

ABOUT US

Our Mission

To educate students who will improve the quality of life of the society, through interdisciplinary research that will advance scientific knowledge in pharmaceutical sciences

THE FACULTY

Our faculty is multidisciplinary in research exploring the whole value chain of pharmaceuticals: including drug discovery & development, pharmaceutical engineering, material sciences, formulation, clinical studies.

OUR FACILITIES

Besides state-of-the-art teaching facilities, the research laboratories of our faculty are located in the Molecular Sciences Research Center, Comprehensive Cancer Center, and the Main Research Building Guillermo Arbona Irizarry.

THE PROGRAM

The Ph.D. program provides students with a comprehensive understanding of the discovery, development, manufacturing of pharmaceutical and their involvement in the treatment of disease. After completion of the core courses, students will enter a mentor driven, individualized curriculum to further their development in one of three tracks to become leaders and Innovators in Pharmaceutical Sciences.

EMPLOYMENT OPPORTUNITIES

Students graduating from the program possess vivid employment opportunities in industry, regulatory, and academia.



DOCTOR OF PHILOSOPHY IN PHARMACEUTICAL SCIENCES

SCHOOL OF PHARMACY
MEDICAL SCIENCES CAMPUS • UNIVERSITY OF PUERTO RICO

CONTACT US

Assistant Dean for Research and Graduate Program

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Ph.D.

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60 CREDITS PROGRAM

• Core courses	22 credits
• Specialized courses	17 credits
• Research	18 credits
• Thesis	3 credits

ADMISSION REQUIREMENTS

- File an application for admission to the School of Pharmacy, PhD Program, to be processed by the Pharmacy Graduate Application Service (PharmGrad) <https://www.pharmgrad.org>. In addition, submit an application for admission to the Medical Sciences Campus at <https://solicitud.upr.edu>.
- B.S. or M.S. degree from an internationally recognized institution, ideally with a major in: Biology, Biochemistry, Chemistry, Chemical Engineering, Cellular and Molecular Biology, Pharmacy or Pharmaceutical Sciences. Students with degrees in other related fields will be evaluated prior to the application by contacting the Assistant Dean of Graduate Programs.
- Required Courses: Organic Chemistry, Calculus I
- Recommended Courses: Biology, Biochemistry, Genetics, Physics.
- Average (GPA) of at least 3.00 (on a scale of 4.00)
- Proficiency in English
- Three letters of recommendation, that follow the Graduate Program established format. Letters should be requested from university professors who are able to comment on your qualifications for graduate studies.
- Submit a statement of purpose (essay) that includes career goals and reasons for interest in the program, research experience, accomplishments and awards or publications, if any (max. 800 words).
- Interview by the Graduate Committee.

The student will select one of the following three tracks:

MEDICINAL CHEMISTRY & PHARMACOGNOSY

The Medicinal Chemistry & Pharmacognosy track focuses on the discovery of potential novel drugs that function via interaction with biologically relevant proteins that are involved in human diseases. This will be accomplished via the synthesis of new small molecule compounds, or via discovery and/or modification of biologically active natural products, when applicable supported by computational tools for optimization of activities. This track is directed towards students that are interested to apply basic chemistry knowledge towards the development of potential clinical therapies.

Courses

- Advanced Medicinal Chemistry & Pharmacognosy I
- Advanced Molecular Biochemistry
- Principles of Research Design
- Advanced Medicinal Chemistry & Pharmacognosy II
- Advanced Methods and Synthetic Organic Chemistry
- Seminar III & IV
- Research
- Electives

MOLECULAR PHARMACOLOGY & PHARMACOGENOMICS

The Molecular Pharmacology & Pharmacogenomics track focuses on the integration of biochemistry and genetics with pharmacology and pharmacokinetics. The focus will be on the investigation and understanding of the underlying molecular mechanisms of diseases, in order to be able to design new treatment strategies. This will include the application of pharmacogenetic and pharmacogenomic principles, which are the basis for the development of the upcoming field of personalized medicine. This track is directed towards students that are interested in understanding underlying principles of diseases and/or investigate direct clinical applications based on genetic predisposition of the patients.

Courses

- Advanced Pharmacology I
- Advanced Molecular Biochemistry
- Principles of Research Design
- Advanced Pharmacology II
- Pharmacogenomics/ Pharmacogenetics
- Seminar III & IV
- Research
- Electives

PHARMACEUTICS & DRUG DELIVERY

The Pharmaceutics & Drug Delivery track focuses on the design, development and optimization of dosage forms for small and large molecule drugs. Process development of Quality by Design (QbD) manufacturing procedures, combined with advanced Process Analytical Technologies (PAT) has become highly relevant to the pharmaceutical industry. Current research evolves around conducted materials sciences, nanotechnology, crystallization, drug formulation and delivery. Applying of physical and analytical chemistry, and engineering systems. This track is directed towards those interested in advanced manufacturing of active pharmaceutical ingredients and novel formulation approaches for final drug products.

Courses

- Advanced Pharmaceutics and Pharmacokinetics
- Pharmaceutical Engineering
- Principles of Research Design
- Pharmaceutical Formulation and Drug Delivery
- Regulatory and Manufacturing Practice
- Seminar III & IV
- Research
- Electives