine, Lutheran Medical Center, 1983

## **DEPARTMENT OF INTERNAL MEDICINE**

ALEQUÍN-SÁNCHEZ, Ricardo, M.D., Instructor  
M.D., Universidad Autónoma de Guadalajara, México, 2003  
Specialty in Internal Medicine, University Hospital Dr. R. Ruiz Arnau, (UCC), 2006

AGOSTO-MAURY, Norma, M.D., Assistant Professor  
M.D., Universidad de Valencia, 1993

ARMAIZ-APONTE, Guillermo R., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1980  
Specialty in Internal Medicine, San Juan City Hospital (UPR), 1983

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

BERNAL-CABRERO, Delfín, M.D., Assistant Professor  
M.D., University of Barcelona, Spain, 1955  
Specialty in Internal Medicine, 1958

BENÍTEZ-COLÓN, Carlos R., M.D., Assistant Professor  
M.D., Universidad Central del Este, 1982  
Specialty in Internal Medicine

CAMPOS-RUIZ, Rafael, M.D., Instructor  
M.D., Universidad Central del Caribe, School of Medicine, 1981  
Specialty in Internal Medicine, University Hospital Dr. Ramón Ruiz Arnau (UCC), 1984

CARRASQUILLO, Efrain, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1994  
Specialty in Internal Medicine, Franklin Square Hospital Center, Baltimore, MD, 1997  
Fellowship in Rheumatology, San Juan City Hospital, 2001

CHABRIER-BEAUCHAMP, Lissette, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine,  
Specialty in Dermatology,

CHIESA CEDO, Carlos J., M.D., Assistant Professor  
M.D., University of Navarra, Spain, 1972  
Fellowship in Hematology-Oncology, University District Hospital (UPR), 1980

COLÓN-FONTÁNEZ, Francisco, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine,  
Specialty in Dermatology,

COLÓN-QUINTANA, Melba, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1980  
Specialty in Internal Medicine, University District Hospital (UPR), 1983  
Fellowship in Infectious Disease, San Juan VA Medical Center, Puerto Rico, 1985

CORREA, María de los Ángeles, M.D., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1981  
Specialty in Internal Medicine 1984

CORTÉS, Carmen, M.D., Associate Professor  
M.D., Ponce School of Medicine, 1983

CARDONA, Héctor R., M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1981  
Specialty in Internal Medicine, San Juan VA Medical Center, 1984

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

CRUZ-RIVERA, Carmen L., M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1982  
Specialty in Dermatology, University District Hospital, UPR, 1987

CUEBAS-RODRÍGUEZ, Clara E., M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1983  
Specialty in Neurology, University District Hospital (UPR), 1991

DENIZ, Juan, M.D., Assistant Professor  
M.D., Universidad de Zaragoza, 1976  
Specialty in Internal Medicine

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, 1988

DUCOUDROY, Samadys, M.D., Assistant Professor  
M.D., Ponce School of Medicine, 1992  
Specialty in Internal Medicine

ESPONDA, Omar L., M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 2006  
Specialty in Internal Medicine, University Hospital Dr. Ramón Ruiz Arnau, 2009

FELICIANO, Marcos, M.D., Assistant Professor  
M.D., University of Puerto Rico, Medical Sciences Campus, 1988  
Specialty in Specialty in Internal Medicine

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FELICIANO-ASTACIO, Briseida E., M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1987  
Specialty in Internal Medicine, University District Hospital (UPR), 1991  
Fellowship in Clinical Neurophysiology, University Hospital (UPR), 1992

FERNÁNDEZ-SANTOS, Diana, Ed.D., Assistant Professor  
Ed.D., University of Puerto Rico, School of Medicine, 1994

FORASTIERI-MALDONADO, Luis, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1996  
Specialty in Internal Medicine

FUXENCH, Zelma Z., M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1977  
Specialty in Internal Medicine, 1980

GALIB, Hamid, M.D., Professor  
M.D., University of Puerto Rico, School of Medicine, 1972  
Specialty in Internal Medicine

GARAYALDE-COTRONES, Glen, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1977  
Specialty in Neurology, Boston University Hospital, 1982

GARCÍA-SOBERAL, Madeline, M.D., Assistant Professor  
M.D., Universidad Autónoma de Guadalajara, 1987  
Specialty in Internal Medicine, University Hospital Dr. Ramón Ruiz Arnau (UCC), 1996  
Fellowship Hematology/Oncology, San Juan City Hospital, 2000

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

GÓMEZ, María de los Ángeles, Ph.D., Associate Professor  
Ph.D., Université de Paris V–René Descartes, 1991

GÓMEZ, René, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1965  
Specialty in Internal Medicine

GUARDIOLA-RIVERA, Benjamín R., M.D., Assistant Professor  
M.D., Universidad Iberoamericana, Dominican Republic, 2002  
Specialty in Internal Medicine, University Hospital Dr. R. Ruiz Arnau, 2007

HERNÁNDEZ-AYALA, María I., M.D., Associate Professor  
M.D., Universidad de Zaragoza, Spain, 1976  
Sub-Specialty in Neurology, University District Hospital (UPR), 1980

HUNTER-MELLADO, Robert, M.D., Professor  
M.D. University of Puerto Rico, School of Medicine, 1979  
Specialty in Internal Medicine, San Juan VA Hospital, 1981  
Fellowship Hematology, Medical Oncology, Duke University Medical Center, 1984

JIMÉNEZ-RODRÍGUEZ, Harry, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1972  
Fellowship in Endocrinology, University District Hospital (UPR), 1977

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LEÓN-VALIENTE, Carlos F., M.D., Associate Professor  
M.D., Universidad de Barcelona (Spain) 1971  
Specialty in Internal Medicine, San Juan VA Hospital, 1975  
Fellowship in Infectious Diseases, San Juan VA Hospital, 1977

LLADO-GONZÁLEZ, Ileana J., M.D., Assistant Professor  
M.D., Universidad Pedro Henriquez Ureña (Dominican Republic), 1978  
Specialty in Internal Medicine, University District Hospital (UPR), 1982  
Specialty in Cardiology, University Hospital, 1984

LÓPEZ, Esteban, M.D., Assistant Professor  
M.D., CETEC, Dominican Republic, 1982  
Specialty in Internal Medicine

LOZADA, Antonio, M.D., Assistant Professor  
M.D., American University of the Caribbean, School of Medicine, 2004  
Specialty in Internal Medicine, Saint Vincent Catholic Medical Center, NY, 2007

MARCHAND, Ernesto, M.D., Professoris 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, Héctor J., M.D., A, Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 2005  
Specialty in Internal Medicine, Veteran Administration Medical Center, 2008

MAYOR-BECERRA, Ángel M., M.D., Assistant Professor  
M.D., Military University Nueva Granada, Bogotá, Colombia, 1986

MEDINA, Augusto, M.D., Assistant Professor  
M.D., Universidad San Juan Bautista, 1991  
Specialty in Internal Medicine, McLaren Regional Medical Center, 1995  
Fellowship in Hematology-Oncology, Michigan State University College, 1998

MEDINA-DE VANDROUX, Lisa M., M.D., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1990  
Specialty in Internal Medicine, University Hospital Dr. Ramón Ruiz Arnau (UCC), 1993

MELÉNDEZ-ROSA, Myriam, M.D., Associate Professor  
M.D., Universidad Central del Caribe, 1986  
Specialty in Internal Medicine, University Hospital Dr. Ramón Ruiz Arnau (UCC), 1990  
Fellowship in Pneumology, San Juan City Hospital, PR, 1992

MENDOZA-CASTRO, Verónica, M.D., Assistant Professor  
M.D., CETEC, Dominican Republic, 1981  
Specialty in Internal Medicine

MIRANDA, Mario C., M.D., Assistant Professor;  
M.D., University of Puerto Rico, School of Medicine, 1958  
Specialty in Internal Medicine, San Juan VA Hospital, 1967

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MOJICA-COSME, José, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1985  
Specialty in Internal Medicine, University Hospital Dr. Ramón Ruíz Arnau (UCC), 1988

MOJICA PRECIADO, Víctor M., M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1989  
Specialty in Neurology, University District Hospital (UPR), 1996

MONTES-RUIZ, Juan, M.D., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1980  
Specialty in Internal Medicine, University Hospital Dr. Ramón Ruíz Arnau (CEA), 1983

MORALES, José A., M.D., Associate Professor  
M.D., Universidad Autónoma de Guadalajara, 1978  
Specialty in Internal Medicine, San Juan City Hospital, 1984

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

ORTIZ-RIVERA, Damarys, M.D., Assistant Professor  
M.D., Universidad Autónoma de Guadalajara, 2000  
Specialty in Internal Medicine, Veterans Administration Medical Center, 2004

OPPENHEIMER, Jennifer C., M.D., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1980  
Specialty in Internal Medicine Lincoln Medical and Mental Health Center, NY, 1984  
Fellowship in Hematology-Oncology, Maimonides Medical Center, 1987

OTERO-MARTÍNEZ, Juan R., M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1983  
Specialty in Internal Medicine

PALACIOS, Miguel, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1980  
Specialty in Internal Medicine

PEREYO-DÍAZ, José E., M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1998  
Specialty in Internal Medicine  
Fellowship in Cardiology

PEREYO-TORRUELLAS, José A., M.D., Associate Professor  
M.D., University of Maryland, 1959  
Specialty in Internal Medicine  
Fellowship in Cardiology

PÉREZ-FLORIT, Ana, M.D., Assistant Professor  
M.D., Universidad Nacional Pedro Henríquez Ureña (Dominican Republic), 1987  
Specialty in Internal Medicine, University Hospital Dr. Ramón Ruíz Arnau (UCC), 1992

PÉREZ-MALDONADO, Nicolás, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1988  
Specialty in Internal Medicine

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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

PÉREZ RIOS, RENE E., M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1981  
Fellowship in Cardiology, 1987

QUESADA-SUÁREZ, Luis, M.D., Assistant Professor  
M.D., Universidad Central del Este Pedro de Macorís, 1981  
Specialty in Internal Medicine, Regional Hospital Dr. Eduardo Garrido, 1985  
Fellowship in Nephrology, Veterans Administration Medical Center, 1987

QUINTERO, Aida, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1985  
Specialty in Internal Medicine

RAMÍREZ-RIVERA, José, M.D., Professor  
M.D., Yale University, 1953  
Specialty in Internal Medicine,

REYES-ORTIZ, Luis, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1985  
Specialty in Internal Medicine in San Juan City Hospital, 1989  
Fellowship in Endocrinology in San Juan City Hospital, 1991

RIVERA, Ángel, M.D., M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1965  
Specialty in Internal Medicine

RIVERA-DEL RÍO, José R., M.D. Associate Professor  
M.D., Universidad Nacional Pedro Henríquez Ureña, 1972  
Specialty in Internal Medicine, San Juan V.A. Hospital, 1981  
Fellowship in Cardiology, San Juan V.A. Hospital, 1993

RIVERA-VALLES, José A., M.D., Assistant Professor  
M.D., Universidad Autónoma de Guadalajara, México, 2000  
Specialty in Internal Medicine, University Hospital Dr. R. Ruiz Arnau, 2009

RIVERA-ZAYAS, Elvin, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1989  
Specialty in Internal Medicine, New Rochelle Hospital, NY, 1994  
Fellowship in Cardiovascular Disease, San Juan Municipal Hospital, 1995

RODRÍGUEZ Steven, M.D., Assistant Professor  
M.D., CETEC, Dominican Republic, 1984  
Specialty in Internal Medicine

RODRÍGUEZ, Porfirio, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1988  
Fellowship in Neurology, University District Hospital (UPR), 1992

RODRÍGUEZ-CRUZ, Gilda, M.D., Assistant Professor  
Specialty in Internal Medicine

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RODRÍGUEZ-MONGE, Edgardo, M.D., Assistant Professor  
M.D., San Juan Bautista School of Medicine, 1991  
Specialty in Internal Medicine

RODRÍGUEZ-OLAVARRI, Enrique J., M.D., Instructor  
M.D., Universidad de Salamanca, 1987  
Specialty in Internal Medicine

RODRÍGUEZ-VILA, Orlando, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1991  
Specialty in Internal Medicine, Beth Israel Hospital, Boston, 1994  
Fellowship in Cardiovascular Diseases, Beth Israel Hospital, 1997

ROSADO, Angelo, M.D., Assistant Professor  
M.D., Universidad Nacional Pedro Henríquez Ureña, 1989  
Specialty in Internal Medicine, La Concepción Hospital, 1994  
Fellowship in Endocrinology and Metabolism, San Juan Municipal Hospital, 1997

ROSADO-RODRÍGUEZ, Carlos S., M.D., Associate Professor  
M.D., University of Puerto Rico, Medical Science Campus, 1985  
Specialty in Internal Medicine, San Juan VA Medical Center, PR, 1988  
Fellowship in Nephrology, San Juan VA Medical Center, 1990

RUBERO, José A., M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1996  
Specialty in Internal Medicine, Mount Sinai, School of Medicine, 1999  
Residency in Emergency Medicine, Cornell University, School of Medicine, 2002

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

RUIZ-RAMOS, Juan, M.D., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1984  
Specialty in Internal Medicine, St. Michael's Medical Center (New Jersey) 1989

SALGADO-VILA, Norma, M.D., Associate Professor  
M.D., Universidad Autónoma de Guadalajara, México, 1999  
Specialty in Internal Medicine in San Juan VA Medical Center, 2004  
Fellowship in Hematology/Oncology, San Juan Municipal Hospital, 2008  
Fellowship in Bone Marrow Transplant, H. Lee Moffitt Cancer Center, FL, 2009

SANTANA, Arnulfo, M.D., Assistant Professor  
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Specialty in Internal Medicine

SANTIAGO, Ivonne, M.D., Assistant Professor  
M.D., Universidad Autónoma de Guadalajara, 1988  
Specialty in Internal Medicine

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

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SANTORI, Renato, M.D., Assistant Professor  
M.D., University of Pavia, Italia, 1964  
Specialty in Internal Medicine

SOLER-RAMÍREZ, Ricardo J., M.D., Assistant Professor  
M.D., Universidad Autónoma de México  
Specialty in Internal Medicine

TORRES-BERRIOS, Damarys, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1994  
Specialty in Neurology, University District Hospital (UPR), 1998

VALDERRABANO, Wagner, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 2007  
Specialty in Internal Medicine, University Hospital Dr. Ramón Ruíz Arnu, 2010

VALLEJO, Nelson, M.D., Assistant Professor  
M.D., Universidad de Salamanca, 1987  
Specialty in Internal Medicine

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-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

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

VILÁ-PÉREZ, Salvador, M.D., Professor  
M.D., University of Puerto Rico, School of Medicine, 1976  
Specialty in Internal Medicine, Cleveland Clinic, 1979  
Research Fellow, Cleveland Clinic, 1980  
Fellowship in Rheumatology, University of Texas, 1983

VILLAFÁÑE-SAN INOCENCIO, Edwin, M.D., Associate Professor  
M.D., Universidad Nacional Pedro Henríquez Ureña (Dominican Republic), 1977  
Specialty in Internal Medicine, San Juan V.A. Hospital, 1982

## **DEPARTMENT OF OBSTETRICS AND GYNECOLOGY**

ALONSO, Rafael, M.D., Assistant Professor  
M.D., Ponce Medical School, 1987  
Specialty in OB/Gyn, University Hospital (UPR), 1992

