



Education at URMC – Program Features



Program: Toxicology

Program Director: B. Paige Lawrence

Program Coordinator: Christine Gramza

Current Faculty Members: 45

Degree offered: Ph.D. in Toxicology

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About the Program

Our program offers world-class training in toxicology research. We are ranked in the top 5 toxicology graduate programs in the nation, according to the National Academy of Sciences NRC Assessment of Graduate Education, 2010. Training opportunities in our program span both basic and clinical research to discover how the environment affects human health, and how to use this information to improve individual and community health. All Ph.D. students are given a stipend to support living expenses for the duration of their studies.

Why get a PhD in Toxicology

The environment has a tremendous impact on our health and overall well being. However, precisely how environmental factors affect our health, and how negative consequences can be prevented or overcome remain largely unknown. An advanced degree in toxicology is ideal for someone who is excited about science and wants to directly apply new discoveries in basic biology to a better understanding of how the environment influences the development, progression, and prevention of human diseases and disorders.

What makes us Unique

Science in the 21st century is highly multidisciplinary, and faculty in our program lead the nation in multi-dimensional, interdisciplinary research, tackling a spectrum of problems that relate to global environmental health issues. Students in our program have the opportunity to conduct state-of-the-art research on topics such as:

- **Neurotoxicology** - How certain pollutants affect risk for behavioral disorders and contribute to neurodegenerative diseases, such as Parkinson's and Alzheimer's disease
- **Cardiovascular and Pulmonary Toxicology** - How common environmental exposures affect the development of asthma, chronic obstructive pulmonary disease, and other lung diseases
- **Osteotoxicology** - How environmental chemicals alter bone formation and healing, contribute to osteoporosis and osteoarthritis
- **Nanotoxicology/Nanomedicine** - How nanomaterials get distributed in living systems, and how they may modify normal physiological processes
- **Developmental Toxicology** - How early life exposures (in utero or shortly after birth) set the stage for disease later in life, including how these exposures alter epigenetic regulatory mechanisms
- **Immunotoxicology** - How chemical exposures may contribute to poorer ability to fight infections and increase immune-mediated diseases
- **Stem cell biology** - How chemicals affect stem cell programming and function, leading to alterations in health or disease susceptibility

What career opportunities are available with a PhD in Toxicology?

A PhD in Toxicology from the University of Rochester opens doors to many exciting and rewarding career options. Our alumni hold leadership positions in academia, research institutes, government agencies, and pharmaceutical and chemical corporations. Some new PhD graduates obtain postdoctoral fellowships to expand their training, while other graduates move directly into positions within the government (e.g., EPA, FDA), private research institutes, or the pharmaceutical and chemical industry. Moreover, we have a vibrant network of alumni across the nation. Networking opportunities with our alumni are actively fostered, and they provide additional resources for mentoring, and career development during and after graduate school.

What type of support will I have while in the program?

The Toxicology PhD program is administered by the Department of Environmental Medicine. Faculty within the Department and in 13 other departments at the University of Rochester are available to mentor doctoral students. The Department also administers a National Institute of Environmental Health Science (NIEHS) Center, and a federally funded Toxicology Training Program. These bring additional resources that further enrich the overall environment for students in our Toxicology PhD program, such as research retreats, funds to travel to scientific conferences, opportunities to hone teaching skills and get involved in community outreach and science education.