



BIOL*3650 Applications in Biology

Ecological Applications in Land-Use Planning

Winter 2020

Section(s): C02

College of Biological Science

Credit Weight: 0.50

Version 1.00 - January 05, 2020

1 Course Details

1.1 Calendar Description

In this course, students will explore selected topics related to the application of biological knowledge and techniques in society, such as biotechnology, forensic science, conservation biology, agriculture, health care, public health, and wildlife biology. Different topics are offered each year, reflecting the particular research or professional interest of the course instructor. Upcoming topics will be posted on the B.Sc. Advising website.

Pre-Requisites: 9.00 credits including (2 of BIOL*1070, BIOL*1080, BIOL*1090)

Restrictions: This is a Priority Access Course. Enrolment may be restricted to particular CBS programs or specializations depending on the selected topic during certain periods. Please refer to the BSC Advising Website.

1.2 Course Description

In this course, students will focus on ecological applications in land-use planning in Ontario. The course will cover the structure of provincial, municipal, and conservation authority roles and regulations as they relate to managing ecological aspects of the Ontario landscape. Emphasis will be placed on urban and natural heritage planning in southern Ontario and will cover aspects of science, policy, design, and ecosystem restoration / rehabilitation as they relate to management practices aimed at protecting the form and function of plants and wildlife.

1.3 Timetable

Timetable is subject to change. Please see WebAdvisor for the latest information.

1.4 Final Exam

Exam time and location is subject to change. Please see WebAdvisor for the latest information.

2 Instructional Support

Instructors for this course will be Jim Dougan and Steve Hill from Dougan and Associates.

Guest Lecturers will include: Zack Harris, Mary Anne Young, Janel Sauder, other members of Dougan & Associates

Additional support outside of class time will be by appointment only

3 Learning Resources

3.1 Required Resources

Reference Manual (Textbook)

<https://docs.ontario.ca/documents/3270/natural-heritage-reference-manual-for-natural.pdf>

Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005.

CourseLink (Website)

The BIOL*3650 course website is available through CourseLink.

3.2 Additional Resources

Undergraduate Calendar (Other)

The Undergraduate Calendar is the source of information about the University of Guelph's procedures, policies and regulations, which apply to undergraduate programs.

4 Learning Outcomes

4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Describe the scope of practice of an ecological consultant.
2. Describe the major players, roles and regulations underlying urban and natural heritage planning in southern Ontario.

3. Describe the underlying scientific principles on which land-use planning and ecosystem restoration/ rehabilitation are based, using written or oral communication.
 4. Critically evaluate approaches to impact assessment and limits to our biological knowledge when considering land-use planning and approval processes.
 5. Examine existing tools/process and/or novel approaches used to support sustainable land-use decision making when outcomes are uncertain, but are required to accommodate expanding human population growth.
 6. Evaluate the legal, ethical, social and economic influences on the execution of a particular land-use planning case.
 7. Examine the professional development opportunities related to an ecologically-focused career in land-use planning.
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5 Teaching and Learning Activities

Lecture periods will comprise presentations by the instructor. Students will engage in course material through discussion, analysis of specific cases, demonstrations, projects and discussions of the scientific basis of biological applications based on the primary literature.

Course content will include presentations of the goals, history and key methods for the biological application and pathways and professional development leading to these biological practices; examination of underlying scientific principles and role of biological knowledge that is key to sustainable land-use planning; and, the broader ethical, social and economic environment in which land-use planning and decision making is undertaken.

5.1 Lecture

When	Topic	Detail
Week 1	Introduction to Ecological Consulting	Lecture 1 - Introduction to Ecological Consulting Lecture 2 - Overview of Projects Related to Landscape Planning, Impact Assessment and Ecological Restoration. Key Processes and Players
Week 2	Introduction to Key Environmental Policy Regimes within Ontario	Lecture 1 - Environmental Planning Legislation and the Natural Heritage Reference Manual Lecture 2 - Overview of Planning Approval Projects:

When	Topic	Detail
		Watershed Studies, Subwatershed Studies, Servicing Studies, Development Studies.
Week 3	Inventory Approaches	Lecture 1 - Inventory Approaches 1 - Plants and Plant Communities; Ecological Land Classification Lecture 2 - Inventory Approaches 2 - Wildlife and Wildlife Habitat
Week 4	Evaluation of Significance	Lecture 1 - Evaluation Approaches 1 - Endangered and Threatened Species; Wetlands; Woodlands; Valleylands Lecture 2 - Evaluation Approaches 2 - Significant Wildlife Habitat; ANSIs; Fish Habitat
Week 5	Municipal Planning and Approvals	Lecture 1 - Municipal Planning 1 - Official Plans, Zoning, Site Plan Controls. Lecture 2 - Municipal Planning 2 - Tree Conservation, Site Alteration, and other Municipal Bylaws; Other Conservation Approaches
Week 6	Mid-Term Prep and Exam	Lecture 1 - Review of Lecture Material to Date. Lecture 2 - Mid-Term Exam
Feb 17	Reading Week	
Week 7	Impact Assessment	Lecture 1 - Impact Assessment 1 - Overview of Impact Definitions and Considerations.