ÁLVAREZ-PÉREZ, Jesús, M.D., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 2000  
Specialty in OB/Gyn, UMD, New Jersey Medical School, 2004  
Fellowship in Maternal Fetal Medicine, UMD, New Jersey, Medical School, 2007

ASENSIO-BEAUCHAMP, Stanley H., M.D., Professoris Eminentis and Chairperson  
(Dual appointment in Physiology)  
M.D., University of Puerto Rico, School of Medicine, 1956  
Specialty in OB/Gyn, University Hospital (UPR), 1960  
Fellowship in ACOG  
Board Certified

BENABE-GONZÁLEZ, Erika M., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 2003  
Specialty in Obstetrics and Byneecology, San Juan City Hospital, 2007

BLAS-SANTAMARIA, Lorenzo, M.D., Assistant Professor  
M.D., Universidad de Sevilla, Spain, 1973  
Specialty in OB/Gyn, Caguas Regional Hospital, 1978

CASTRO, William, H., M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1980  
Specialty in Obstetrics and Gynecology, Lincoln/Misericordia, New York Medical College,  
1983

CINTRÓN-PRINCIPE, Héctor, M.D., M.P.H., Assistant Professor  
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Specialty in OB/Gyn, Caguas Regional Hospital, 1975  
M.P.H., Maternal-Child Health Care, University of California, 1981

COLLAZO-BONILLA, Angel L., M.D., Associate Professor  
M.D., Universidad de Zaragoza, Spain, 1970  
Specialty in OB/Gyn, Caguas Regional Hospital Dr. Eduardo Garrido-Morales, 1986

CRUZ-DÍAZ, José R., M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1993  
Specialty in OB/Gyn, University District Hospital (UPR), 1997  
Fellowship in Reproductive Endocrinology and Infertility, George Washington University  
Medical Center, Washington, DC, 1999

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

FAGET-OLIVAR, Guillermo L., M.D., Associate Professor  
M.D., Universidad de Salamanca, Spain, 1972  
Specialty in OB/Gyn, San Juan City Hospital, 1976

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 Obstetrics and Gynecology, 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

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GONZÁLEZ-RODRÍGUEZ, Julio A., M.D., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1982  
Specialty in OB/Gyn, San Juan City Hospital, 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

LÓPEZ-CÓLON, Josué, M.D., Associate Professor  
M.D., Santiago de Compostela University (Spain) 1976  
Specialty in OB/Gyn, Mayaguez Medical Center, 1980  
Fellowship in ACOG  
Board Certified

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

MÁRQUEZ, Cecile, M.D., Assistant Professor  
M.D., Universidad Autónoma Guadalajara, 1977  
Specialty in OB/Gyn, Dr. Eduardo Garrido Regional Hospital, 1982  
Fellowship in Pediatric & Adolescent Gynecology, 1981

MUÑIZ-VÉLEZ, Eduardo J., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1994  
Specialty in OB/Gyn, University District Hospital, 1999

NÁTER-ORSINI, Manuel, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1968  
Specialty in OB/Gyn, University District Hospital (UPR), 1972

PÉREZ-IGLESIAS, María del C., M.D., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1980  
Specialty in OB/Gyn, Caguas Regional Hospital Dr. Eduardo Garrido, 1986

PÉREZ-ORTIZ, Iris Icela, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1994  
Specialty in OB/Gyn, (UPR), 1998

RIVERA-MERCADO, José A., Associate Professor  
M.D., Universidad del Noreste, Tampico, México  
Specialty in OB/Gyn, Ponce University Hospital Dr. José N. Gándara, 1999

ROMERO-GROSS, Glorianna, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1993  
Specialty in OB/Gyn, San Juan City Hospital, 1994

SALGADO-MORÁLES, 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

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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, Alonso, M.D., Associate Professor  
M.D., Ponce School of Medicine, 1985  
Specialty in OB/Gyn, San Juan City Hospital, 1989

VÁRGAS-CORDERO, José, M.D., Professor  
M.D., Santiago de Compostela University, Spain, 1955  
Specialty in OB/Gyn, San Juan City Hospital, 1960

## **DEPARTMENT OF PEDIATRICS**

ACANTILADO-BERNABE, Carmen, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1961  
Specialty in Pediatric, Wayne County Hospital, 1962

ALVELO-SANTIAGO, Jesús M., M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1980  
Specialty in Pediatrics,

AMARO, Mirna S., M.D, Assistant Professor  
M.D., Universidad del Este, 1984  
Specialty in Pediatrics, Regional Hospital Dr. Cayetano Coll y Toste, 1989

ARZOLA-RIVERA, Jorge, M.D., FAAP, Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1974  
Specialty in Pediatrics, Dr. Eduardo Garrido Morales Regional Hospital, 1977  
Developmental Pediatrics, Mount Sinai Medical Center, 1988

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

BALESTRA-JIMÉNEZ, Jesús, M.D., Associate Professor  
M.D., University of Sevilla (Spain) 1973  
Specialty in Pediatrics, University Hospital Dr. R. Ruiz Arnau (UCC), 1977

BAUZA-ROSSI, Julio, M.D., Associate Professor  
M.D., University of Uruguay, 1970  
Specialty in Pediatrics, Beth Israel Medical Center, 1975  
Fellowship in Cardiology, SUNY, 1977  
Fellowship in Neonatology, University Pediatrics Hospital, 1978

BERGES-BUISAC, Francisco, Psy.D, Assistant Professor  
Psy.D, Centro Caribeño de Estudios Post-graduados, 1987

BONNET-ÁLVAREZ, Mayra Z., M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1981  
Specialty in Pediatrics

BORGES, Myrna L., M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1977  
Fellowship in Clinical Genetics, University of South Alabama, 1990

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

CERÓN, Miguel, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1982  
Specialty in Pediatrics

CLAVEL-RODRIGUEZ, 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 Pediatric Hematology-Oncology, Harvard School of Medicine, 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-BOCANEGRA, Harry R., M.D., Assistant Professor  
M.D., Universidad Autónoma de Guadalajara, México, 1986  
Specialty in Pediatrics, San Juan City Hospital, 1993

CUEVAS-MARRERO, Javier, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, 1997  
Specialty in Pediatrics, 2000

DE LA PAZ-VALENTÍN, William, M.D., Associate Professor  
M.D., San Juan Bautista, School of Medicine, 1981  
Specialty in Pediatrics, S.U.N.Y., 1985  
Fellowship in Pediatric Pulmonary Diseases, Interfaith Medical Center, 1988

DEFENDINI, Mari Carmen, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1987  
Specialty in Pediatrics, 1990

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

EHEVARRIA-ESCUADERO, María E., M.D., Associate Professor  
M.D., Ponce School of Medicine, 1998  
Specialty in Pediatrics, Ponce University Hospital San Lucas, Ponce, PR, 2001  
Fellowship in Neuro-Oncology, Children's Memorial Hospital, Chicago, IL, 2007

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FERNÁNDEZ-MAYMI, Carlos, M.D., Professor  
M.D., Universidad Central del Este, San Pedro de Macorís, 1981  
Specialty in Pediatrics, University Hospital Dr. Ramón Ruiz Arnau (UCC), 1986

FIGUEROA-RAMÍREZ, Yolanda A., M.D., Assistant Professor  
M.D., Universidad Literaria de Valencia, Spain, 1981  
Specialty in Pediatrics, University District Hospital (UPR), 1989

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

FREYRE-GONZÁLEZ, Nylsa, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1981  
Specialty in Pediatrics,

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

GARCÍA-DÍAZ, Haydee, M.D., FAAP, Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1975  
Specialty in Pediatrics, University District Hospital (UPR), 1978  
Fellowship in Pediatric Infectology, Baylor University, 1980

GARCÍA VIÑAS, Odette, M.D., Instructor  
M.D., University of Puerto Rico, School of Medicine, 1981  
Specialty in Pediatrics, San Juan City Hospital, 1984

GONZÁLEZ, Jesús, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1995  
Specialty in Emergency Medicine, University District Hospital (UPR), 1998

GONZÁLEZ-BETANCOURT, Alfredo, M.D., Assistant Professor  
M.D., Universidad de Zaragoza, Spain, 1988  
Specialty in Pediatrics, San Juan City Hospital, 1995

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

HERNÁNDEZ, Evaurely, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1994  
Specialty in Pediatrics, 1997

IRIZARRY, Luis, M.D., Associate Professor  
M.D., Universidad de Zaragoza, 1984  
Specialty in Pediatrics, University Hospital Dr. Ramón Ruiz Arnau (UCC), 1999

JIMÉNEZ-ALMODOVAR, María C., M.D., Assistant Professor  
M.D., Ponce School of Medicine, 2006  
Specialty in Pediatrics, University Pediatric Hospital, 2009

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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

LEÓN, Doris, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 2003  
Specialty in Pediatrics, University Pediatrics Hospital (UPR), 2006

LÓPEZ-GONZÁLEZ, Julie, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1976  
Specialty in Pediatrics, University Pediatrics Hospital, 1979  
Fellowship Pediatrics Nephrology, San Juan City Hospital, 1981

LUCCA-COLÓN, Aileen D., M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1984  
Specialty in Pediatrics, San Juan City Hospital, 1987

MALAVÉ-FÉLIX, Leila V., M.D., Associate Professor  
M.D., Universidad Autónoma de Barcelona, Spain, 1976  
Specialty in Pediatrics, University Pediatric Hospital (UPR), 1980

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

MALAVET-PANTOJA, Julia T., M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1988  
Specialty in Pediatrics, University Pediatric Hospital, 1991

MARRERO-CLEMENTE, Giselle M., M.D., Assistant Professor  
M.D., Ponce School of Medicine, 2006  
Specialty in Pediatrics, University Pediatric Hospital, 2009

MARTÍNEZ, Silma L., M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 2001  
Specialty in Pediatrics, San Juan City Hospital, 2004

MARTÍNEZ-SANTIAGO, Glenda, Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1989  
Specialty in Pediatrics, University Pediatric Hospital (UPR), 1992

MAYOL, Pedro, M.D., Professor  
M.D., University of Puerto Rico, School of Medicine, 1962  
Specialty in Pediatric, University Pediatric Hospital, 1966  
Subspecialty in Pediatric Neumology, University District Hospital (UPR), 1968

MONTAÑEZ-RAMOS, Victor M., M.D., Assistant Professor  
M.D., Universidad Autónoma de Guadalajara, México, 1987  
Specialty in Pediatrics, San Juan City Hospital, 1996

NIEVES, Lourdes, M.D., Instructor  
M.D., Universidad Central del Caribe, 1988  
Specialty in Pediatrics, Bridgeport Hospital, 1991

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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

ORTIZ-DE JESÚS, Myriam, M.D., Associate Professor  
M.D., Ponce School of Medicine, 1992  
Specialty in Pediatrics, Tulene University, School of Medicine, New Orleans, LA, 1995

ORTIZ, Norma, M.D., Assistant Professor  
M.D., Universidad Complutense, Spain,  
Specialty in Pediatrics, San Juan City Hospital,

PÉREZ-DE OTERO, Naydamar, M.D., MPH, Assistant Professor  
M.D., University of Puerto Rico, Medical Science Campus, 1972  
Specialty in Pediatrics, University District Hospital (UPR), 1975  
M.P.H., University of Puerto Rico, Medical Science Campus, 1993

PONCE-PAREDES, Guillermo, M.D., Associate Professor  
M.D., Federico Villarreal National University, School of Medicine, Peru  
Specialty in Pediatrics, San Juan City Hospital, 2004

PUIG-RAMOS, Gilberto, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1987  
Specialty in Pediatric Critical Care, 1993

QUINTERO-DEL RÍO, Ana I., M.D., MPH. Associate Professor  
M.D., San Juan Bautista, School of Medicine, 1989  
Specialty in Pediatrics, University Hospital Dr. R. Ruiz Arnau, 1993  
Fellowship in Pediatric Rheumatology, Ut Southwestern Medical Center, TX 1997  
Post Doctor Research Fellowship, Oklahoma Medical Research Foundation &  
OU Medical Center, Department of Arthritis and Immunology, OK, 1999  
MPH, in Epidemiology, Oklahoma University Health Science Center, OK, 2004

RAMÍREZ, José C., M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1988  
Specialty in Pediatrics, University of Florida, Shands Teaching Hospital, FL, 1992

RAMÍREZ-MUÑIZ, María del P., M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1997  
Specialty in Pediatrics, University Pediatric Hospital, 2000

RAMOS-OTERO, Victor, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1998  
Specialty in Pediatric, 2001

RAMOS-PEREA, Carlos D., M.D., Associate Professor  
M.D., Universidad Autónoma de Guadalajara, México, 1977  
Specialty in Pediatrics, University Pediatrics Hospital, 1981  
Subspecialty in Neonatal-Perinatal Intensive Care, 1984

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

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RIBOUL-FLAMBERT, Tamara M., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 2003  
Specialty in Pediatrics, Jackson Memorial Hospital, Miami, FL, 2006

RIVERA-BONILLA, Ileana, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1989  
Specialty in Pediatrics, University Pediatric Hospital (UPR), 1992

RIVERA-DUEÑO, Jaime, M.D., Professor  
University of Puerto Rico, School of Medicine, 1960  
Specialty in Pediatrics, University Hospital (UPR), 1966

RIVERA-VÉLEZ, Rafael, M.D., Assistant Professor  
M.D., Universidad Pontificia Católica Madre y Maestra, RD, 1990  
Specialty in Pediatrics, University Hospital Dr. Ramón Ruiz Arnau (UCC), 1996

RODRÍGUEZ-IRIZARRY, José G., M.D., Professor, President and Dean of Medicine  
M.D., Ponce School of Medicine, 1983  
Specialty in Pediatrics, University Hospital Dr. Ramón Ruiz Arnau (UCC), 1986

RODRÍGUEZ-SANTANA, José R., M.D., Associate Professor  
M.D., Pedro Henríquez Ureña, 1981  
Specialty in Pediatrics

ROSADO-MUÑOZ, Jaime, M.D., Assistant Professor  
M.D., San Juan Bautista, School of Medicine, 1993  
Specialty in Pediatric, Colombia Presbyterian Medical Center, 1999

ROSARIO-MULINELLI, Jorge A., M.D., Assistant Professor  
M.D., San Juan Bautista, School of Medicine, 1988  
Specialty in Pediatrics, Long Island College Hospital, Brooklyn, 1992  
Fellowship in Gastroenterology and Nutrition, New York Medical College, 1994

RULLÁN-SPALLONE, Grace, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, 1984  
Subspecialty in Pediatrics, University Hospital Dr. Ramón Ruiz Arnau (UCC), 1988

RUSSE-SANTOS, José I., M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1981  
Specialty in Pediatrics, New York City Health and Hospitals Corporation, 1984  
Fellowship in Pediatric Gastroenterology, Westchester County Medical Center, 1987

SÁNCHEZ-DE BARTOLOMEI, Carmen L., M.D., Associate Professor  
M.D., University of Madrid (Spain) 1965  
Specialty in Pediatric, San Juan City Hospital, 1972  
Fellowship Pediatric Hematology-Oncology, University Pediatric Hospital, 1979

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 Electroencephalography and Clinical Neuro-Physiology, 1990

SÁNCHEZ-LUGO, Fermin, M.D., Professor  
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

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SANTAELLA-JIMÉNEZ, Álvaro, M.D., Associate Professor  
M.D., Universidad Autónoma de Bilao Vizcaya, Spain, 1979  
Specialty in Pediatrics, San Juan City Hospital, 1988  
Fellowship in Neonatal Perinatal, San Juan City Hospital, 1989

