

# INTERDISCIPLINARY TOXICOLOGY (ITOX)

## ITOX 5103 Biochemical and Molecular Toxicology

**Prerequisites:** Graduate standing; consent of instructor.

**Description:** In-depth overview of biochemical and molecular mechanisms of interactions between exogenous chemicals and living systems. Transport, distribution, elimination and alteration of exogenous chemicals within the body and mechanisms whereby exogenous chemicals disrupt biochemical processes critical for cell/organ/organismal integrity and function. Same course as VBSC 5103 and CBSC 5103.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Graduate

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

## ITOX 5203 Bioinformatics

**Prerequisites:** MICR 3033 or BIOC 3653 or equivalent.

**Description:** Fundamental concepts of biological sequence information and inferential techniques to assign structure, function, and evolutionary relationship among genes and proteins. No prior programming necessary, but familiarity with computers assumed. May not be used for degree credit with MICR 4203. Same course as MICR 5203.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Graduate

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

## ITOX 5213 From Molecules to Ecosystems

**Prerequisites:** Graduate standing; consent of instructor.

**Description:** An integrated systems-based approach to toxicology from molecular, cellular, organ, organismal, and ecological perspective. Same course as CBSC 6213.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Graduate

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

## ITOX 5282 Methods of Forensic Science

**Description:** Advanced-level laboratory course in which students apply knowledge from earlier course work in a hands-on setting and employ fundamental techniques and methods related to forensic biology, forensic microbiology, forensic pathology, and forensic toxicology. Same course as FRNS 5282.

**Credit hours:** 2

**Contact hours:** Lab: 4 Contact: 4

**Levels:** Graduate

**Schedule types:** Lab

**Department/School:** Dean of Veterinary Med

## ITOX 5303 Organismal Ecotoxicology

**Prerequisites:** Consent of instructor.

**Description:** Comparative study of the major groups of environmental contaminants (e.g. heavy metals, PCB's, insecticides) and an introduction to the basic theories, principles and techniques associated with the study of contaminant fate and effects on organisms. Same course as ZOOL 4303 and ZOOL 5303.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Graduate

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

## ITOX 5343 Population and Community Toxicology

**Prerequisites:** Course in ecology strongly recommended.

**Description:** Examines the exposure of animals to environmental contaminants and resulting effects at the individual through community level. The dynamic nature of exposure to contaminants will be of particular interest in this course. For example, how do the natural history traits of a species either protect it from exposure, or enhance its potential for exposure to contaminants? Topics will range from the historical perspectives to ecotoxicology to study design and risk assessment. Same course as ZOOL 5343.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Graduate

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

## ITOX 5363 Principles of Toxicology

**Prerequisites:** A course in chemistry and physiology.

**Description:** Basic concepts in toxicology such as chemical partitioning, dose response, toxicokinetics, toxicodynamics, and bioavailability. Particular focus on the molecular and cellular mechanisms of toxicity of a few representative natural and man-made compounds. Case studies used to understand real-life scenarios. No credit for students with credit in BIOL 4363. Same course as BIOL 5363.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Graduate

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

## ITOX 5423 Techniques in Environmental Toxicology

**Prerequisites:** Organic chemistry or consent of instructor.

**Description:** Practical understanding of modern techniques used to quantify exposure and effects of environmental toxicants. Laboratory topics include gas chromatography, HPLC, atomic absorption spectroscopy, immunoassay, and toxicity testing. Same course as ZOOL 5423.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Graduate

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**ITOX 5523 Forensic Toxicology**

**Description:** Introduction of fundamental aspects of forensic toxicology and emphasis on major subfields of postmortem forensic toxicology, human performance toxicology and forensic drug testing. Examination of methodologies and analyses associated with these three major subfields. Same course as FRNS 5523.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Graduate

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**ITOX 5543 Advanced Forensic Toxicology**

**Prerequisites:** FRNS 5523.

**Description:** Familiarizes the student with advanced aspects of forensic toxicology in view of current forensic toxicological trends. Covers risk assessment principles, factors in pharmacokinetics, weapons of mass destruction, and integrating concepts with current applications. Same course as FRNS 5543.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Graduate

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**ITOX 5801 Nonclinical Drug Development**

**Prerequisites:** Graduate standing and consent of instructor.

**Description:** This course will cover the basic to highly-regulated concepts in nonclinical drug development including pharmacology, pharmacokinetics, and toxicology, along with topics in chemistry manufacturing and controls. Same course as CBSC 5801.

**Credit hours:** 1

**Contact hours:** Lecture: 1 Contact: 1

**Levels:** Graduate

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**ITOX 5802 Experimental Principles and Approaches**

**Prerequisites:** Graduate standing and consent of instructor.

**Description:** A review of experimental principles and approaches essential for design, conduct and analysis of research. Same course as VBSC 5802 and CBSC 5802.

**Credit hours:** 2

**Contact hours:** Lecture: 2 Contact: 2

**Levels:** Graduate

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**ITOX 5902 Toxicology of Chemical Warfare and Chemical Terrorism**

**Prerequisites:** Graduate standing and consent of IOR.

**Description:** The course will review the history and current issues related to the use of chemicals as agents of warfare and terrorism. Students will participate in weekly roundtable lectures/discussions and review publications related to various toxicological issues surrounding these chemicals. Same course as CBSC 5902.

**Credit hours:** 2

**Contact hours:** Lecture: 1 Contact: 2 Other: 1

**Levels:** Graduate

**Schedule types:** Discussion, Combined lecture & discussion, Lecture

**Department/School:** Dean of Veterinary Med

**ITOX 6223 Xenobiotic Disposition**

**Prerequisites:** Graduate standing; consent of instructor.

**Description:** Discussion of xenobiotic absorption, distribution, metabolism, and excretion. Analysis of xenobiotic concentration-time data using pharmacokinetic software. Same course as CBSC 6223.

**Credit hours:** 3

**Contact hours:** Lecture: 2 Contact: 3 Other: 1

**Levels:** Graduate

**Schedule types:** Independent Study, Lecture, Combined lecture & IS

**Department/School:** Dean of Veterinary Med

**ITOX 6543 Environmental Toxins of the Brain**

**Prerequisites:** Consent of instructor.

**Description:** Introduces the fundamental aspects of neurotoxicology using both cellular and molecular approaches in neurochemistry and toxicology. Same course as BIOM 6543.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Graduate

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**ITOX 6820 Selected Topics in Biochemistry**

**Prerequisites:** BIOC 5853.

**Description:** Recent developments in biochemistry. Subject matter varies from semester to semester; students should inquire at the department office before enrolling. Same course as BIOC 6820. Offered for variable credit, 1-3 credit hours, maximum of 15 credit hours.

**Credit hours:** 1-3

**Contact hours:** Lecture: 1-3 Contact: 1-3

**Levels:** Graduate

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med