

UNIVERSITY OF PUERTO RICO, MEDICAL SCIENCES CAMPUS

*School of Medicine
Division of Graduate Studies*

Programs of Study	<p>The Division of Graduate Studies offers programs leading to the Master of Science (M.S.) and Ph.D. degrees in anatomy, biochemistry, microbiology, pharmacology and toxicology, and physiology. The Master of Science program normally takes two to three years of study, whereas the Ph.D. program may take four to five years. The required course credits for the Ph.D. program are completed during the first four semesters. At the end of the fourth semester or after completion of the required course credits, doctoral students must pass a qualifying examination. A graduate proposal is presented to the Thesis Committee, and completion of the degree is evaluated in the defense of the dissertation. Students participate in a wide array of seminars, workshops, and analogous activities scheduled by the various departments. The graduate faculty members are committed to interdisciplinary collaboration between basic and clinical scientists in order to broaden the exposure of the students. The diversity of the curriculum further permits students research and training in areas such as neurosciences, cardiovascular biology, toxicology, immunology and virology, molecular biology and pathogenesis, exercise physiology, and molecular genetics.</p> <p>The Division collaborates with the Department of Biology of the Rio Piedras campus in sponsoring an intercampus Ph.D. program in biology. The intercampus program allows students to benefit from the scientists, facilities, equipment, and course offerings of the two largest research institutions in the Caribbean.</p>
Research Facilities	<p>The Division's facilities are housed in the Medical Sciences Campus building, with ancillary facilities in the Institute of Neurobiology, the Caribbean Primate Center, the Cancer Center, the Center for the Study of Sexually Transmitted Diseases, the Center for Energy and Environmental Research, the Veterans Administration Hospital, the University Hospital, the University Pediatric Hospital, and affiliated hospitals. These facilities house research and teaching laboratories, faculty offices, lecture rooms, and specialized libraries. A central library serves the general needs of the academic community, and there are linkages with other local and national libraries. Each department has its own laboratories and office space for faculty members and students as well as specialized equipment. A system of core laboratories serves the needs of several departments, providing facilities for tissue culture, electron microscopy, flow cytometry and cell sorting, molecular biology, and state-of-the-art animal facilities, including BL3 areas for nonhuman primates.</p>
Financial Aid	<p>Graduate students can apply for financial assistance through teaching or research assistantships funded by the University, the National Institutes of Health (NIH), the National Science Foundation (NSF), the Ford Foundation, and the Department of Energy, among others.</p>
Cost of Study	<p>Tuition for Puerto Rico residents is \$75 per credit hour. Nonresidents from other parts of the United States pay the same tuition that Puerto Rico residents pay at their respective state universities. For international nonresidents, tuition is \$3500 per year, plus additional fees. An additional fee of approximately \$430 is necessary for all students to cover the construction and laboratory fees as well as medical insurance.</p>
Living and Housing Costs	<p>Housing costs vary widely in the vicinity of the Medical Sciences Campus. Apartments generally rent for between \$300 and \$600 per month. Prices for food and other articles are similar to those in major United States cities.</p>
Student Group	<p>Total enrollment at the Medical Sciences Campus is approximately 3,200 students. The Division of Graduate Studies has 49 Ph.D. and 32 M.S. students.</p>
Location	<p>The Medical Sciences Campus is located in a suburb of San Juan, Puerto Rico's capital. A great variety of cultural activities can be found in and around this city of more than 1.5 million residents. Large shopping malls, restaurants, condominiums, fine arts centers, and beaches are easily accessible by means of expressways and mass transportation facilities.</p>
The University and The Campus	<p>The University of Puerto Rico is a state-funded, public, coeducational institution of higher learning. The official objectives and guiding principles of the University guarantee equal opportunities to everyone. The institution comprises a system of University colleges, regional colleges, and other units located throughout the island. The Medical Sciences Campus is located on the grounds of the Puerto Rico Medical Center and grants degrees in all the principal fields of health sciences. It houses the Schools of Medicine, Dentistry, Pharmacy, and Public Health and the Division of the College of Allied Health Professions. The Cancer Center and the Center for Sexually Transmitted Diseases are located nearby. The Institute of Neurobiology is located in Old San Juan. The Caribbean Primate Center is located on an offshore island, but part of its colony is kept in a town close to San Juan.</p>
Applying	<p>Applicants should hold a bachelor's degree or its equivalent in biology, chemistry, or physics, with a grade index of at least 3.0 overall and in science subjects on a 4.0 scale. The applicant must also be proficient in English and Spanish and must submit scores on the GRE General Test and the Subject Test in biology, chemistry, or physics. Three letters of recommendation, two from professors in the major field and one from a professor in another department, must also be submitted. The graduate faculty members of the department concerned personally interview the student. The application deadline for admission in January is September 15 and for admission in August is February 15. Requests for more information and application forms should be addressed to the Division of Graduate Studies.</p>
Correspondence and Information	<p>Associate Dean for Biomedical Sciences and Director of Graduate Studies School of Medicine University of Puerto Rico Medical Sciences Campus P.O. Box 365067 San Juan, Puerto Rico 00936-5067 Phone: 787-758-4639 Fax: 787-767-8693 Web site: http://medweb.rcm.upr.edu/gradstudies/</p>

University of Puerto Rico, Medical Sciences Campus

THE FACULTY AND THEIR RESEARCH

University of Puerto Rico, Medical Sciences Campus, has been abbreviated in the listings below as PR-MS.