SANTIAGO-CORNIER, Alberto, M.D., Associate Professor  
M.D., Universidad Central del Este, San Pedro de Macorís, 1985  
Fellowship in Genetic and Metabolism, Boston Children Hospital, 1995

SANTINI-HERNÁNDEZ, Vanessa, M.D., Assistant Professor  
M.D., Universidad Autónoma de México, 1978  
Specialty in Pediatrics, University Hospital Dr. Ramón Ruiz Arnau (UCC), 1984

SASTRE, Eduardo, M.D., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1982  
Specialty in Pediatrics

SEPULVEDA-PELLICIER, Domingo, M.D., Associate Professor  
M.D., Universidad Santiago de Compostela, Spain, 1975  
Specialty in Pediatrics

SERRANO-GUZMÁN, M.D., Pedro R., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1991  
Specialty in Pediatrics, University Pediatric Hospital (UPR), 1994  
Fellowship in Neonatology, University Pediatric Hospital (UPR), 1997

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

SOTO-ACEVEDO, Aurea N., M.D., Assistant Professor  
M.D., Universidad Autónoma de México, 1987  
Specialty in Pediatrics, San Juan City Hospital, 1997

VÉLEZ, Samuel, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1975  
Specialty of Pediatrics, University District Hospital (UPR), 1980

VILLAFANE, Ivonne, M.D., Assistant Professor  
MD., Universidad Autónoma de Barcelona, School of Medicine, Spain  
Specialty in Pediatrics, Caguas Regional Hospital, 1981

VILLAVICENCIO, Rafael, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1996  
Specialty in Pediatrics,

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

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## 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
- AVILÉS-GUZMAN, Xavier, M.D., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1995  
Specialty in Physical Medicine and Rehabilitation, Emory University, Georgia, 1999
- BORRAS, 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
- 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
- HERNÁNDEZ-GONZÁLEZ, Liza M., M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 2002  
Specialty in Physical Medicine and Rehabilitation, University District Hospital (UPR), 2006  
Fellowship in Pain Medicine and Palliative Care, Beth Israel Medical Center, NY, 2007
- 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
- MORALES-LÓPEZ, Irma I., M.D., Associate Professor  
M.D., Universidad del Este, Dominican Republic, 1980  
Specialty in Physical Medicine and Rehabilitation, San Juan VA Medical Center, 1996
- 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
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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**

BENÍTEZ PÉREZ, Raúl, M.D., Associate Professor  
M.D., University of Puerto Rico, Medical Sciences Campus, 1984  
Specialty in Psychiatry, University of Puerto Rico and Veteran Administration, 1988

CARO-PÉREZ, Osvaldo, M.D., Instructor  
M.D., University of Puerto Rico, School of Medicine, 1989  
Specialty in Psychiatry, University Hospital, 1993

DEL CASTILLO, Alan, M.D., Assistant Professor  
Specialty in Psychiatry, Beth Israel Hospital, Harvard Medical School, 1994  
Fellowship in Geriatric Psychiatry, University of Pennsylvania, 1995

DEL VALLE-RODRÍGUEZ, Benjamín, M.D., Instructor  
M.D., Universidad Nordestana, San Francisco de Macorís, RD, 1985  
Specialty in Psychiatry, Puerto Rico Institute of Psychiatry, 2002

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

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

FRONTERA-ROURA, Ernesto, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1982  
Specialty in Psychiatry, San Juan VA Hospital, 1986

IFARRAGUERRI-GÓMEZ, Carlos E., M.D., Instructor  
M.D., University of Maryland, 1961  
Specialty in Psychiatry, New York State Psychiatric, 1971

PARRILLA-BARRERAS, Ramón, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1972  
Specialty in Psychiatry, University of St. Louis (Washington) 1975

RAMÍREZ-ORTIZ, Beatriz, M.D., Assistant Professor  
M.D., Universidad Autónoma de 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

SANTIAGO-LUNA, Aidarilys, M.D., Instructor  
M.D., University of Puerto Rico, School of Medicine, 2000  
Specialty in Psychiatry, University District Hospital (UPR), 2003

SANTIAGO-COLÓN, Jorge, M.D., Instructor  
M.D., University of Puerto Rico, School of Medicine, 1995  
Specialty of Psychiatry, University District Hospital (UPR), 1999

SOTO-GONZÁLEZ, Oscar, Psy.D., Assistant Professor  
Psy. D., Carlos Albizu University, 1983

TORAÑO, Víctor, M.D., Assistant Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1987  
Specialty in Psychiatry, 1992  
Fellowship in Addiction Psychiatry, Harvard Medical School, Boston, 1996

## **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

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

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

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

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

RIVERA, Vivian T., M.D., Associate Professor  
M.D., Universidad Central del Caribe, School of Medicine, 1996  
Specialty in Diagnostic Radiology, St. Vincent Hospital, NY, 2001  
Fellowship in Thoracic Radiology, Montefiore Medical Center, NY, 2002

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

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

CALIMANO, Carlos, M.D., Associate Professor  
M.D., University of Puerto Rico, School of Medicine, 1971  
Specialty in Surgery,

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

GUERRERO, Andrés, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1985  
Specialty in Surgery

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

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LUGO-PIAZZA, Edwin, M.D., Professor  
M.D., Escuela de Medicina de Zaragoza, Spain  
Specialty in Neurological Surgery,

MONTAÑEZ-FALCON, Rufino, M.D., Assistant Professor  
M.D., University of Zaragoza (Spain) 1975  
Specialty in Orthopedic Surgery, University Hospital, 1984

OTERO-LOPEZ, 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

RAMÍREZ-TANCHEZ, 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

REYES, Reinaldo, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1993  
Specialty in Surgery

ROSARIO-MENDOZA, Ricardo, M.D., Assistant Professor  
M.D., 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

SANTIAGO, Norma, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1990  
Specialty in Surgery

SEPULVEDA-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

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SOLTERO-HARRINGTON, Luis R., M.D., Professor  
M.D., Northwestern University, 1949  
Specialty in General and Cardiovascular Surgery, Baylor University;  
College of Medicine and Affiliated Hospitals, 1959

SORRENTINO, José, M.D., Assistant Professor  
M.D., University of Puerto Rico, School of Medicine, 1986  
Specialty in Surgery

SOTO-VÁZQUEZ, Julio, M.D., Associate Professor and Chairperson  
M.D., University of Puerto Rico, School of Medicine, 1972  
Specialty in Surgery, Mount Sinai Hospital, New York, 1978

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

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

**GRADUATE PROGRAM  
IN BIOMEDICAL SCIENCES**  
MASTER OF SCIENCE (MS) DEGREES  
MASTER OF ARTS (MA) DEGREES  
DOCTOR OF PHILOSOPHY DEGREES

# Graduate Program in Biomedical Sciences

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## MISSION OF THE PROGRAM

The mission of the Graduate Program in Biomedical Sciences is to provide a rigorous and stimulating research and training environment for UCC students. Our students provide the intellectual resources needed to advance the research and educational goals of the institution and to provide a new generation of scientists. The faculty is committed to excellence in interdisciplinary research training for qualified candidates who will continue to advance the fundamental knowledge needed to conquer disease and promote health and improved quality of life for all people. The knowledge and skills acquired will enable the graduate to be successful in biomedical research conducted at universities, government and private industry laboratories, as well as in education. The Program also prepares the graduate for advanced training and research.

## STUDY PROGRAMS

### STUDY PROGRAMS IN THE GRADUATE BIOMEDICAL SCIENCES

#### DESCRIPTION

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

- 1. Doctor of Philosophy in Cellular and Molecular Biology**
  - Research Interest
  - Cellular and Molecular Biology
  - Biochemistry
  - Microbiology and Immunology
  - Neurosciences
  - Physiology
- 2. Doctor of Philosophy in Neurosciences**
- 3. Master of Science (MS) degree in**
  - Anatomy and Cell Biology
  - Biochemistry
  - Microbiology and Immunology
  - Pharmacology
  - Physiology
- 4. Master of Arts (MA) degree in**
  - Anatomy and Cell Biology
  - Microbiology and Immunology
  - Physiology
- 5. Master of Arts (MA) degree in**
  - Biomedical Sciences

# **REQUIREMENTS FOR THE MASTER OF SCIENCE (MS), MASTER OF ARTS (MA) AND PHILOSOPHY OF DOCTOR DEGREES**

## **COMMON REQUIREMENTS**

### **RESIDENCY**

A minimum of two year of full-time work must be completed at the Universidad Central del Caribe.

### **Dissertation/Thesis Committee**

After selecting the research advisor, the student, in consultation with the advisor, will select a committee no later than the first semester of the second academic year. The committee will be composed of three (3) or five (5) members, including the research advisor who will chair the committee. The members of the committee will be UCC faculty members or faculty from other institutions with similar programs, but the majority of the committee must be UCC full-time faculty members. One (1) member of the committee must be a graduate faculty member from outside the advisor's department. The advisor will keep written records of the 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 Ph.D. / M.S. degree. It is the dissertation committee's responsibility to provide an objective evaluation of the project as well as contribute to the selection of specific research directions. While the dissertation committee often has useful 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, it is critical for the student to be guided to define, both in scope and quality, an appropriate research project.

The committee must meet at least once per academic year.

### **Biographical Reports Committee**

For those students enrolled in the M.A. Program in the Biomedical Sciences, the Associate Dean for Research and Graduate Studies together with the student will select the Biographical Reports and his/her mentor.

### **SEMINARS**

The seminars provide coverage of subjects not included in other graduate courses and serves as a forum for presentation of research proposals, work in progress and completed work by the staff and graduate students. Visiting scientists also participate in the seminars.

Each seminar will be worth 1 credit hour. All faculty members present during the seminar may evaluate the student's seminar presentation. Students will present a maximum of one seminar per day. A minimum of three faculty members must be present in order for a grade to be awarded for the seminar presentation. The seminar will be announced and open to the academic community. GPBSF 14 Seminar Presentation Evaluation Form will be used to evaluate students' presentations.

## COMPREHENSIVE EXAMINATIONS

All students enrolled in the PhD, 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 reexamined no later than six months from the date of the first examination. 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 normally given near the end of the student's second year of graduate studies, or after the satisfactory completion of the scheduled courses. The student mentor is responsible for the coordination and administration of the comprehensive examination.

## EVALUATION AND PROMOTION

### Grading Policy

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

<u>Grade</u>	<u>Points</u>	
A	4	Excellent
B	3	Good
C	2	Satisfactory
F	0	Failure
I	--	Incomplete coursework
N	--	Non reported
W	--	Authorized withdrawal
U	--	Unauthorized withdrawal
WP	--	Withdrawal passing
WF	--	Withdrawal failing
P	--	Passed without credit*
H	--	Passed with honors
NC	--	Noncredit course
IP	--	In Progress

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

A grade of "I" indicates assigned work yet to be completed in the term. The grade of "I" becomes an "F" if not removed by the end of the following term according to the following schedule: "I" grades from the first semester become "F" if not removed by the end of the second semester; "I" grades from the second semester and for the summer session become "F" if not removed by the end of the first semester of the incoming academic year. An "I" grade cannot be changed to a W under any circumstances. The grade of "I" on the thesis does not become an "F" at the beginning of the next term or session and will remain as such until the evaluation of the thesis is submitted.

## **Student Status in the Program**

The Graduate Program in Biomedical Sciences Committee will review students' records in May, for those students admitted in August of the previous year, and in December for students admitted in January (completion of two semesters 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. Students attaining a GPA below 2.5 will be dismissed from the Program.
3. 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 on probation are not eligible for financial aid.
4. Students obtaining a failing grade (F) on a course will be dismissed from the program.
5. A student may repeat a course once, after withdrawing. If the student does not approve the course during his/her second attempt the student will be dismissed from the program.

A student that has been dismissed from the Program may appeal their cases to the Graduate Program in Biomedical Sciences Committee. The Committee will review the student's record and will make the pertinent decision on whether to readmit the student. Once dismissed from the program a student will not enroll in graduate courses under any student classification, for example non-degree student.

All grades and repeats will be included in the calculation of the grade point average (GPA). 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 UCC.

Grade reports are sent to students at the end of each semester.

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 prior to 50% to completion of the course, afterwards the student will be assigned a grade of WF or WP (if evaluated).
2. The deadline for withdrawal without "W" will be before 10% after the beginning of the course.
3. The procedure for withdrawal is as follows: the student must provide written notification to the graduate program coordinator of the program he/she is enrolled advising what course(s) he/she intends to withdraw. The student should file the withdrawal application at the Registrar's Office.
4. Authorized withdrawals will be allowed before the course final exam.
5. Unauthorized withdrawals constitute grounds for dismissal from the Program.

## **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.

A working knowledge of English and Spanish is a basic requirement for study in the Ph.D. Program in Cell and Molecular Biology. Student's language abilities will be assessed during the interview. If a student is not able to participate in the interview in person, (s)he must include an official report of their Test of English as a Foreign Language (TOEFL) scores with their application

## **Time Limitations**

### **Ph.D. Degree**

Students will be allowed a maximum of seven years to complete the degree requirements.

### **MS/MA Degree**

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.

## **Course Load**

### **PhD Degree**

A full-time load consists of no less than eighteen (18) credits per year. UCC non-teaching personnel enrolled in the Program are allowed to take no more than six (6) Credit Hours per semester and/or three (3) during the summer session, unless a course carries a weight of more than the maximum allowed in a semester or in the summer session, in which case the student will be allowed to register for such courses. Students must register every term; failure to do so will automatically result in the student being dropped from the Program. If the student is dropped and wants to reenter in the Program, the student must reapply and go through the admissions process. Courses of the doctoral program are valid for seven years.

### **MS/MA Degree**

A full-time load consists of not less than nine (9) credits per academic year. A student enrolled in Thesis work is considered a full-time student. UCC non-teaching personnel enrolled in the Program are allowed to take not more than six (6) Credit Hours per semester and/or three (3), during the Summer session, unless a course carries a weight of more than the maximum allowed in a semester or in the Summer session, in which case the student will be allowed to register for such courses. Students must register every term; failure to do so will automatically withdraw the student from the Program. In the event of withdrawal, a new application must be submitted if the student desires to continue in the Program.

## **Graduation Requirements**

### **Ph.D. Degree**

Early in the doctoral work, a dissertation subject is chosen in the major field of study and approved by the research committee. The dissertation must represent original investigation that contributes new knowledge to the candidate's field. Upon completion of at least four (4) years of graduate study and a dissertation, the candidate must pass a dissertation defense.

- a. Grade index: 3.0 or above
- b. Credits As stipulated by the program of study, 72 credits minimum.
- c. Residence: A minimum of two year of full-time work must be completed at UCC
- d. Time limitations: A maximum of 7 years to satisfy all the requirements.
- e. Qualifying examination: Required of all students
- f. Dissertation defense: Required of all students
- g. Authorship: Co-author in at least one (1) manuscript accepted for publication

### **MS/MA Degree**

- a. Grade index: 3.0 or above
- b. Credits: As stipulated by the program of study, 34 credits minimum.
- c. Residence: A minimum of two year of full-time work must be completed at UCC
- d. Time limitations: A maximum of 4 years to complete all the requirements
- e. Comprehensive examination Required of all MS and MA candidates
- f. Thesis defense: Required of all MS candidates

A MS/MA or PhD student must complete all the requirements and have defended his/hers dissertation/thesis in order to participate in the Commencement Ceremony.

