

**University of Guelph
College of Biological Science
Department of Integrative Biology**

COURSE OUTLINE
BIOL*4500 Natural Resource Policy Analysis - Winter 2014

INSTRUCTOR: Stephen S. Crawford
Room 2474, Science Complex
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CLASSES: 1300h-1420h Tuesday CRSC 116
1300h-1420h Thursday CRSC 116

Course Description

This course explores the role of science in management decision-making for Canadian renewable natural resources including legal, political, social and economic factors. Special emphasis is placed on the design and application of quantitative models as essential resource management tools. The course will rely on active learning by students working in collaborative groups, leading to deeper understanding of the real-world issues while developing professional skills that are essential for the interface between science and management.

Learning Objectives

The following statements identify the *significant learning* that the students will be able to *demonstrate* by the end of this course:

Knowledge Objectives:

- Identify the components of Acts/Policies/Guidelines that determine how natural resources are managed in Canada;
- Interpret the explicit and implicit roles of science in the development of management programs;
- Prioritize the key uncertainties (natural or social) that science must address for effective management;
- Evaluate current management programs on the basis of interaction between science, models and management decision-making;
- Create a vision of natural resource management that would provide Canada with an optimal balance of non-human and human needs.

Skill Objectives:

- Assemble key science-related concepts from complex legal and policy and management documents into an understandable form;
- Refine the logical structure of management plans to evaluate the role of science and models in decision-making;
- Adapt recommendations from primary and technical literature to improve effectiveness of science and modeling in management programs;
- Combine ideas from Local, Indigenous and Science knowledge systems to improve design of management programs.

Attitude Objectives:

- Listen to what student classmates say effectively enough to return their ideas and opinions in your own words;
- Assist team-mates in heterogeneous groups to learn the assigned knowledge and skills;
- Value the diversity of cultural experience and opinion; protecting differences and seeking similarities;
- Synthesize the complex legal, political, social and economic factors in a manner that specifically addresses the fundamental objectives of renewable resource management in Canada;
- Internalize the values and skills of this course in a way that significantly improves your ability help real people deal with real management issues.

By satisfying these objectives, this course seeks to create broad conceptual knowledge and adaptive vocational and generic skills that can readily be transferred from a classroom to a workplace environment. Throughout the course, special emphasis will be placed on five learning outcomes – critical/creative thinking, literacy, global understanding, communication, and professional/ethical behaviour.

Course Themes

This 12-week course is based on a progression through four major themes related to natural resource management:

1. Knowledge Systems: Indigenous, Local and Western Science
2. Canadian Acts/Policies/Guidelines
3. Bayesian Belief Networks
4. Management Strategy Evaluation

Throughout these four course themes, students will focus on different sectors of Canadian renewable resource management associated with Federal Statutes and delegated Provincial/Territorial authority and responsibilities - including, but not limited to:

- *Canada National Marine Conservation Areas Act*
- *Canada National Parks Act*
- *Canada Wildlife Act*
- *Canadian Environmental Assessment Act*
- *Fisheries Act*
- *Forestry Act*
- *Great Lakes Fisheries Convention Act*
- *Indian Act*
- *Migratory Birds Convention Act*
- *Parks Canada Agency Act*
- *Species at Risk Act*

Course Delivery

This course is based on the principles of active collaborative learning; as such it is not a typical lecture-based university offering. Collaborative learning is an instructional strategy by which students work in small groups toward a common scholarly goal. For the purposes of this course, students will learn through a combination of team assignments and individual projects.

Team Assignments: Students will participate in heterogeneous teams of approximately five people/team, working as a group to achieve specific objectives assigned for each of the four themes in this course (see above). Teams will work together to compile essential information, draft concise briefing notes on the assigned subject matter, and develop/deliver professional presentations to the class. Team presentations will be made by a randomly selected team member, and will be evaluated by the Instructor.

Individual Case Study: Each student will select a real-world ecological conflict as a case study of Canadian natural resource management with which to explore issues associated with each of the four course themes. The case studies will be informed by a combination of personal communication with people involved in the issue, news articles/commentaries, and primary/technical literature. Students will submit written installments of their case studies in a manner that progresses with the four course themes, and which is drafted for consideration of science/technical advisors for the parties actually involved in the conflict (i.e. naïve, intelligent observers).

Student Evaluation

4x Team Assignments (10% each) = 50%

- Team member evaluations of individual contribution to process (25%)
- Instructor evaluation of Team Assignments (25%)

4x Individual Case Study Installments/Theme + 1x Final Installment (10% each) = 50%; evaluated by Instructor.

Textbook

There is no textbook for this course. Selected readings from the legal, primary and technical literature will be assigned for individual and group work on a weekly basis throughout the course.

Office Hours

Students should contact the Instructor to schedule an appointment.

Absence and Illness

Team Assignments **MUST BE COMPLETED** for presentation and evaluation during scheduled class time slots. Academic consideration may be granted if there are sufficient extenuating medical, psychological or compassionate circumstances, as described in the Undergraduate Calendar.

Academic Misconduct

The University of Guelph takes a serious view of Academic Misconduct. Included in this category are such activities as cheating on examinations, plagiarism (incorporation into one's work of any language, information, or idea drawn from any published or unpublished source, in whole, in part, or in summary, without full and proper acknowledgement), misrepresentation, and submitting the same material in two different courses without written permission. Students are expected to be familiar with the section of Academic Misconduct in the Undergraduate Calendar.

Students with Disabilities

If you are a student with a disability please contact the Instructor to arrange a time to discuss your situation. You should also contact the Centre for Students with Disabilities (CSD) regarding special services and support available and what might be necessary in relation to the course.