Anatomy

Rosa E. Blanco, Professor; Ph.D., Cambridge, 1987. Nerve regeneration and visual system.
John G. H. Cant, Professor and Chairman; Ph.D., California, Davis, 1977. Functional morphology and locomotion of mammals.
Donald C. Dunbar, Professor; Ph.D., Oregon, 1980. Functional morphology of mammals; morphology, biomechanics, and neural control of locomotion and posture.
Juan Carlos Jorge, Assistant Professor; Ph.D., Brandeis, 1997. Behavioral neuroendocrinology; steroid effects in synaptic physiology, neural structure, and behavior in vertebrates.
Robert W. Kensler, Professor; Ph.D., SUNY at Stony Brook, 1978. Macromolecular structure of muscle thick filaments.
Earl Kicliter, Professor; Ph.D., SUNY Upstate Medical Center, 1973. Structure and function of vertebrate visual systems.
Nidza Lugo, Professor; Ph.D., PR-MS, 1982. Mammalian visual system; expression of neuroactive substances in the circadian visual system.
Mark W. Miller, Professor; Ph.D., Connecticut, 1980. Cellular basis of natural behavior patterns in invertebrates; neuropeptides.
N. L. Pérez-Acevedo, Assistant Professor; Ph.D., Puerto Rico, 2001. Synaptic physiology and cellular basis of emotional memory.
G. Dave Singh, Associate Professor; Ph.D., Bristol, 1992; D.D.Sc., Dundee (Scotland), 2000. Clinical craniofacial morphometrics; modeling in relation to craniofacial growth disorders.
Maria A. Sosa, Associate Professor; Ph.D., Florida, 1993. Synaptic physiology and neural basis of aggressive behavior in crustaceans.
Jean E. Turnquist, Professor; Ph.D., Pennsylvania, 1975. Skeletal aging and functional morphology of nonhuman primates.

Biochemistry

Dipak K. Banerjee, Professor; Ph.D., Calcutta, 1976. Cell signaling and angiogenesis; dolichol cycle and cell-cycle dynamics; glycoprotein biochemistry; catecholamine homeostasis.
Carmen L. Cadilla, Professor; Ph.D., Tennessee, Knoxville, 1986. Hormonal regulation of gene expression; genetic diseases affecting Puerto Ricans.
Elsa M. Cora, Professor; Ph.D., PR-MS, 1984. Molecular and genetic alterations during tumorigenesis.
Sixto García-Castañeras, Professor; M.D., Complutense (Madrid), 1967; Ph.D., PR-MS, 1976. Mechanisms of lens aging and cataract formation; redox active components in aqueous humor; oxidative stress; protein biochemistry.
Braulio D. Jiménez, Professor; Ph.D., Puerto Rico, Mayagüez, 1981. Molecular and environmental toxicology.
Alan Preston, Professor; Ph.D., Purdue, 1971. Nutritional epidemiology.
Carlos Basilio Reyes, Professor; M.D., Chile, 1956. Modulation of eukaryotic transcription by stressor agents.
José R. Rodríguez-Medina, Professor and Chairman; Ph.D., Brandeis, 1986. Function of myosin II in yeast.
José F. Rodríguez-Orengo, Professor; Ph.D., Texas A&M, 1989. Biochemical and pharmacological processes of antiretroviral and anticancer drugs.
Barbara H. Zimmermann, Associate Professor; Ph.D., Michigan, 1988. Enzyme biochemistry; biosynthesis of pyrimidines, pyrimidine metabolism in *Toxoplasma gondii*.