The student must deliver the approved dissertation/thesis in a CD-ROM, according to the Dissertation/Thesis Manual, to complete the graduation requirements and receive his/hers diploma. The Graduate Programs in Biomedical Sciences will print and bind three (3) copies of the thesis (one for the student, one for the department and one for the library).

## **SPECIFIC REQUIREMENTS FOR THE PHILOSOPHY OF DOCTOR (PH.D.) DEGREE**

### **Qualifying Examination**

All Ph.D. students must pass the qualifying examinations by the end of their third year. Successful completion of this requirement is a necessary condition for advancement to doctoral candidacy and must be accomplished at least six (6) months prior to the dissertation defense. The dissertation committee is responsible for recommending advancement to candidacy to the Graduate Program in Biomedical Sciences Office. A graduate program representative will represent the Program at the dissertation defense and assure all regulations are followed.

The goal of the qualifying examination is for the faculty to assess the adequacy of the students' background knowledge in their chosen field and their ability for problem solving and for interpretation of important cell and molecular biology concepts before formally permitting them to begin their doctoral research. The dissertation committee will prepare the qualifying exam. A student who is in good academic standing but 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 six (6) months from the date of the first examination. In case of a second failure, the student will be dismissed from the Ph.D. program. Students will be allowed to apply to the MS/MA program if dismissed from the Ph.D. program.

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Students in the PhD program can be awarded the MS or MA degree once they have completed all of the MS or MA graduation requirements. The qualifying examination will serve as the thesis defense.

Within six (6) months of passing the qualifying examination, the student is expected to present a research proposal to the dissertation committee. The dissertation committee will monitor his/her research progress on a regular basis, meeting at least once a year. A week prior to each meeting, the student will present a written summary of research progress

## **SPECIFIC REQUIREMENTS FOR THE MASTER OF SCIENCE (MS) DEGREE**

### **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). Specific course requirements, minimum passing grades and programs of study will be determined by each department.

### **Research Proposal**

A written and oral presentation of a research proposal will be required from all MS candidates. In preparing the proposal the student shall follow the Guidelines set forth by the National Institutes of Health. The Thesis Committee must approve the proposal.

## **DISSERTATION/THESIS (PhD, MS)**

Under the supervision of his/her mentor and of the 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 of the thesis to the mentor and the members of the Thesis Committee at least six (6) weeks prior to the commencement date. The members of the committee will be allowed two (2) weeks after the receipt of the draft to propose in writing any changes, deletions, corrections and criticism to the draft. The Thesis Committee and the student will meet to discuss the recommendations. The candidate will then have ten (10) days to prepare the final draft of the thesis based on the changes, corrections, etc., submitted by each member of the Thesis Committee. The Committee will have two (2) weeks to reexamine the thesis and determine the acceptability of the thesis and the date of the thesis defense. Following your public defense, you have 10 days in which to make changes required by your committee. Your committee will have 2 weeks to reexamine the thesis and either approved it or disapproved.

The student must deliver the approved thesis in a CD-ROM, according to the Thesis/Dissertation Manual, to complete the graduation requirements and receive his/hers 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 department 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 (PhD, MS)**

In order to be eligible to perform the Thesis Defense, the candidate must have approved all graduation requirements, excluding the thesis defense, and must have been notified by the Dissertation / Thesis Committee that his/her thesis is approved and defensible. The defense will consist of a public presentation of the results and conclusions of the thesis research. The defense is an oral defense and the candidate will be examined on the content of the thesis by the Dissertation / Thesis Committee. Other members of the academic community 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 contents of the dissertation / thesis. A representative of the Graduate Program in Biomedical Sciences will be appointed by the Director and will act as an evaluator of the process. This representative will be from outside the student's department. 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 the only twice.

The Graduate Program in Biomedical Sciences Office will make the official announcement for the defense after prior notification; the notification must receive no later than fourteen (14) days prior to 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 prior to 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 MASTER IN 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. Specific course requirements, minimum passing grades and programs of study will be determined by each department.

## **SPECIFIC REQUIREMENTS FOR THE MASTER IN ARTS (MA) DEGREE IN THE BIOMEDICAL SCIENCES**

The Universidad Central del Caribe offers the M.A degree in the Biomedical Sciences to those students who wish to obtain a general knowledge but who do not want to specialize in any particular area of the Biomedical Sciences.

### **Course Requirements**

All candidates for the M.A. degree in the 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.

## CURRICULAR PROGRAMS FOR THE PH.D., MS AND MA DEGREES

Individual programs of study will be prepared for each student. 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 his/her program of study in order to graduate.

A credit hour at the graduate program level is equivalent to 12 hours of lecture or 24 hours of laboratory work or 48 hours of clinical experience or independent supervised work.

### Ph.D. in CELLULAR and MOLECULAR BIOLOGY

Sample program of study for a student with a research interest in

#### BIOCHEMISTRY

Course Code	Course Title	Credit Hours
BMS 500	Responsible Conduct of Research	1
BMS 510F	Biochemistry and Cell Biology	10
BMS 512	Critical Thinking	1
BMS 523A	Molecular Biology I	2
BMS 524	Molecular Biology II	2
BMS 815	Protein Structure and Function	2
BMS 816	Gene Expression and Protein Synthesis	2
BMS 817	Signal Transduction	2
BMS 819	Seminar in Biochemistry	1
BMS 823	Cell Culture	2
BMS 831	Membrane Transport	2
BMS 860	Scientific Methodology	2
BMS 861A	Biostatistics	3
BMS 862A	Research Laboratory Rotations	1
BMS 899	Graduate Research	39

Completion of at least 72 Credit Hours is required for graduation.

### Ph.D. in CELLULAR and MOLECULAR BIOLOGY

Sample program of study for a student with a research interest in  
**MICROBIOLOGY AND IMMUNOLOGY**

Course Code	Course Title	Credit Hours
BMS 500	Responsible Conduct of Research	1
BMS 510F	Biochemistry and Cell Biology	10
BMS 512	Critical Thinking	1
BMS 523A	Molecular Biology I	2
BMS 524	Molecular Biology II	2
BMS 820C	Medical Bacteriology	2
BMS 821B	Immunology	3
BMS 822	Parasitology	2
BMS 824B	Cellular and Molecular Microbiology	3
BMS 825	Mycology	2
BMS 826A	Virology	3
BMS 829A	Diagnostic Bacteriology	3
BMS 859	Seminar in Microbiology and Immunology	1
BMS 860	Scientific Methodology	2

BMS 861A	Biostatistics	3
BMS 862A	Research Laboratory Rotations	1
BMS 899	Graduate Research	31

Completion of at least 72 Credit Hours is required for graduation.

### **Ph.D. in CELLULAR and MOLECULAR BIOLOGY**

Sample program of study for a student with a research interest in **NEUROSCIENCE**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
BMS 500	Responsible Conduct of Research	1
BMS 510F	Biochemistry and Cell Biology	10
BMS 512	Critical Thinking in Cell and Molecular Biology	1
BMS 523A	Molecular Biology I	2
BMS 524	Molecular Biology II	2
BMS 580A	Neuroscience	6
BMS 580B	Advance Neuroscience	3
BMS 830	Neurophysiology	5
BMS 889	Seminar in Neuroscience	1
BMS 831	Membrane Transport	2
BMS 860	Scientific Methodology	2
BMS 861A	Biostatistics	3
BMS 862A	Research Laboratory Rotations	1
BMS 899	Graduate Research	33

Completion of at least 72 Credit Hours is required for graduation.

### **Ph.D. in CELLULAR and MOLECULAR BIOLOGY**

Sample program of study for a student with a research interest in **PHYSIOLOGY**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
BMS 500	Responsible Conduct of Research	1
BMS 510F	Biochemistry and Cell Biology	10
BMS 512	Critical Thinking in Cell and Molecular Biology	1
BMS 523A	Molecular Biology I	2
BMS 524	Molecular Biology II	2
BMS 530B	Physiology	6
BMS 817	Signal Transduction	2
BMS 830	Neurophysiology	5
BMS 831	Membrane Transport	2
BMS 832	Cardiovascular Physiology	2
BMS 833	Renal Physiology	2
BMS 839	Seminar in Physiology	1
BMS 860	Scientific Methodology	2
BMS 861A	Biostatistics	3
BMS 862A	Research Laboratory Rotations	1
BMS 899	Graduate Research	30

Completion of at least 72 Credit Hours is required for graduation.

**SAMPLE PROGRAM OF STUDY FOR THE MS DEGREE:**

**ANATOMY AND CELL BIOLOGY  
ANATOMY TRACK**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
BMS 500	Responsible Conduct of Research	1
BMS 801	Teaching in Anatomy	2
BMS 802	Neuroanatomy	4
BMS 803	Anatomy of the Back & Limbs	3
BMS 804	Anatomy of the Thorax, Abdomen & Pelvis	4
BMS 805	Anatomy of the Head & Neck	5
BMS 806	Developmental Anatomy	2
BMS 807	Microanatomy	5
BMS 809	Seminar in Anatomy and Cell Biology	2
BMS 860	Scientific Methodology	2
BMS 861A	Biostatistics	3
BMS 899	Graduate Research	6

This sample program of study requires completion of at least 39 Credit Hours for graduation.

**SAMPLE PROGRAM OF STUDY FOR THE MS DEGREE:  
ANATOMY AND CELL BIOLOGY  
CELL BIOLOGY TRACK**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
BMS 500	Responsible Conduct of Research	1
BMS 510F	Biochemistry and Cell Biology	10
BMS 809	Seminar in Anatomy and Cell Biology	2
BMS 817	Signal Transduction	2
BMS 823	Cell Culture	2
BMS 860	Scientific Methodology	2
BMS 861A	Biostatistics	3
BMS 862B	Research Laboratories Rotations	2
BMS 899	Graduate Research	6
	Electives	4

This sample program of study requires completion of at least 34 Credit Hours for graduation.

**SAMPLE PROGRAM OF STUDY FOR THE MS DEGREE:  
BIOCHEMISTRY**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
BMS 500	Responsible Conduct of Research	1
BMS 510F	Biochemistry and Cell Biology	10
BMS 819	Seminar in Biochemistry	2
BMS 860	Scientific Methodology	2
BMS 861	Biostatistics	3
BMS 862B	Research Laboratories Rotations	2
BMS 899	Graduate Research	8
	Electives	6

This sample program of study requires completion of at least 34 Credit Hours for graduation.

**SAMPLE PROGRAM OF STUDY FOR THE MS DEGREE:  
MICROBIOLOGY AND IMMUNOLOGY**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
BMS 500	Responsible Conduct of Research	1
BMS 510F	Biochemistry and Cell Biology	10
BMS 820C	Medical Bacteriology	2
BMS 821B	Immunology	3
BMS 822A	Parasitology	2
BMS 824B	Cellular and Molecular Microbiology	3
BMS 825A	Mycology	2
BMS 826A	Virology	2
BMS 829	Diagnostic Bacteriology	2
BMS 859	Seminar in Microbiology and Immunology	2
BMS 860	Scientific Methodology	2
BMS 861A	Biostatistics	3
BMS 862B	Research Laboratories Rotations	2
BMS 899	Graduate Research	6

This sample program of study requires completion of at least 42 Credit Hours for graduation.

**SAMPLE PROGRAM OF STUDY FOR THE MS DEGREE:  
Neurosciences**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
BMS 500	Responsible Conduct of Research	1
BMS 510F	Biochemistry and Cell Biology	10
BMS 580A	Neurosciences	6
BMS 580B	Advanced Neurosciences	3
BMS 860	Scientific Methodology	2
BMS 861A	Biostatistics	3
BMS 862A	Research Laboratory Rotations	1
BMS 889	Seminar in Neurosciences	2
BMS 899	Graduate Research	6

This sample program of study requires completion of at least 34 Credit Hours for graduation.

**SAMPLE PROGRAM OF STUDY FOR THE MS DEGREE:  
PHARMACOLOGY**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
BMS 500	Responsible Conduct of Research	1
BMS 510F	Biochemistry and Cell Biology	10
BMS 540	Medical Pharmacology	6
BMS 842	Advanced Topics in Pharmacology	2
BMS 849	Seminar in Pharmacology	2
BMS 860	Scientific Methodology	2
BMS 861A	Biostatistics	3
BMS 899	Graduate Research	6
	Elective	2

This sample program of study requires completion of at least 34 Credit Hours for graduation.

**SAMPLE PROGRAM OF STUDY FOR THE MS DEGREE:  
PHYSIOLOGY**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
BMS 500	Responsible Conduct of Research	1
BMS 510F	Biochemistry and Cell Biology	10
BMS 530B	Physiology	6
BMS 830	Neurophysiology	5
BMS 839	Seminar in Physiology	2
BMS 860	Scientific Methodology	2
BMS 861A	Biostatistics	3
BMS 862A	Research Laboratories Rotations	1
BMS 899	Graduate Research	6

This sample program of study requires completion of at least 36 Credit Hours for graduation

**SAMPLE PROGRAM OF STUDY FOR THE MA DEGREE:  
ANATOMY AND CELL BIOLOGY  
ANATOMY TRACK**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
BMS 500	Responsible Conduct of Research	1
BMS 801	Teaching in Anatomy	2
BMS 802	Neuroanatomy	4
BMS 803	Anatomy of the Back & Limbs	3
BMS 804	Anatomy of the Thorax, Abdomen & Pelvis	4
BMS 805	Anatomy of the Head & Neck	5
BMS 806	Developmental Anatomy	2
BMS 807	Microanatomy	5
BMS 809	Seminar in Anatomy and Cell Biology	2
BMS 860	Scientific Methodology	2
BMS 861A	Biostatistics	3
BMS 868	Bibliographic Report(s)	2

This sample program of study requires completion of at least 35 Credit Hours for graduation

**SAMPLE PROGRAM OF STUDY FOR THE MA DEGREE:  
ANATOMY AND CELL BIOLOGY  
CELL BIOLOGY TRACK**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
BMS 500	Responsible Conduct of Research	1
BMS 510F	Biochemistry and Cell Biology	10
BMS 817	Signal Transduction	2
BMS 819	Seminar	2
BMS 823	Cell Culture	2
BMS 860	Scientific Methodology	2
BMS 861A	Biostatistics	3
BMS 862B	Research Laboratories Rotations	2
BMS 868	Bibliographic Report(s)	2
	Electives	8

This sample program of study requires completion of at least 34 Credit Hours for graduation.

**SAMPLE PROGRAM OF STUDY FOR THE MA DEGREE:  
MICROBIOLOGY AND IMMUNOLOGY**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
BMS 500	Responsible Conduct of Research	1
BMS 510F	Biochemistry and Cell Biology	10
BMS 820C	Medical Bacteriology	2
BMS 821B	Immunology	3
BMS 822A	Parasitology	2
BMS 824B	Cellular and Molecular Microbiology	3
BMS 825A	Mycology	2
BMS 826A	Virology	2
BMS 829	Diagnostic Bacteriology	2
BMS 859	Seminar in Microbiology and Immunology	2
BMS 860	Scientific Methodology	2
BMS 861A	Biostatistics	3
BMS 862B	Research Laboratories Rotations	2
BMS 868	Bibliographic Report(s)	3

This sample program of study requires completion of at least 39 Credit Hours for graduation.

**SAMPLE PROGRAM OF STUDY FOR THE MA DEGREE:  
BIOMEDICAL SCIENCES**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
BMS 500	Responsible Conduct of Research	1
BMS 510F	Biochemistry and Cell Biology	10
BMS 860	Scientific Methodology	2
BMS 861A	Biostatistics	3
BMS 868	Bibliographic Reports	3
BMS 869	Seminars	2
	Elective Courses	19

This sample program of study requires completion of at least 40 Credit Hours for graduation.

