

University of Manitoba, Department of Geography and Environment

GEOG 7010 Environmental Toxicology

Course Outline, Fall Term 2018

Instructor: Dr. Charles S. Wong, University of Winnipeg 2RC022, 786-9335,
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Lectures: As arranged (3 hours/week).

Office hours: by appointment. If you drop by, I will help you if I'm not busy.

Prerequisites: 1 year organic chemistry, 1 term thermodynamics, or permission of instructor.

Course description:

This course provides an understanding of how and why chemicals may damage humans and other organisms. A basic understanding of principles of toxicology and environmental chemical exposure (i.e., ecotoxicology) is presented, followed by detailed analysis of the physiological and/or biochemical mechanisms by which toxicants cause effects, and of the body's defenses against toxicants. Toxicological modeling and environmental risk assessment are introduced. Objective research from the relevant scientific literature will be studied to highlight topics of study and demonstrate case studies.

Course materials:

- Textbook: CH, Sibly RM, Hopkin SP, Peakall DB (2012) *Principles of Ecotoxicology*, 4th ed., **Required.**
- Lecture notes, additional readings and handouts, and assignments: These will be handed out in class and/or available electronically.

Grading:

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| • Assignments: | 5% |
| • Midterm exam: | 20% |
| • Review term paper: | 30% |
| • Guest mini-lecture: | 15% |
| • Final exam: | 30% |

Topics to be covered (some variation may be possible):

- Course introduction
- Introductory framework for environmental toxicology (e.g., dose-response correlations, toxicity testing and methods)
- Introductory framework of ecotoxicology (e.g., exposure processes, biomarkers)
- General principles of toxicology (e.g., absorption/distribution/metabolism/excretion, effects on organisms)
- Molecular and cellular mechanisms of toxicology
- Effects of selected xenobiotic chemical classes
- Exposure and risk assessment

Academic Integrity:

It is your responsibility to acquaint yourself with the University Policy on plagiarism, cheating, and examinations. The copying of another student's assignment or the submission of the same material for two or more courses is plagiarism. Plagiarism and any other form of cheating in examinations, labs, or term tests are subject to serious academic penalty. The full definition of plagiarism and the possible penalties associated with it can be found in the Calendar. Proper citation must be given to outside sources of information and material.