Microbiology and Medical Zoology

Edna E. Aquino, Assistant Professor; Ph.D., PR-MS, 2000. Serpentine receptor trafficking and lipid raft membrane microdomains in glial and lymphoid cells.
Benjamin Bolaños, Associate Professor; Ph.D., Duke, 1983. Pathobiology of *Cryptococcus neoformans* and host response in cryptococcosis.
Ana María Díaz, Associate Professor; D.Sc., Buenos Aires, 1981. Allergy to mites hybridoma and monoclonal antibody technologies.
Ana M. Espino, Assistant Professor; Ph.D., Institute of Tropical Medicine (Havana), 1997. Characterization of T- and B-cell epitopes of multiple antigenic peptides for a *Fasciola Schistosoma* cross-reactive vaccine.
Wieslaw J. Kozek, Professor; Ph.D., Tulane, 1969. Parasitology: antigenicity and ultrastructure of medically important nematodes, parasite-host communication, and *Wolbachia* symbionts of filariae.
Edmundo N. Kraiselburd, Professor; Ph.D., SUNY at Buffalo, 1972. Design and evaluation of DNA vaccines against human and simian immunodeficiency viruses.
Julio A. Lavergne, Professor; Ph.D., Texas Health Science Center at San Antonio, 1979. Immune functions and pathogenesis of HIV infections; mechanisms of apoptosis in HIV-infected cells.
Idali Martínez Martínez, Associate Professor; Ph.D., Rutgers, 1995. Development of dengue DNA vaccine.
Lloyd M. Meléndez, Professor; Ph.D., Emory, 1990. Immunology of human immunodeficiency virus; HIV tropism and role of placenta in vertical transmission; monocyte immunity and HIV dementia.
Iraida E. Robledo, Associate Professor; Ph.D., Puerto Rico, 2000. Antimicrobial resistance in gram-positive cocci and in *Helicobacter pylori*; bacteria; genotypic characterization of ESBLs.
Nuri Rodríguez-del Valle, Professor; Ph.D., PR-MS, 1978. Microbial physiology; biochemical aspects of fungal dimorphism.
Adelfa E. Serrano, Professor; Ph.D., Georgia, 1987. Molecular biology and immunology of parasites, malaria; molecular mechanisms of drug resistance in *Plasmodia*; molecular diagnosis of parasitic infections.
Luis J. Torres-Bauzá, Professor; Ph.D., PR-MS, 1980. Microbial genetics; plasmid-mediated resistance to antibiotics (*Neisseria gonorrhoeae*); *Candida albicans* dimorphism.
Guillermo J. Vázquez, Professor and Chairman; M.D., Jefferson Medical, 1974. Therapy of HIV/AIDS and its complications; antimicrobial resistance; *Helicobacter pylori*.

Pharmacology and Toxicology

Sylvette Ayala, Assistant Professor; Ph.D., Texas, 1998. Molecular biology; biochemistry; aging and oxidative stress.
Adriana Báez, Professor; Ph.D., Madrid, 1977. Molecular basis of differentiation; induction by antitopoisomerase drugs; molecular epidemiology of head and neck cancer.
Walmor C. DeMello, Professor and Chairman; M.D., 1955, Ph.D., 1964, Rio de Janeiro. Intercellular communication: variation in junctional permeability.
Emma Fernández-Repollet, Professor; Ph.D., PR-MS, 1979. Role of T-cells in diabetes mellitus.
Diógenes Herreño-Sáenz, Associate Professor; Ph.D., PR-MS, 1986. Toxicology, chemical carcinogenesis, biomarkers, and risk assessment.
José G. Ortiz, Professor; Ph.D., Connecticut, 1982. Modulation of neurotransmitter uptake and release in experimental neurological models.
Philip C. Specht, Associate Professor; Ph.D., SUNY Upstate Medical Center, 1972. Computer simulation of pharmacokinetics; contagious diseases.
Susan Corey Specht, Associate Professor; Ph.D., SUNY Upstate Medical Center, 1971. Na pump studies.

Physiology

Jaime Bernstein, Professor; Ph.D., Toronto, 1974. Mechanisms of ion transport across biological membranes.
Jonathan Blagburn, Associate Professor; Ph.D., Thames Polytechnic (London), 1982. Physiology of invertebrate ganglia.
María José Crespo, Associate Professor; Ph.D., PR-MS, 1993. Vascular alterations in cardiovascular disease.
Nelson Escobales, Professor and Chairman; Ph.D., PR-MS, 1982. Membrane physiology.
Carlos Jiménez, Associate Professor; Ph.D., New Mexico, 1986. Neurophysiology.
Damien Kuffler, Associate Professor; Ph.D., UCLA, 1975. Nerve regeneration: how axons find their target.
Jorge D. Miranda, Associate Professor; Ph.D., Baylor College of Medicine, 1996. Axonal regeneration in the adult spinal cord.
Miguel A. Rivera Pérez, Professor; Ph.D., Pittsburgh, 1978. Molecular physiology of exercise.
Guido Santacana, Professor; Ph.D., PR-MS, 1982. Changes in the physiology and pharmacology of airway smooth muscle that are induced by mechanisms of temperature and drugs of abuse.
Annabell C. Segarra, Professor; Ph.D., NYU, 1988. Neuroendocrinology of the reproductive system; estrogen, opioids, and cocaine sensitization.
Walter I. Silva, Professor; Ph.D., NYU, 1986. Cellular and molecular physiology of vascular and brain cells.
Carlos A. Torres, Assistant Professor; Ph.D., Texas Medical Branch, 1996. Repair of AP sites and aging in *Saccharomyces cerevisiae*.
Conchita Zuazaga, Professor; Ph.D., Minnesota, 1974. Electrical excitability of biological membranes.