**INTERDISCIPLINARY COURSES**

**CREDIT HOURS**

BMS 500	Responsible Conduct of Research	1
BMS 512	Critical Thinking	1
BMS 523A	Molecular Biology I	2
BMS 524	Molecular Biology II	2
BMS 580A	Neurosciences	6
BMS 580B	Advance Neurosciences	3
BMS 580C	Medical Neurosciences	6
BMS 879	Seminar in Cellular and Molecular Biology	1
BMS 823	Cell Culture	2
BMS 831	Membrane Transport	2
BMS 860	Scientific Methodology	2
BMS 861A	Biostatistics	3
BMS 862A	Research Laboratories Rotations	1
BMS 862B	Research Laboratories Rotations	2
BMS 863	Cancer Biology	1

BMS 864	Cellular and Molecular Basis of Cancer	3
BMS 867	Glial-Neuronal Cell Interactions in Biology and Disease	1
BMS 868	Bibliographic Report(s)	1
BMS 869 A/B	Seminar in Biomedical Science	1
BMS 870-874	Topics in (Specify)	1
BSM 875	Cell Growth and Death	1
BMS 876	Immunopathology	1
BMS 877	Molecular Immunology	1
BMS 878	Cytoskeleton and Cell Motility	1
BMS 880	Adult Learning and Evaluation Techniques	1
BMS 881	Effective Teaching Techniques	1
BMS 882	Supervised Teaching	1
BMS 883	Cell Membranes	1
BMS 899	Graduate Research	8

### **ADDITIONAL COURSES OFFERED BY DEPARTMENT**

<b>DEPARTMENT OF ANATOMY AND CELL BIOLOGY</b>		<b>CREDIT HOURS</b>
BMS 502	Human Gross and Developmental Anatomy	8
BMS 503	Histology	5
BMS 801	Teaching in Anatomy	2
<b>DEPARTMENT OF BIOCHEMISTRY</b>		
BMS 813	Enzymology and Kinetics	2
BMS 814	Advanced Topics in Metabolism	2
BMS 815	Protein Structure and Function	2
BMS 816	Gene Expression and Protein Synthesis	2
BMS 817	Signal Transduction	2
<b>DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY</b>		
BMS 850	Special Topics in Microbiology and Immunology	1
<b>DEPARTMENT OF PHARMACOLOGY</b>		
BMS 841	Biochemical Pharmacology	3
BMS 842	Advanced Topics in Pharmacology	2
BMS 843	Principles of Chemotherapy	2
<b>DEPARTMENT OF PHYSIOLOGY</b>		
BMS 830	Neurophysiology	5
BMS 832	Cardiovascular Physiology	2
BMS 833	Renal Physiology	2
BMS 834B	Advanced Neurophysiology	2

## DESCRIPTION OF COURSES

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### INTERDISCIPLINARY COURSES

**BMS 500**            **Responsible Conduct of Research**  
1 Credit Hour

On December 1, 2000, the US Public Health Service announced final PHS Policy for Instruction in the Responsible Conduct of Research (RCR) for extramural institutions receiving PHS funds for research. This policy required covered institutions to have in place, a program of instruction that complied with the policy. This course will cover the nine core instructional areas mandated by the PHS policy: Data acquisition, management, sharing, and ownership; Mentor/trainee responsibilities; Publication practices and responsible authorship; Peer review; Collaborative science; Human subjects; Research involving animals; Research misconduct; and Conflict of interest and commitment. The teaching strategies used are lectures, individualized learning and small group discussion. Student performance will be measured through exams and attendance.

**BMS 512**            **CRITICAL THINKING**  
1 Credit Hour

The purpose of this course is to train students in the art of reasoning and critical thinking in the pursuit of answers to biological questions. The course 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. The teaching strategies used are individualized learning and small group discussion. Student performance will be assessed through oral presentations and exams.

**BMS 523A**        **MOLECULAR BIOLOGY I**  
Prerequisite: BMS 510F  
2 Credit Hours

Throughout the course, students will discuss experiments that define the field and examine the experimental design, the results, and the interpretations of the results. Current topics will be based on the literature of recent advancements in the field and will also highlight experiments. Topics include: methods in molecular biology, DNA replication, recombination, transposition, and transcription in prokaryotes. The teaching strategy used is lectures. Student performance will be assessed through exams and written report.

**BMS 524**            **MOLECULAR BIOLOGY II**  
Prerequisite: BMS 510F and BMS 523A  
2 Credit Hours

Throughout the course, students will discuss experiments that define the field and examine the experimental design, the results, and the interpretations of the results. Current topics will be based on the literature of recent advancements in the field and will also highlight experiments. Topics include: transcription in eukaryotes, RNA processing, translation, and "omics". The teaching strategy used is lectures. Student performance will be assessed through exams and written report.

**BMS 580A      NEUROSCIENCES**  
Prerequisite: BMS 510F  
6 Credit Hours

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 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**  
3 Credit Hours  
Prerequisite: BMS 580A

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 the literature, 2) critical thinking, and 3) communication skills. Introductory lectures will be given by faculty members for 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 an exam and oral presentations.

**BMS 580C      MEDICAL NEUROSCIENCES**  
6 Credit Hours

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 the 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 diverse educational strategies such as: lectures, laboratories, small and large group discussions. Evaluation is based on written exams and practical computer-based examination using the LXR testing program. In addition, written, and quizzes using the Personal Response System (PRS) are incorporated both as formative as well as summative strategies.

**BMS 823**            **Cell Culture**  
                          **2 Credit Hours**

The requirements for cell and tissue culture laboratory, from the standpoint of cell protection and control of biohazards for personnel are discussed, including special laboratory practices and equipment. Aseptic techniques specific to the tissue culture laboratory will be presented. The specific nutritional requisites for different types of cells are considered and how these specific nutrient requirements vary according to the type of cell, use, applications, purpose of the culture and its functions. Within culture conditions, the physical requisites for gas exchanges, buffering systems and characteristics and uses will be considered, including adherent and non adherent cultures; are also presented primary, long term and transformed cell cultures. Sources of cells, initiation of cultures and storage techniques are considered. Principles of good cell keeping are stressed, including routine record keeping, routine checkup of laboratory equipment. The most frequent applications of cell cultures, organ and tissue cultures as well as procedures for cell phenotyping are studied. Laboratory practices include the preparation of media, cell passages and splitting of cultures, initiation of primary cultures, working with cell lines, cell storage techniques, phenotyping by immunofluorescence and lymphocytes cultures. Pre-requisites: Biochemistry and Cell Biology

**BMS 831**            **Membrane Transport**  
                          **2 Credit Hours**

This course discusses fundamental concepts involving the transport of molecules and ions across biological membrane, including exhaustive discussion of passive, active transport and other transport processes. Examples from selected papers will be presented to illustrate the above concepts. Clinical correlations will also be presented in order to illustrate the importance of the basic concepts to clinical situations. Pre-requisite: Physiology

**BMS 860**            **Scientific Methodology**  
                          **2 Credit Hours**

The main emphasis of the course is on practical concepts and includes laboratory sessions for hands-on visualization of the fundamental concepts discussed. All students will be required to discuss theoretical and practical aspects of scientific research and procedures.

**BMS 861A**         **Biostatistics**  
                          **3 Credit Hours**

This is essentially a two-part introductory course. Initially, there will be lectures to familiarize the students with the basic concepts of statistics, statistical analysis, and data manipulation. Depending on student background, the lectures will begin with fundamental explanations of means, modes, normal distribution, variance standard deviation, continuing with hypothesis testing, confidence levels, standard error, regression line, correlation, multiple regression, students T-test chi-square, and ANOVAs. Following the didactic portion of the course, students will be exposed to demonstrations on the use of the computer for accessing statistical and database programs. Small projects will be assigned or devised by the students to demonstrate proficiency in experimental design and data interpretation. The teaching strategies used in this course are lectures and laboratories. Student performance will be evaluated through class participation and exams.

**BMS 862A**         **Research Laboratories Rotations**  
                          **1 Credit Hour**

Research laboratory rotations are intended to introduce PhD students to the laboratory opportunities available through the Graduate Program in Biomedical Sciences. Students will rotate through not less than three different active research laboratories in such a way that the

experience they acquire during these rotations will help them decide their area of interest and the mentor under whose supervision he/she will train. Eight weeks of rotation will be equivalent to 1 credit hour. Students are expected to work six hours a week in the laboratory. The teaching strategy used in this course is laboratory work. Student performance will be evaluated through their performance in the research laboratory.

**BMS 862B      Research Laboratories Rotations**  
1 Credit Hour

Research laboratory rotations are intended to introduce MS/MA students to the laboratory opportunities available through the Graduate Program in Biomedical Sciences. Students will rotate through not less than three different active research laboratories in such a way that the experience they acquire during these rotations will help them decide their area of interest and the mentor under whose supervision he/she will train. Eight weeks of rotation will be equivalent to 1 credit hour. Students are expected to work six hours a week in the laboratory. The teaching strategy used in this course is laboratory work. Student performance will be evaluated through their performance in the research laboratory.

**BMS 863      Cellular and Molecular Basis of Cancer**  
Prerequisite: BMS 510F  
3 Credit Hours

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 cancers, 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 expected at all times. Student performance will be evaluated by exams and participation in class discussions.

**BMS 864      Cancer Molecular Biology**  
Prerequisite: BMS 510F and BMS 863  
1 Credit Hour

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 cancers, 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 expected at all times. Student performance will be evaluated by exams and participation in class discussions.

**BMS 867      Glial-Neuronal Cell Interactions in Biology and Disease**  
Prerequisite: BMS 510F, and BMS 580A or BMS 580C  
1 Credit Hour

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, 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 expected at all times. Student performance will be evaluated by exams and participation in class discussions.

**BMS 868      Bibliographic Report**  
1 Credit Hour

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.

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

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 from directed readings or from the student's research. The faculty will provide assistance to the student 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)**  
1 Credit Hour

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. A maximum of five topics courses can be taken. The teaching strategy used in the course is small group discussion. Student performance will be assessed by exam and class participation.

**BMS 879 SEMINAR IN CELL AND MOLECULAR BIOLOGY**  
1 Credit Hour

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 from directed readings or from the student's research. The faculty will provide assistance to the student 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.

**BMS 880 Adult Learning and Evaluation Techniques**  
1 Credit Hour

The course provides an overview of basic principles of learning theory, characteristics of adult learners, what motivates adults to learn, evaluation of performance, effective methods of giving feedback, grading practices, types of exams, construction of effective exams and alternative testing methods. Teaching strategies include lecture, individualize learning, discussion, and practical exercises. Student performance will be assessed through exams and evaluation of exercises.

**BMS 881 Effective Teaching Techniques**  
1 Credit Hour

The course provides an overview of basic methodology of effective teaching techniques. Topics will include strengths and limitations of teaching methods, advantages and disadvantages of different types of visual aids, selection of delivery strategy, how to improve retention of information, positive and negative transference, positive reinforcement vs. negative reinforcement. The teaching strategies include lecture and practical exercises. Student performance will be assessed through exams and evaluation of exercises. Prerequisite: Adult Learning and Evaluation Techniques

**BMS 882**      **Supervised Teaching**  
1 Credit Hour

This elective is designed to provide students with experience in teaching and improve the students' teaching skills. Students will serve as instructors to new graduate students providing a laboratory safety lecture and introducing new graduate students to the use of laboratory equipment, including a laboratory exercise. Following the teaching format of an undergraduate laboratory course, the students will prepare an introductory lecture to a laboratory exercise that will be followed with a laboratory session. The student's course grade will be based on the evaluation of the two lectures and the laboratory exercise. Prerequisite: Adult Learning and Evaluation Techniques, Effective Teaching Techniques

**BMS 899**      **Graduate Research**  
Variable  
Grading is Pass or Fail

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, which is required for the Ph.D. 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 as partial fulfillment of the requirement for the Ph.D. degree. Upon completion, the student will present his/her research in seminar form to the academic community as a final defense of the dissertation. The teaching strategies used in this course are individualized learning and laboratory work. Student performance will be assessed through their performance in the research laboratory and dissertation defense.

## **DEPARTMENT OF ANATOMY AND CELL BIOLOGY**

### **GRADUATE COURSES**

**BMS 801**      **Teaching in Anatomy**  
2 Credit Hours

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 Credit Hours

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 the physiology, biochemistry and pharmacology pertinent to this area. The course also includes a practical laboratory component.

**BMS 803            Anatomy of the Back & Limbs**  
**3 Credit Hours**

This course represents a block of the survey of the regional and functional anatomy of the human body. The course includes lectures by the faculty, case study presentations by students and laboratory work. The laboratory work will include a dissection lab and a concurrent applied clinical anatomy lab geared to the study of radiological anatomy, cross-sectional anatomy, surface-projection anatomy as well as the biomechanics of the locomotion apparatus.

**BMS 804            Anatomy of the Thorax Abdomen & Pelvis**  
**4 Credit Hours**

This course represents a block of the survey of the regional and functional anatomy of the human body. The course includes lectures by the faculty, case study presentations by students and laboratory work. The laboratory work will include a dissection lab and a concurrent applied clinical anatomy lab geared to the study of radiological anatomy, cross-sectional anatomy, surface-projection anatomy as well as the morphological principles of respiration, circulation, digestion and reproduction.

**BMS 805            Anatomy of the Head & Neck**  
**5 Credit Hours**

This course represents a block of the survey of the regional and functional anatomy of the human body. The course includes lectures by the faculty, case study presentations by students and laboratory work. The laboratory work will include a dissection lab and a concurrent applied clinical anatomy lab geared to the study of radiological anatomy, cross-sectional anatomy, surface-projection anatomy, as well as neuroanatomy.

**BMS 806            Developmental Anatomy**  
**2 Credit Hours**

This course provides a current account of the human embryonic development taking into account (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 Credit Hours**

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 a 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 a general knowledge of cellular and molecular biology as well as familiarity in the usage of the bright field binocular microscope.

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

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 from directed readings or from the student's research. The faculty will provide assistance to the student 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.

## **DEPARTMENT OF BIOCHEMISTRY**

### **GRADUATE COURSES**

**BMS 510F Biochemistry and Cell Biology**  
10 Credit Hours

Biochemistry and Cell Biology is an interdisciplinary, foundation course that is designed to introduce graduate students to the most important concepts of biochemistry, molecular genetics, genetics, cell biology and nutrition. It is a core course in the graduate school curriculum because most of the subsequent courses that the graduate student will take and most of the research that the graduate student will perform both require a sound fund of knowledge in these basic disciplines. In lectures, the course faculty present and discuss the most important course concepts and include clinical correlations carefully chosen to illustrate these concepts. The course also features active-learning exercises with smaller groups. In addition, the student is required to participate in journal club activities in order to acquire skills in reading, analyzing and summarizing scientific literature. Student knowledge is evaluated with 3 unit examinations.

**BMS 813 Enzymology and Kinetics**  
Prerequisite: BMS 510F  
2 Credit Hours

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 Advanced Topics in Metabolism**  
Prerequisite: BMS 510F  
2 Credit Hours

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.

BMS 815 Protein Structure and Function  
Prerequisite: BMS 510F  
2 Credit Hours

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 510F  
2 Credit Hours

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.

BMS 817 Signal Transduction  
Prerequisite: BMS 510F  
2 Credit Hours

This course will focus on how different signaling pathways control a wide range of cellular processes. Topics will include a diverse array of signaling mechanisms (phosphorylation, calcium, cAMP, signaling via lipid messengers, etc.) Molecular mechanisms leading to programmed cell death (apoptosis) will also be discussed.

