



# BIOLOGICAL SCIENCES 313

## Environmental Toxicology

### Spring 2011 (1111)

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### COURSE PREREQUISITES

MBB231<sup>1</sup>

### COURSE DESCRIPTION

Environmental toxicology is an interdisciplinary science which examines the adverse effects of physical or chemical agents on individual organism in the environment. This course introduces the students to: (a) the basic principles of toxicology, and (b) the fates and toxic actions of environmental pollutants in humans.

### COURSE OUTLINES

- (1) Introduction to toxicology
  - Basic principles of toxicology: ADME of chemicals, chemical/chemical interactions, dose and dose response, mechanisms of toxic actions, toxic agents and antidotes
  - Toxic effects: introduction to organ toxicity
  - Organ system toxicology: lung, blood, nervous system, skin kidney, and liver
- (2) Toxicity testing
  - The different toxicity testing methods (acute, sub-chronic, and chronic tests)
  - Gene mutation and toxicity tests
  - Chemical carcinogenesis - carcinogenicity and teratogenicity tests
  - Limitation of toxicity data
- (3) An introduction to human health risk assessment: the methods used and case studies
- (4) Toxic effects, chemical fate and transport of pollutants in the environment including
  - Pesticides
  - Organic solvents
  - Metals
  - Endocrine disrupting compounds
  - Chlorinated dioxins and furans
  - Food toxins
  - Natural toxins

### MARK DISTRIBUTION

Tutorials	10%
Midterms	30%
Final	60%

<sup>1</sup>Prerequisite Minimum Grade Requirement: Unless stated, a grade of C- or better is required on all Prerequisite BISC & MBB courses.