

## FACULTY

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## GRADUATE STUDIES

For further information about the research programs, call the Department of Pharmacology at **(787) 766-4441**

or the Graduate Coordinator **(787) 758-2525 ext. 1300**

Email: [ProgramPharmTox.RCM@upr.edu](mailto:ProgramPharmTox.RCM@upr.edu)

Or visit our webpage at <http://md.rcm.upr.edu/pharmacology>

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UPR  
SCHOOL OF MEDICINE  
PHARMACOLOGY  
TOXICOLOGY





## PHARMACOLOGY & TOXICOLOGY

PHARMACOLOGISTS are scientists with the knowledge to investigate disease mechanisms and to discover and develop drugs that may be useful in treating disease. The Department of Pharmacology and Toxicology fosters multidisciplinary training leading to the Master of Science (MS) and Doctor of Philosophy (PhD) degrees. Students develop a broad foundation in cell biology, molecular biology, physiology, statistics, basic principles of pharmacology, cell signaling and the cellular and systemic actions of drugs, as well as statistics and research ethics. They develop skills in analysis and criticism of the scientific literature, oral presentation, write a scientific research proposal and publish in the scientific literature. PhD students will defend their dissertations in the fifth year. Students in the MS program develop mastery of the techniques of pharmacology research, including the completion of a short research project, and defend their theses in their third year. MS and PhD students complete the same core courses. Both MS and PhD graduates will be prepared to work in teaching, research, private industry, non-profits and public service. Our mission is to train graduate students to become highly regarded scientists and scholars in the area of Pharmacology.

### GRADUATE PROGRAM DESCRIPTION

Ph.D. students must pass 45 course credits and pass a comprehensive qualifying examination and complete dissertation research. Duration: Five (5) years. M.S. students: 24 course credits and thesis research. Duration: Three (3) years. Required courses for both degrees include Biochemistry, Physiology, Pharmacology, Biostatistics, and Seminar.

## Areas of Expertise

Molecular genetics, epidemiological and clinical Characteristics of Head and Neck Cancer

3-D Printing as an Educational Biomedical Tool

Pharmacogenomics\*

Neuroactive properties of natural products\*\*

Chemical Carcinogenesis, Biomarkers, Toxicology and Risk Assessment

Mitochondrial DNA repair and mitochondrial bioenergetics

in aging and Huntington's Disease\*\*

Mechanisms of insulin resistance and cognitive impairment in HIV\*\*

Neuroprotection and Blood-Brain Barrier manipulation\*\*

Cardiac electrophysiology,  
Calcium handling and Arrhythmias

\* External Collaboration

\*\* Accepting students for academic year 2022-2023



## Admissions Requirements:

1. Applicants must fulfill all admission requirements of the Graduate Division of the Medical Sciences Campus.
2. Applicants should have completed a B.S. or B.A. degree with an undergraduate major in Biology, Chemistry of Pharmacy. Applicants with other majors may also be considered.
3. Applicants must have a general grade point average of not less than 3.00 on a 4.00 scale.
4. Required undergraduate courses include calculus, general chemistry, organic chemistry, general physics and general biology.
5. The deadline to apply for admission is December 1<sup>st</sup>.

## Cost of Study

Several forms of economic assistance are available, such as university fellowships for research or teaching, and a variety of fellowships from federal and private research agencies.