BMS 819A/B Seminar in Biochemistry  
Prerequisite: BMS 510F  
1 Credit Hour

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 from directed readings or from the student's research. The faculty will provide assistance to the student 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. 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 student and BMS 819B for the second.

## **DEPARTMENT OF MICROBIOLOGY & IMMUNOLOGY**

### **GRADUATE COURSES**

BMS 820C Medical Bacteriology  
Prerequisite: BMS 510F  
2 Credit Hours

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 discussion.

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BMS 821B      Immunology  
Prerequisite: BMS 510F  
3 Credit Hours

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 small group discussion.

BMS 822A      Parasitology  
Prerequisite: BMS 510F, BMS 821B  
2 Credit Hours

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  
Prerequisite: BMS 510F  
3 Credit Hours

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 510F, BMS 821B  
2 Credit Hours

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 510F, BMS 821B  
2 Credit Hours

This course consists of the study of viruses and their interaction with humans and animals. The course consists in 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 virus, and emerging viruses, 5) Discussion on recent scientific articles. The teaching strategies include lectures, laboratories, small group discussion and individualized learning, and small group discussion. The students will be evaluated by exams, laboratories, oral and written presentations.

BMS 829      Diagnostic Bacteriology  
Prerequisite: BMS 510F, BMS 821B, BMS 820C  
2 Credit Hours

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 lecture, 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 Hour

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 from directed readings or from the student's research. The faculty will provide assistance to the student 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. 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 student and BMS 819B for the second.

## DEPARTMENT OF PHARMACOLOGY

### GRADUATE COURSES

BMS 540                      Medical Pharmacology  
Prerequisite: BMS 510F  
6 Credit Hours

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 anti-histamines, prostaglandins, drug interactions and clinical toxicology.

BMS 841                      Biomedical Pharmacology  
Prerequisite: BMS 510F, BMS 540 (or concurrently enrolled)  
3 Credit Hours

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. Pre-requisites: Biochemistry and Cell Biology, Pharmacology (or concurrently with Pharmacology).

BMS 843                      Principles of Chemotherapy  
2 Credit Hours

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, antihelminthic drugs and antimalarials, cancer chemotherapy, immunotherapy and principles of drug interactions. This course is specifically designed for those students not majoring in the area of Pharmacology and whose interests are met by studying specific topics in Pharmacology.

BMS 849A/B                  Seminar In Pharmacology  
1 Credit Hour

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 from directed readings or from the student's research. The faculty will provide assistance to the student 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.

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 student and BMS 819B for the second.

# DEPARTMENT OF PHYSIOLOGY

## GRADUATE COURSES

BMS 530B      Physiology  
Prerequisite: BMS 510F  
6 Credit Hours

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 Credit Hours

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 Credit Hours

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, 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  
2 Credit Hours

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 the renal physiology to then review specific mechanism of the normal function or during pathological situation to be discussed using specialized publications in the area. Students are expected to present 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 Credit Hours

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 Hours

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 from directed readings or from the student's research. The faculty will provide assistance to the student 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. 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 student and BMS 839B for the second.

## **GRADUATE FACULTY**

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### **DEPARTMENT OF ANATOMY and CELL BIOLOGY**

BAKSI, Krishna, Associate Professor

PhD, India Institute of Medical Sciences, 1977

CUBANO-ROJAS, Luis A., Associate Professor / Joint Appointment

PhD, Kansas State University, 2000

DE LEON, Elizabel, Associate Professor

M.D., Universidad Autónoma de Santo Domingo, 1996

DHARMAWARDHANE, Suranganie, PhD, Adjunct Associate Professor

Ph.D., University of Massachusetts, 1987

HAIFFE, Rosa M., Associate Professor; (Dual appointment in Pathology)

MD, Universidad Autónoma (Dominican Republic), 1968

JIMENEZ, Sofía, Professor and Chairperson

PhD, University of Puerto Rico, 1984

OLIVER, José Luis, Assistant Professor

DDS, University of Puerto Rico MSC, 2002

VERAS, Wilson, Associate Professor

M.D., Universidad Autónoma de Santo Domingo, 1989

WASHINGTON, Anthony, Adjunct Assistant Professor

Ph.D., Southern Methodist University, 1998

### **DEPARTMENT OF BIOCHEMISTRY**

EATON, Misty, Professor

PhD, University of Texas Southwestern Medical Center, 1990

ETEROVIC, Vesna A., Professor

PhD, National University Córdoba (Argentina), 1971

FERCHMIN, Pedro A., Professor

PhD, National University Córdoba (Argentina), 1971

HANN, Richard, Professor and Chairperson

MD, University of Oklahoma College of Medicine, 1974

SKATCHKOV, Serguei, Professor

PhD, Leningrad State University, Russia, 1991

MPH, Leningrad State University, Russia, 1979

SZETO, Ada M., Assistant Professor

PhD, University of Puerto Rico, 2005

VELEZ-CARRASCO, Wanda, Associate Professor

PhD, Tuft University, Boston, 1998

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KUCHERYAVYKH, LILIA, Assistant Professor  
Ph.D., St. Petersburg State University, 2001

KUCHERYAVYKH, YURIY, Assistant Professor  
Ph.D., St. Petersburg State University, 2003

MARTÍNEZ, MICHELLE, Assistant Professor  
Ph.D., Michigan State University, East Lansing, 2004

MARTINS, ANTONIO HENRIQUE BACCIN, Assistant Professor  
Ph.D., University Federal of São Paulo, Brazil, 2006

SZETO, ADA C., Assistant Professor  
Ph.D., University of Puerto Rico, Medical Science Campus, 2005

## **DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY**

BOUKLI, NAWAL M., Associate Professor  
PhD, University of Geneva, 1999

CUBANO-ROJAS, Luis A., Associate Professor  
PhD, Kansas State University, 2000

RAMIREZ-RONDA, Carlos H., Associate Professor  
MD, Northwestern University, 1967  
Specialty in Internal Medicine, 1970

RIOS, Zilka, Associate Professor  
MS, University of Puerto Rico, 1978

RIOS-OLIVARES, Eddy O., Professor and Chairperson  
PhD, University of Puerto Rico, 1976  
MPH, Sanitation Microbiology, University of Minnesota, 1967

RODRIGUEZ, José W., Associate Professor  
PhD, Morehouse School of Medicine, Atlanta, Georgia, 1998  
MS, Emporia State University, 1989

RAMIREZ-RONDA, CARLOS, Associate Professor, Ad Honorem  
M.D., Northwestern University, 1967

RODAS, ARCADY R., MD., MPH., Visiting Professor  
M.D., University of Zulia School of Medicine, Maracaibo, Venezuela, 1985  
MPH., University of Puerto Rico Medical Sciences Campus, 2007

ESPINO, ANA M., Visiting Professor  
Ph.D., Instituto de Medicina Tropical Pedro Kouri, Havana, Cuba, 1997

## **DEPARTMENT OF PHARMACOLOGY**

MALDONADO, Héctor, Associate Professor and Acting Chairperson  
PhD, University of California, 1992

TORRES, JOSE L., Associate Professor  
Ph.D., University of Puerto Rico-Medical Sciences Campus, 2011

BYTCHKOV, ROSTISLAV, Assistant Professor  
Ph.D., University of St. Petersburg, 1993

SILVA, Walter, Assistant Professor  
PhD, Mount Sinai School of Medicine, CUNY, 1986

## **DEPARTMENT OF PHYSIOLOGY**

ASENSIO, Stanley, M.D. Professoris Eminentis (Joint appointment in Obstetrics and Gynecology)  
MD, University of Puerto Rico, 1958

RIVERA, Amelia, Associate Professor  
PhD, University of Puerto Rico, 1982

ROJAS, Legier, Associate Professor  
PhD, University of Puerto Rico, 1987

SANABRIA, Priscila, Associate Professor and Chairperson  
PhD, University of Puerto Rico, 1986

SKATCHKOV, Serguei, Associate Professor  
PhD, Leningrad State University, Russia, 1991  
MPH, Leningrad State University, Russia, 1979

INYUSHIN, MIKHAIL, Assistant Professor  
Ph.D., Leningrad State University, 1986

# **SUBSTANCE ABUSE COUNSELING PROGRAM**

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**POST-BACCALAUREATE CERTIFICATE IN SUBSTANCE ABUSE  
COUNSELING**

**MASTER OF HEALTH SCIENCE IN SUBSTANCE ABUSE  
COUNSELING**

## **MISSION OF THE SUBSTANCE ABUSE PROGRAM**

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 need.

### **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.

## **POST-BACCALAUREATE CERTIFICATE IN SUBSTANCE ABUSE COUNSELING**

### **GOAL AND OBJECTIVES**

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.

The program objectives are:

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 diverse public and private settings.
6. Perform as 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 LIMIT**

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 at the UCC.

## **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 the 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. A credit hour is equivalent to 12 hours of lecture or 24 hours of laboratory or 48 hours of clinical experience or independent supervised study.
2. Complete a minimum of 18 credits 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**

The graduate student will be reviewed by a Committee on 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. If the grade index is below 2.5, the student will be on probation and will be required to repeat courses in order to achieve satisfactory academic progress. 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 (2.5). Students on probation are not eligible for financial aid.
3. 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.

Students who have been suspended indefinitely from the program may appeal their cases to the Committee on Graduate Studies, 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.

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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 Coordinator of the Program to determine his or her academic status before registration for the next trimester.

## **DESCRIPTION OF COURSES**

### **POST-BACCALAUREATE CERTIFICATE IN SUBSTANCE ABUSE COUNSELING**

SAC 504            Human Development  
                         3 Credit Hours

The course engages in 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 diversity, 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 use 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 Credit Hours

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 Credit Hours

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 Addiction and Its Implications for Counseling  
3 Credit Hours

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 in order to allow for an integration of these elements into an effective counseling approach.

SAC 514      Theory and Practice of Group Counseling  
3 Credit Hours

This course will focus on group strategies used in prevention and treatment of substance abuse. The group counseling will emphasize in-group process and the strategies designed to enhance mutual support and to acquire skills such as drug refusal. Presentation of material will be didactic and experimental. Demonstration of group work will be integrated throughout the course. An involvement in group session outside the classroom is a course requirement.

SAC 516      Theory and Practice of Family Counseling  
3 Credit Hours

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 Credit Hours

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, driving while intoxicated, 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. Particular 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: Substance Abuse Counseling  
4 Credit Hours

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 to 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

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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**

### **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 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.

### **RESIDENCE REQUIREMENTS**

Students must complete a minimum of 32 Credit Hours at the UCC.

### **COMPREHENSIVE EXAMINATION**

The student must complete all courses required for the Master's degree, including Internship: Advanced Clinical Practice or Internship: Planning, Management and Evaluation of Substance Abuse Counseling Programs and have achieved a GPQI of 3.00 before taking the comprehensive exam. The student must obtain 75% 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 be limited to the topical area(s) in which the student did not obtain at least 75%, and 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.

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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. A credit hour is equivalent to 12 hours of lecture or 24 hours of laboratory or 48 hours of clinical experience or independent supervised study.
2. Complete a minimum of 32 credits at the UCC.
3. Pass a comprehensive exam with a minimum score of 75% in each component of the exam.
4. Comply with all academic and institutional requirements of the Program in Substance Abuse Counseling and the UCC.
5. 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 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 recommendation 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 index 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. Students on probation are not eligible for financial aid.
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 and will be required to repeat courses in order to achieve satisfactory academic progress. 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. Students on probation are not eligible for financial aid.
4. A student may be suspended indefinitely from the program by:
  - a. Being on probation for two consecutive terms.
  - b. Attaining a grade index below 2.5 in any academic year.

3.0 + (Good Standing)

2.99 – 2.55 (Probation)

2.49 – (Suspension)

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.

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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.

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                         3 Credit Hours

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SAC 511            Theory and Practice of Individual Counseling  
                         4 Credit Hours

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2 Credit Hours

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, driving while intoxicated, 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. Particular 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: Substance Abuse Counseling  
4 Credit Hours

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 to 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 Programs  
3 Credit Hours

Students in this course will receive information and develop designing, planning, and implementation skills for substance abuse 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 Credit Hours

This course focus on how to conduct scientific investigation. The students will learn how to formulate investigative questions parting from a quantity and quality  $\zeta$  point to view. They will examine different types of design, instruments, and their respective collection methods and data analysis. The course will provide students 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 Credit Hours

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 Credit Hours

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, future 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 Credit Hours

This course is designed to provide skills in program 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 of Special Populations  
                         2 Credit Hours

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 special populations with substance abuse problems. Some of the populations identified are: women, elderly, gay and lesbian, and ethnic minorities, among others. Attention is given to the cultural and social biases and stereotypes confronted by these groups in general, but more so for those who are also experiencing substance abuse problems.

SAC 630            Internship: Planning, Management, and Evaluation of Substance Abuse Programs  
                         4 Credit Hours

Planning, Management and Evaluation of Substance Abuse Counseling Programs 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, implement, manage and evaluate a substance abuse 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 programs, and gain first-hand appreciation of the factors that promote or impede effective planning, management, and evaluation.

