Toxicology

The Toxicology Program provides course work and research training to prepare prospective toxicologists and environmental health scientists for careers in academia, government, and industry. Research in the program spans an array of topics ranging from the molecular to population level consequences of toxicant exposure. Areas of research excellence within the program include elucidating relationships among cell signaling processes and stressor-induced disease and toxicity, establishing mechanisms of system-specific toxicity, using physiological and genomic approaches to understand differences in species and individual susceptibility to environmental contaminants, and unraveling gene-environment interactions. Some specific research areas include: apoptosis, endocrine disruption, trace metal bioaccumulation and detoxification, oxidative stress/gene regulation/cell toxicity, asthma and lung fibrosis, cancer and mutagenesis, ecotoxicology, developmental abnormalities, chemical exposure assessment and environmental epidemiology. Some examples of the types of environmental agents that are being investigated include chemical carcinogens, trace metals, pesticides, particulates metals, endocrine disruptors, nanoparticles and UVB radiation.

Master of Science Degree Requirements

The M.S. is a research-oriented degree requiring a minimum of 30 credit hours and a written thesis. At least 20 credit hours must be graduate-level courses and a core curriculum is required.

Master of Toxicology Degree Requirements

The MTOX degree is a non-research degree designed for those interested in pursuing non-research careers in toxicology and environmental health science, and/or working professionals seeking to further their education and advance their careers. To accommodate working professionals the MTOX degree can be pursued on a part-time basis. A minimum of 30 credit hours is required, with at least 14 credit hours in toxicology courses.

Doctoral Degree Requirements

The Ph.D. program is designed to train students to become independent scholars capable of conducting unsupervised and original research. Students enroll in a core curriculum similar to that of the M.S. degree and additional courses as determined by his/her advisory committee. Normally a total of 72 credit hours is required, with the majority of these credits being dissertation research. Students must pass both a written and oral preliminary exam prior to advancing to Ph.D. candidacy. A doctoral dissertation presenting the students original research is written and defended in a final oral examination.

Student Financial Support

Financial assistance is available for qualified applicants through traineeships, fellowships, teaching assistantships and research assistantships.

Other Relevant Information

Students pursuing either the M.S. or Ph.D. degree may elect to specialize in General Toxicology, Environmental Toxicology, or Molecular and Cellular Toxicology. More details can be obtained on the Environmental and Molecular Toxicology web site.

Toxicology Program Website (http://tox.sciences.ncsu.edu/)

Admission Requirements

Prospective students should have a strong background in the biological and physical sciences with a minimum undergraduate grade point average of 3.0 (on a 4.0 scale) International students whose primary language is not English must submit either TOEFL scores (of at least 80), IELTS scores with an overall band of at least 6.5, or provide a Duolingo score of 110 or better. All applications are reviewed by an admissions committee.

Applicant Information

- **Delivery Method:** On-Campus
- **Entrance Exam:** None
- **Interview Required:** None

Application Deadlines

- **Fall:** December 31

Degrees

- Toxicology (MR) (http://catalog.ncsu.edu/graduate/sciences/toxicology/toxicology-mr/)
- Toxicology (MS) (http://catalog.ncsu.edu/graduate/sciences/toxicology/toxicology-ms/)
- Toxicology (PhD) (http://catalog.ncsu.edu/graduate/sciences/toxicology/toxicology-phd/)
- Toxicology (Minor) (http://catalog.ncsu.edu/graduate/sciences/toxicology/toxicology-minor/)

Faculty

Professors

Ronald E. Baynes

Scott Belcher

James C. Bonner

Matthew Breen

David Buchwalter

William Gregory Cope

Suzanne Fenton

Jane A. Hoppin

Cathrine Hoyo

Detlef R. Knappe

Seth William Kullman, *Director, T32 Training Grant*

Carolyn Jane Mattingly

John Meitzen

Nanette Nascone-Yoder

Elizabeth Guthrie Nichols

Jun Ninomiya-Tsuji

Emilie Francesca Rissman

Richard M. Roe

Yogesh Saini

Robert Charles Smart

Yoshiaki Tsuji

Hong Wang

Fred Andrew Wright

Jeffrey A. Yoder

Associate Professors

David Lawrence Aylor

Michael Anthony Cowley

Shobhan Gaddameedhi

Kurt Marsden

Antonio Planchart

Yihui Zhou

Assistant Professors

Eric Robert Brooks

Natalia Duque-Wilckens

Jonathan Hall

Nadine Kotlarz

Maria L. Rodgers

Practice/Research/Teaching Professors

David Allen Skaar

Elizabeth E. A. Thompson

Adjunct Professors

Heather Patisaul

David Reif

Adjunct Associate Professor

John S. House

Emeritus Faculty

Gerald LeBlanc