## PROGRAM FACULTY

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- BENÍTEZ PÉREZ, Raúl, MD, Associate Professor  
M.D., University of Puerto Rico, Medical Sciences Campus, 1984  
Specialty in Psychiatry, University of Puerto Rico and Veteran Administration, 1988
- CARRION-GONZALEZ, Ibis S. PsyD., Assistant Professor  
PsyD., Psychology with Specialization in Clinical Psychology, Universidad Carlos Albizu,  
2002
- COLÓN CASTILLO, Milagros, Ed.D, Assistant Professor  
Ed.D, Interamerican University of PR- Education in Planning and Evaluation Specialty, 1996
- COLÓN-JORDÁN, Héctor M., Ph.D, Associate Professor  
PhD, Epidemiology, University of Miami, School of Medicine, 2000
- COX-M<sup>c</sup>CLEARY, Evadne, MSN, MHS, Instructor  
MSN, Catholic University of Puerto Rico, Mental Health and Psychiatric Nursing, 1983, MHS,  
Governors State University, Chicago, Illinois, 1996
- DÍAZ-RODRÍGUEZ, Nereida, Ph.D, Assistant Professor  
Ph.D, Clinical Psychology, University of Puerto Rico, Río Piedras Campus 1997
- ECHEVARRÍA SANTOS, Ramonita, MSN, Instructor  
MSN, UPR - Medical Sciences Campus, Mental Health and Psychiatric Nursing, 1988
- FELIBERTY-MORALES, Evelyn, MA, Instructor  
MA, University of Puerto Rico, School of Public Administration, 1991
- GARCÍA-RODRIGUEZ, María del Mar, MSW, MHS, Assistant Professor  
MSW, University of Puerto Rico, School of Social Work, 1970  
MHS in Alcoholism and Drug Abuse Science, Governor State University, Chicago, Illinois,  
1996
- JÍMENEZ-RIVERA, Carlos A., PhD, Associate Professor  
PhD, University of New Mexico, School of Medicine, 1985 (Dual appointment in the  
Department of Physiology)  
Postdoctoral Fellow, University of Texas, Health Science Center at Dallas, 1987  
Post-doctoral Fellow, Universidad Autónoma Nacional de Mexico, Cellular Physiology  
Institute, 1986  
Postdoctoral Fellow, UTHSCD and Hahnemann University, 1986
- MALDONADO-RÍOS, GERTRUDIS, Ph.D,  
Ph.D., University of Puerto Rico, Psychology with specialization in Clinical Psychology, 1997
- MARRERO-RODRIGUEZ, C. Amalia, MPH, Assistant Professor  
MPH, Biostatistics, University of Puerto Rico, School of Public Health, 1989
- MATOS-RIVERA, Tomás D., MS, Instructor  
MS, Research Evaluation, University of Puerto Rico, 1989
- PAGÁN-MIRANDA, MIGUEL A., Psy.D, Associate Professor  
Psy.D, Psychology with specialization in Clinical Psychology, Centro Caribeño de Estudios  
Post Graduados, 1995
-

PEREZ-DEL PILAR, Omar, Ph.D., Assistant Professor  
Ph.D., University of Puerto Rico, 2002

QUIÑONES-ÁLVAREZ, EDNA L., Ph.D, Associate Professor  
Ph.D, Counseling Psychology, University of Wisconsin, Madison, 1994

QUIÑONES-BERRÍOS, ARELIZ, Ed.D, Instructor  
MHS, Masters in Health Science with concentration in Substance Abuse Counseling –  
Universidad Central del Caribe, School of Medicine, 1999  
Ed.D in Guidance Counseling – Interamerican University, 2007

REYES-PULLIZA, Juan Carlos, Ed.D, Assistant Professor  
Ed.D, Education, University of Puerto Rico, 2003  
MS, Epidemiology, University of Puerto Rico, School of Public Health, 1990

ROBLES, Rafaela R., Ed.D, Professor; Ed.D, Columbia University, 1970

RODRÍGUEZ-RIVERA, Wanda, J., J.D, LL.M, Assistant Professor; JD, Interamerican University  
of Puerto Rico, School of Law, 1985; LLM, Labor Law, Georgetown University Law Center,  
Washington, DC, 1988

SOTO-RAICES, Ohel, M.D., Assistant Professor (Dual appointment in Psychiatry)  
M.D., Universidad Central del Caribe, School of Medicine, 1997  
Specialty in Psychiatry, University of Florida, College of Medicine, 2001  
Fellowship in Child & Adolescent Psychiatry, University of Florida, College of Medicine, 2002

TORRES RIVERA, Francisco, Ph.D, Assistant Professor; Ph.D, Union Graduate School,  
Cincinnati, Ohio - Philosophy in Social Psychology, 1978

# **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**

**BACHELOR OF SCIENCE IN DIAGNOSTIC IMAGES**

## **MISSION AND GOALS OF THE MEDICAL IMAGES TECHNOLOGY PROGRAM**

The Mission of the Program is to educate and train qualified personnel to provide direct service to patients using ionizing and non-ionizing radiation to produce images needed for medical diagnosis from an integral perspective of the patient's well being.

Program Goals are as follows:

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 and psychosocial content areas. Faculty members strive to give a complete education to students, thus enabling him/her to offer a better service to patients.

## **PROGRAMS OF STUDY**

### **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 the health professional that 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 his findings to a certified physician for analysis and diagnosis. The Radiologic Technologist will provide services to patient/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 under his charge and, as a member of the health professional team, has the additional responsibility of educating, supporting and serving his/her patient.

The Radiologic Technologist is capable of:

1. Evaluating the patient's medical and clinical information in order to follow the prescribed radiographic procedure.
2. Utilizing discrete and valorative 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 possible pathologic conditions.
4. Assisting the Radiologist in those invasive procedures requested or needed to fully evaluate patient's functional conditions.
5. Facilitating the diagnosis by integrating medical information, clinical history and the images produced.
6. Orienting patients about the radiographic procedures and on healthy life styles.
7. Integrating quality assurance procedures to 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 two academic years and one summer session (22 months), 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 standardized education and accreditation of all programs in Radiologic Technology in the United States. It is important to point out that we have adjusted the curriculum recommendations in order 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 sit for the Puerto Rico Radiology and Radiotherapy Technologists Examination Board and the American Registry of Radiologic Technologists tests.

The Medical Images Technology Program is fully accredited by the Joint Review Committee on Education in Radiologic Technology (JRC/ERT; 20 N. Wacker Dr., Suite 2850, Chicago, IL 60606-2901; tel. 312-704-5300) to offer an Associate Degree in Radiologic Technology. In May 2009, The Program was awarded the maximum accreditation period of 8 years.

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# DESCRIPTION OF COURSES

A credit hour at the undergraduate program level is equivalent to 15 hours of lecture or 30 hours of laboratory or 60 hours of clinical experience or independent supervised study.

## FIRST YEAR, FIRST SEMESTER

CP 101            University Life  
                      0 Credit Hours

Group discussion and activities designed to provide students with knowledge and ease the transition in successfully adapting to university life experiences. Emphasis is given to the development of skills to facilitate academic progress.

EN 101            English I  
                      3 Credit Hours

Deals with the basic structure of the English language, emphasizing functional use and application aimed toward guiding students in attaining mastery of such basic skills as: listening, reading, writing as a means of improving their oral and written expression.

SP 101            Spanish I  
                      3 Credit Hours

Introduction to the Spanish language as a technical expression vehicle. Basic skills and concepts of written and oral communication in Spanish are covered.

RT 101            Introduction to Radiologic Technology  
                      3 Credit Hours

Introductory course which presents Radiologic Technology as a science and other aspects related to this profession. Includes first clinical practice period (60 hours) with exposure to the operation of the imaging center.

RT 103            Human Anatomy and Physiology I  
                      3 Credit Hours,

Course oriented to introducing students to the basic anatomic and physiologic principles of the human body throughout descriptive Anatomy by regions and systems. Emphasis is given to the chemical, cellular, skeletal and muscular components of the human body. Course is complemented with laboratory experiences.

RT 106            Principles of Radiographic Exposure & Development of Radiographic Images  
                      4 Credit Hours

Comprises the study of all concepts associated with the production of X-rays; image formation and development. Factors influencing image quality are presented and discussed. Practical demonstrations are used to facilitate comprehension of the course content.

RT 110            Introduction to Computer Systems  
                      2 Credit Hours

Introductory course dealing with concepts of the operations and programming of computerized system. Appropriate terminology and foundations on the use and operations of computers in the health field are discussed. Student acquires a functional knowledge of general use applications: Word, PowerPoint, Excel and Windows 95.

RT 113            Radiographic Procedures and Evaluation I  
63 Credits Hours

This course includes the study of the radiographic procedures as they relate to the skeletal system. Includes positioning, exposure techniques, film evaluation and related anatomy of superior and inferior extremities and skeletal trunk.

## **FIRST YEAR, SECOND SEMESTER**

EN 102            English II  
3 Credit Hours  
Pre-requisite EN-101

Continues the development of English language communication skills with applications to the professional life.

SP 102            Spanish II  
3 Credit Hours  
Pre-requisite SP-101

Comprises the development of skills in oral and written communication in the Spanish language. Basic concepts on correct editing are presented. Different literary styles are discussed and analyzed.

RT 202            Clinical Practices I  
3 Credit Hours  
Pre-requisite RT-101

Students participate and develop skills in performing radiographic procedures pertaining to the skeletal system (superior and inferior extremities and skeletal trunk). They observe basic radiographic procedures requiring administration of contrast mediums for the visualization of the gastrointestinal and urinary systems.

RT 203            Clinical Practice II (Summer Session)  
240 Hours, 2 Credits  
Pre-requisite RT-202

Students participate and develop skills in the realization of special radiographic procedures of the gastrointestinal and genitourinary systems requiring the administration of contrast media.

RT 211            Radiologic Physics  
3 Credit Hours

Physics mechanisms involved in the production of x-rays and image formation are presented and discussed. It includes basic mathematical concepts for the solution of radiology related problems.

RT 216            Patient Care Methods  
3 Credits Hours

Comprises basic nursing procedures required for the care of the patient in the radiology department. Principles of human communication, precautionary and safety considerations, first aid, cardiopulmonary resuscitation, vital signs assessment, medication and contrast media administration, medical sepsis, and infection control procedures are discussed and demonstrated.

RT 104            Human Anatomy and Physiology II  
                      3 Credit Hours  
                      Pre-requisite RT-103

Course oriented to familiarizing students with the basic anatomical and physiological concepts of the nervous, circulatory, urinary, endocrine, respiratory, reproductive systems and their application in radiology. This course is complemented with laboratory experiences.

RT 213 Radiographic Procedures and Evaluations II  
                      3 Credit Hours  
                      Pre-requisite RT-113

The study of radiographic procedures related to pathological conditions occurring in abdomen and thorax. Includes discussion of exposure techniques, positioning skills, medical indications and counter-indications for special studies pertaining to this anatomical region. Use of contrast media is discussed.

## **SECOND YEAR, FIRST SEMESTER**

RT 115            Radiologic Pathology  
                      2 Credit Hours  
                      Pre-requisite RT-104

Study of the most common conditions and lesions affecting the human being and its relation to the changes observed in the radiographic image. Etiology, epidemiology and prognosis of these conditions are discussed.

RT 204            Clinical Practice III  
                      3 Credit Hours  
                      Pre-requisite RT-203

Students participate and develop skills in the application of special radiographic procedures requiring the administration of contrast media and assisting the radiologist in interventional procedures.

RT 211            Radiation Biology  
                      3 Credit Hours  
                      Pre-requisite RT-111

Comprises the information and knowledge of the interaction of radiation energy and matter. Units and manners of measuring X-rays and other radiation and its effects on living organisms, in particular its effects over long and short periods of exposure on patients.

RT 231            Integral Health Concepts  
                      3 Credit Hours

Interdisciplinary course, which presents an integral and introductory vision of different content matters, considered basic in the health field: public health concepts, epidemiology, statistics, and administration of health services. Emphasis is given to human development process and the needs of the individual in preserving his/her health.

RT 303           Sectional Anatomy  
3 Credit Hours  
Pre-requisite RT-104

Course oriented to familiarizing 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. Course is complemented with laboratory experiences.

RT 313           Radiographic Procedures and Evaluation II: Skull and Neck  
3 Credit Hours  
Pre-requisite RT-213

Study of the radiographic procedures related to cranial structures, facial bones and neck. Includes discussion of exposure techniques, positioning skills, medical indications and indications for special and optional projections to be performed in traumatized patients and special studies pertaining to this anatomical region. Use of contrast media is discussed.

## **SECOND YEAR, SECOND SEMESTER**

RT 205           Clinical Practice IV  
4 Credit Hours  
Pre-requisite RT-204

Students participate and develop skills in radiographic critique and quality assurance. The students acquire proficiency in the application of all radiographic procedures (extremities, trunk, skull and facial bones, and special procedures and administration of contrast media) under indirect supervision. Students are exposed to new imaging modalities.

RT 223           Radiographic Critique and Quality Assurance  
3 Credit Hours  
Pre-requisite RT-211

The course offers students basic knowledge on the importance and implementation of a quality assurance program in a radiological facility. Emphasis will be given to the quality control tests performed on radiographic exposure and film development equipment. Evaluation and analysis of radiographs performed during clinical practice. Course provides students with the opportunity to apply knowledge, acquired during their study/work time to a research project.

RT 413           Introduction to Ultrasound Imaging  
3 Credits 45 Hours

Introduction to medical diagnostic ultrasound basic concepts, images and procedures used in this modality of imaging.

RT 315A          Legal Concepts Seminar  
1 Credit Hour

Medical-legal considerations of the health professionals in Puerto Rico with emphasis on the radiologic technologist. Comprises current aspects on ethics, responsibilities, obligations and rights of the health professionals relative to patients and colleagues, including case presentation and discussion.

RT 414           Introduction to Imaging Modalities  
3 Credit Hours  
Pre-requisite RT-211

Introductory course dealing with new modalities of medical diagnosis imaging. Includes basic concepts of principles and operational procedures of lineal tomography, digital and computerized radiology, computerized tomography, digital subtraction arteriography, magnetic resonance, nuclear medicine and radiotherapy.

## **ELECTIVE CLINICAL PRACTICE**

RT 206                      Clinical Practice V  
   3 Credit Hours

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.

## **POST-ASSOCIATE CERTIFICATE IN DIAGNOSTIC MEDICAL SONOGRAPHY**

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### **DESCRIPTION OF THE CERTIFICATE IN DIAGNOSTIC MEDICAL ULTRASOUND**

Since its inception in Medical Diagnostic Images, Ultrasound or Sonography has become one of the most common modalities. This technique of producing images by means of sound waves, because of its low cost and its wide use in areas prohibited to 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 the 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 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 under his/her charge and as a health professional, has the responsibility for educating, supporting and serving his patient.

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 valorative 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.
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## **EDUCATIONAL PROGRAM**

This is a one-year academic program that seeks to develop in radiologic technologists, theoretical knowledge and practical training in the modalities of medical diagnosis by means of the ultrasound. The academic content is balanced in order to offer the student other opportunities to become more proficient in the theoretical processes related to this trend and develop practical skills in the 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 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 the 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.

## **DESCRIPTION OF COURSES**

A credit hour at the undergraduate program level is equivalent to 15 hours of lecture or 30 hours of laboratory or 60 hours of clinical experience or independent supervised study.

### **FIRST SEMESTER**

US 401            Clinical Practice I  
                         3 Credit Hours

This course comprises a supervised clinical experience in which the student has the opportunity to recognize the protocol and techniques of the basic ultrasonography studies. Students develop competencies in medical request interpretation, patient briefing and management, scanning protocols, and the sonographic appearance of normal and pathologic organs and tissues.

US 411            Ultrasound Physics  
                         4 Credit Hours

This course provides the student with the basic knowledge of the physics of sound. Course content includes mathematical operations as they apply to sonography and the physical concepts involved in the operation of ultrasound equipment. Teaching techniques include readings, lecture, and group discussion.

US 416            Pelvic Sonography  
                         2 Credit Hours

The imaging and diagnosis of conditions related to the female and male pelvis comprise the basis of this course. Contents include scanning protocols, terminology, complementary studies, and sonographic appearance of normal organs and pathologic conditions diagnosed by means of Ultrasound. Diverse teaching techniques are employed: readings, lectures, group discussion, and image and case critique.

US 419            Abdominal Sonography  
                      3 Credit Hours

This course emphasizes the study of the structures included in the human abdomen. Contents include protocol, terminology, complementary studies, and sonographic appearance of normal organs and pathologic conditions diagnosed by means of Ultrasound. Diverse teaching techniques are employed: readings, lectures, group discussion, and image and case critique.

US 421            Superficial Organs and Special Procedures in Sonography  
                      3 Credit Hours

Study of the procedures used on the evaluation of sonographic studies of thyroids, chest, testicles, popliteal vein, neonatal neurosonography, and injections and aspirations with needles. It also includes techniques of trans-esophageal, trans-vaginal sonography and endosonography of the gastrointestinal system. It includes medical terminology related to each of the studies; normal anatomy, pathology; and methods and techniques used to help in the sonographic diagnostic of conditions associated to each of these anatomical areas.

US 459            Integration Laboratory I  
                      2 Credit Hours

In this laboratory, under the direct supervision of a faculty member, the student practices the necessary competencies and protocols to perform basic sonography studies on simulated patients and peers. In this laboratory, the student integrates didactic knowledge and practices dexterity for the performance of sonographic studies. Clinical and practical teaching techniques are employed, in addition to the discussion of reviewed articles regarding scanning protocols of abdominal and pelvis sonograms.

## **SECOND SEMESTER**

US 402            Clinical Practice II  
                      3 Credit Hours

In this second clinical practice experience, the student has the opportunity to integrate didactic knowledge with practical competencies. Students develop advanced competencies for the correct performance of sonographic procedures and develop new competencies in special sonographic procedures.

US 417            Obstetric Sonography  
                      3 Credit Hours,

The Obstetric Sonography course is divided into two sections. The first part provides the student with the basic knowledge of normal and pathological tissues present during pregnancy. This section also includes scanning protocols and techniques to visualize the embryo and the second and third trimester normal fetus. The second part increases student's knowledge of fetal pathology and medical complications and disorders related to pregnancy. Teaching techniques include assigned readings, lectures, and group discussion.

US 427            Instrumentation and Quality Assurance  
                      4 Credit Hours

This course expands on the previous Ultrasound Physics course content and includes concepts related to equipment operation, calibration and maintenance and the implementation of a quality assurance plan within a sonography unit. Basic Doppler concepts are introduced. Teaching techniques include readings, lectures, and group discussion.

US 431            Basic Ultrasound Studies Seminar  
                         3 Credits Hours

This course is designed to integrate didactic knowledge and clinical experiences. During the seminar cases performed by the students their clinical rotations are discussed. Additionally, students will be required to read, synthesize and react critically and constructively to professional articles related to Sonography found in journals and other electronic media.

US 440            Research Project  
                         3 Credit Hours

As part of this course students plan and develop a special project, incorporating research concepts and techniques, and the analysis of a problem or situation occurring in a medical diagnostic ultrasound clinical area. Emphasis is given to the techniques of gathering, organizing and analyzing research data. Student projects are evaluated through the extent and integration of all aspects of research in an oral and written report.

US 469            Integration Laboratory II  
                         2 Credit Hours

In this laboratory, under the direct supervision of a faculty member, the student practices the necessary competencies and protocols to perform basic sonography studies on simulated patients and peers. In this laboratory, students integrate didactic knowledge and practice dexterity for the performance of sonographic studies of abdominal and pelvis organs. Clinical and practical teaching techniques are employed in addition to the discussion of assigned reviewed articles regarding scanning protocols of abdominal and pelvis sonograms.

## **POST ASSOCIATE CERTIFICATE IN MAMMOGRAPHY**

### **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 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 years among women and men, Mammography is now considered an area of specialization in the field of medical diagnostic images.

### **PROFILE OF THE MAMMOGRAPHER**

The Mammographer is the health professional that 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 later presenting and submitting his/her findings to a Radiologist for analysis and diagnosis. The Mammographer is responsible for preserving the integrity of the patient under his/her charge and as a health professional has the responsibility of educating, supporting and serving his patient.

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.
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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, type and importance of quality procedures.
5. Explaining to the patient the FDA and ACR recommendations about base mammography, the need of keeping previous films for comparison purposes and about breast self-examination.
6. Offering an optimum quality service in a prudent and reasonable time period.
7. Participating in invasive processes with the radiologist.
8. Performing routine and extraordinary quality assurance and quality control procedures related to mammography.
9. Using discretion and valorative judgment in the use of procedures and operation of the equipment.
10. 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 in order 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 medical conditions. Also, the new tendency to complement the conventional mammography with sonomammography images is taken into consideration as part of the training.

After a period of one semester (15 weeks) participation in didactic activities related with the mammography techniques, and working directly with patients, the student will receive the Post-Associate Degree Certificate in Mammography. The participant will be prepared to meet the requirements of any professional evaluation required to practice the imaging modality selected, in Puerto Rico as well as in the continental United States.

## **DESCRIPTION OF COURSES**

A credit hour at the undergraduate program level is equivalent to 15 hours of lecture or 30 hours of laboratory or 60 hours of clinical experience or independent supervised study.

### **MA-401 Mammography Procedures 3 Credit Hours**

Procedures, protocols and positioning techniques used in the evaluation of the human breast are discussed in this course. Variations from normal procedures required to accommodate patients with special needs are also presented and discussed. Content includes positioning terminology, patient comfort requirements, special cases including reconstructed, irradiated and the presence of

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prosthetic accessories; magnification, cone down views and other procedures considered non-invasive. Skills in patient care and education related to the care and of the human breast are included in this course.

**MA-402 Anatomy, Physiology and Pathology of the Breast**  
45, 2 Credit Hours

This course offers the student the opportunity to acquire concepts related to the anatomy, physiology and pathology of conditions related to the female and male breast. Content includes breast development and tissue composition, normal and abnormal variations, benign and malignant conditions and the visualization of these changes as they are presented in a mammography or sonomammography image. Changes in the breast tissue due to surgical or pathologic processes are discussed.

**MA-403 Physics and Quality Assurance in Mammography**  
3 Credit Hours

This course covers the basic concepts of radiation physics related to Mammography, such as: special equipment requirements, construction standards recommended by the FDA for mammography units, exposure factors, radiation interaction with breast tissue, maximum permissible doses, collimation, developing process, final image evaluation, operation and maintenance of accessories used in mammography. The students are able to recognize, develop and implement a quality assurance program of the mammography unit.

**MA-404 Operational and Clinical Fundamentals of Sonomammography**  
3 Credit Hours

This course comprises the basic concepts of physics, terminology, operation and instrumentation, and scanning protocols in the use of ultrasound for the evaluation and diagnosis of breast conditions. Normal anatomy, image artifacts, and interventional procedures of the breast using this modality are presented and discussed. Laboratory sessions are used to familiarize students with the sonomammography procedures and for them to acquire skills in scanning protocols, tissue recognition, and equipment adjustment.

**MA-405 Clinical Practice and Research**  
3 Credit Hours

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 and sonomammography 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. Clinical evaluation includes: interpreting medical orders, analysis of patient medical history; patient care and orientation; 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.

## **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. Resulting images are similar to a radiograph in its density, but the image is oriented perpendicular to the body axis. Computerized Tomography is used primarily to evaluate gastrointestinal, nervous and musculo-skeletal systems.

The academic program of the Certificate in Computerized Tomography is designed to develop, in graduates of an Associate Degree in Radiologic Technology, the theoretical knowledge and the practical skills to produce medical diagnostic images by means of the Computerized Tomography equipment. This certificate is offered in one semester long (18 weeks) period.

## **PROFILE OF THE COMPUTERIZED TOMOGRAPHY TECHNOLOGIST**

The Imaging Technologist specializing in Computerized Tomography is the health professional that 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 to interact with the patient in an effective manner to orient the patient on the procedure to be performed and lower the 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 so as 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 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, 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 patient, before, during and after the procedure.
  9. Offer optimum quality services in a prudent and reasonable lapse of time.
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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.

## DESCRIPTION OF COURSES

A credit hour at the undergraduate program level is equivalent to 15 hours of lecture or 30 hours of laboratory or 60 hours of clinical experience or independent supervised study.

CT-425            Operating Fundamentals of Computerized Tomography  
3 Credits Hours

This course comprises the presentation and discussion of: history of the computerized tomography (CT) ; applications and terminology used in CT; ionizing radiation physics; different protocols used in CT imaging centers; technical parameters used for the acquisition of CT images; ionizing radiation safety measures; quality assurance procedures implemented in CT.

CT-430            Computerized Tomography Procedures and Protocols  
3 Credit Hours

In this course, the protocols utilized to produce diagnostic images of the human body by means of the computerized tomography 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.

CT-435            Anatomy and Pathology in Computerized Tomography Images  
3 Credits Hours

This course offers the student the opportunity to acquire concepts related to the anatomy and pathology of the human body as presented in Computerized Tomography (CT) images. The most common conditions and lesions, as seen in CT, are discussed. The course includes the analysis of: normal variations, etiology and prognosis of those conditions, and its relationship to the imaging conditions in CT.

CT-440            Clinical Practice and Research in Computerized Tomography  
4 Credit Hours

Student will complete a supervised clinical experience in computerized tomography (CT) in an accredited CT imaging center, in which the student implements all concepts learned in the didactic courses. As students advance in the clinical experience, they develop competencies in: patient care, education and management; patient's medical and clinical history interpretation;

performing CT procedures following prescribed protocols, and image selection and processing. As part of the clinical experience, the student must do a research project related to CT operations, in which he/she will deal with: defining a problem or situation, literature search, data acquisition and analysis, and problem solving.

## **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 dealing them), during which process they emit a signal captured by a radio antenna and passed 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 from an Associate Degree in Radiologic Technology, the theoretical knowledge and practical skills needed to produce optimum quality images to be used in medical diagnosis through the use of 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 the 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, 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 so as 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.

## **DESCRIPTION OF COURSES**

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A credit hour at the undergraduate program level is equivalent to 15 hours of lecture or 30 hours of laboratory or 60 hours of clinical experience or independent supervised study.

MR-400            Operating Fundamentals of Magnetic Resonance  
3 Credits Hours

This course comprises the presentation and discussion of: history of magnetic resonance (MR) and the physical and chemical principles related to MR. 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.

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MR-410            Anatomy and Pathology in Magnetic Resonance  
                         3 Credit Hours

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 its relationship to the imaging conditions in MR.

MR-405            Magnetic Resonance Procedures and Protocols  
                         3 Credit Hours

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.

MR-415            Clinical Practice and Research in Magnetic Resonance  
                         4 Credit Hours

Student will complete a 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 the 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. As part of the 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.

## **Bachelor of Science in Diagnostic Images**

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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 two or more specialization certificates and increase 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.

UCC has designed this offering based upon the premise that almost all the radiologic technologists in Puerto Rico have attained an Associate degree. The Bachelor of Sciences 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 (US, Mammo, CT, MR), and five (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, 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, through the use of 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 life styles.
6. Presenting to the specialized physician, any information obtained during the procedures which facilitates the diagnosis through the integration of patient record information, clinical history and images obtained by means of the available modalities.
7. Participating in case discussion 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 situation which 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 individuals, taking into consideration cultural and social diversity.
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 its 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 in order 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.

## **DESCRIPTION OF COURSES**

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A credit hour at the undergraduate program level is equivalent to 15 hours of lecture or 30 hours of laboratory or 60 hours of clinical experience or independent supervised study.

BSIDF-510      Diagnostic Images Services Administration  
3 Credit Hours

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 team work 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

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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 Diagnostic Images Services Planning and Evaluation**  
3 Credit Hours

This course will present students with the basic concepts and skills in use for the planning and evaluation of diagnostic images services. Planning and evaluation of health services will be presented as a continuous process emphasizing problem identification, developing effective answers to problems, and implementing and evaluating the program or service proposed. Course content also includes: general aspects of a health service organization; how to develop goals and objectives to fulfill an organization mission through a Strategic Plan. Students will participate in conferences, will discuss simulated models and will present an operational model for a diagnostic images center. Students will be evaluated through: practice exercises, short texts, application projects and literature review reports.

**BSID-530 Diagnostic Imaging Pharmacology**  
3 Credit Hours

This course will offer students 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 Credit Hours

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 diverse 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, content related assignments.

**BSID-550 Professional Lectures Seminar**  
Online course, 2 Credit Hours

This course will develop the student's ability to conduct critical reading of professional articles. As part of the course, emphasis will be given to the discussion of issues related to: new developments and research in the medical diagnostic images field. This course will be conducted mainly through on-line strategies where students will complete course requirements in a virtual environment. As part of this course, the following skills will be evaluated: knowledge and skills in informatics; search, validity, analysis and application of the information, and Spanish and English written communication skills. During the course, students will present five critical analyses of professional articles and will participate in the discussion of articles presented by fellow students.

## **STUDENT EVALUATION AND PROMOTION**

Performance of all students in the Medical Images Technology Program's offerings (Associate Degree in Radiologic Technology, post-Associate Certificates and Bachelor in Science) will be assessed applying rules and academic procedures and non-discriminatory policies.

## **GRADUATION REQUIREMENTS**

In order to obtain the complete requisites for all Medical Images Technology Programs 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 Universidad Central del Caribe.

## **INDIVIDUAL PERFORMANCE ON COURSES**

At the beginning of each course, the 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.

Student's opinions and behavior unrelated to the academic requisites will not affect the evaluation and grade.

## **MINIMAL 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 failing a course must 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 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 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. Complies with other institutional requirements as indicated at the beginning of the academic program.
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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 student's "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.

In order to be removed from academic probation the student must:

1. Maintain a "CQPI" of 2.00 or more in 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 of time, 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 in achieving 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 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 (66%) in any evaluative period.

#### **MAXIMUM TIME PERIOD TO OBTAIN A DEGREE**

The time to complete the Associated Degree in Radiologic Technology is two years (24 months), while the maximum period allowed for degree completion is three (3) years. The student can require additional time to complete degree for academic or personal reasons. In these cases the Evaluation and Promotion of Student Committee can establish a special schedule in order to allow student to complete the requirements.

The maximum time to complete the post-Associate Certificate in Diagnostic Medical Sonographer and the Bachelor 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 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.

## **MEDICAL IMAGES TECHNOLOGY PROGRAM FACULTY**

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- BERMÚDEZ, Carlos, MA, Adjunct Instructor  
MA, Río Piedras Campus, University of Puerto Rico, 1978
- COLÓN-LANCARA, Edgar, PhD, ARRT (R)(RM)(CT); Adjunct Instructor  
PhD, Atlantic International University, 2004  
MPH in Epidemiology, Public Health School, Medical Science Campus, UPR, 1998  
BsHS, College of Health Allied Professions, Medical Science Campus, University of Puerto Rico, 1992
- ORAMA-FELICIANO, Crucita, M.P.H., Instructor  
M.P.H., Inter American University, 1984
- DÍAZ-MORALES, Anibal, MPH, BSc, Professor Emeritus  
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; Adjunct 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
- GONZÁLEZ-RIVERA, María Enid, TR, MPH, Assistant Professor  
ADTR, Universidad Central del Caribe, 1989  
MPH, University of Puerto Rico, Medical Sciences Campus, 2000
- LÓPEZ, Roberto, MA, Instructor  
MA, Instructional Design and Educational Technology, Universidad del Sagrado Corazón, 1994
- MOSCOSO, José Rafael, TR, BSc, MPH, EdD, Associate Professor and Program Director;  
EdD, , University of Puerto Rico (UPR), Río Piedras Campus ,2005  
MPH, School of Public Health, Medical Science Campus, UPR, 1985  
BSc, Río Piedras Campus, UPR, 1979  
TR, College of Allied Health Professions, Medical Science Campus, 1978
- PÉREZ-OCASIO, Juan RT, MSEH; Adjunct Instructor;  
MSEH, Public Health School, University of Puerto Rico, Medical Science Campus, 2003  
BS in Biology, Rio Piedras Campus, University of Puerto Rico, 1990  
AS, Universidad Central del Caribe, 1992
- RODRÍGUEZ-NIEVES, Gladys, MA, Instructor  
MA,Ed., University of Phoenix, PR Campus, 2003
- RODRÍGUEZ-MARTÍNEZ, Ana Ivette, BSc, RD, MS, Assistant Professor  
MS, Universidad Sagrado Corazón, 2005  
BSc, University of Puerto Rico, Cayey Campus, 1988
- RUIZ-IZCOA, Elaine I., TR, MPH, Assistant Professor  
MPH, University of Puerto Rico, Río Piedras Campus, 1999  
TR, Universidad Central del Caribe, School of Medicine, 1993
-

SOLER-LAMBERTY, William, M.D., Adjunct Assistant Professor  
M.D. Univ. Autónoma, Doc. Republic, 1983  
BsSc., University of Puerto Rico, 1976

TOLEDO-CHARNECO, Porfirio, M.S., Adjunct Instructor  
MS, University of Puerto Rico, 1972