When	Topic	Detail
		Lecture 2 - Impact Assessment 2 - Overview of Environmental Impact Studies.
Week 8	Impact Assessment	Lecture 1 - Impact Assessment 3 - Mitigation Hierarchy and Biodiversity Offsetting. Lecture 2 - Impact Assessment 4 - Examples of Mitigation and Restoration Planning.
Week 9	Ecological Restoration	Lecture 1 - Ecological Restoration 1 - Implementation Examples (Success and Lessons Learned) Lecture 2 - Ecological Restoration 2 - Implementation Examples (Success and Lessons Learned)
Week 10	Climate Change and Novel Methods	Lecture 1 - Climate Change Adaptation and Planning Lecture 2 - Novel Methods for Inventory and Monitoring. Stewardship and Citizen Science in Urban Areas
Week 11	Student Presentations and Guest Lectures	Lecture 1 - Student Presentations/Guest Lectures Lecture 2 - Student Presentation/Guest Lectures
Week 12	Student Presentations and Career Planning	Lecture 1 - Student Presentations/Guest Lectures Lecture 2 - Student Presentation/Planning for Career in Ecological Consulting

6 Assessments

6.1 Marking Schemes & Distributions

Name	Scheme A (%)
Topic Summary 1	5
Topic Summary 2	5
Assignment 1	15
Midterm	10
Topic Summary 3	5
Topic Summary 4	5
Presentation	10
Assignment 2	15
Final Exam	30
Total	100

6.2 Assessment Details

Topic Summary 1 (5%)

Due: Wed, Jan 22

Learning Outcome: 1, 2

Course Activity - weeks 1 and 2

Topic Summary 2 (5%)

Due: Wed, Jan 29

Learning Outcome: 3

Course Activity - week 3

Assignment 1 (15%)

Due: Wed, Feb 5

Learning Outcome: 1, 2, 3

Course activity - weeks 1 - 4

Midterm (10%)

Due: Wed, Feb 12

Learning Outcome: 1, 2, 3, 4

Course Activity - weeks 1 - 5

Topic Summary 3 (5%)

Due: Wed, Feb 26

Learning Outcome: 3

Course Activity - weeks 4 - 5

Topic Summary 4 (5%)

Due: Wed, Mar 11

Course Activity - weeks 8 - 10

Presentation (10%)

Due: Mon, Mar 23 - Wed, Apr 1

Learning Outcome: 4, 5, 6

Course Activity - weeks 1 - 10

Assignment 2 (15%)

Due: Fri, Mar 27

Learning Outcome: 4, 5, 6

Course Activity - weeks 5 - 10

Final Exam (30%)

Learning Outcome: 1, 2, 3, 4, 5, 6, 7

Please check WebAdvisor for exam date and location.

6.3 Assessment Information

Topic Summaries are intended to evaluate comprehension and understanding of major topic groups including: ecological consulting and policy (Topic Summary 1), ecological inventory approaches (Topic Summary 2), evaluation of significance and municipal approvals (Topic Summary 3), and impact assessment approaches (Topic Summary 4). The topic summary is expected to be brief (i.e. approximately 500 words).

Assignments are intended to evaluate the integrated knowledge and understanding of material covered among key topic groups through the review and critique of an existing land-use planning study that has been completed within Ontario. Students will have the option to choose the existing study with approval of the course instructors; the chosen study will be used for both Assignment 1 and 2. Assignment 1 will focus on a critique of the ecological inventory and assessment aspects of the chosen planning study. Assignment 2 will focus on a critique of the impact assessment and management approaches prescribed within the chosen study.

Student presentations will be undertaken during the last two weeks of the course. Students will be expected to present the land-use planning studies that they critiqued for Assignment 1 and 2.

Examinations will include a combination of multiple choice and short writing and are intended to evaluate student's comprehension of key topic concepts, details, and information covered throughout the course.

7 College of Biological Science Statements

7.1 Wellness

If you are struggling with personal or health issues:

- Counselling Services offers individualized appointments to help students work through personal struggles that may be impacting their academic performance.
- Student Health Services is located on campus and is available to provide medical attention.
- For support related to stress and anxiety, besides Health Services and Counselling Services, Kathy Somers runs training workshops and one-on-one sessions related to stress management and high performance situations.

<http://www.selfregulationskills.ca/>

7.2 Personal information

Personal information is collected under the authority of the University of Guelph Act (1964), and in accordance with Ontario's Freedom of Information and Protection of Privacy Act (FIPPA) <http://www.e-laws.gov.on.ca/index.html>. This information is used by University officials in order to carry out their authorized academic and administrative responsibilities and also to establish a relationship for alumni and development purposes.

For more information regarding the Collection, Use and Disclosure of Personal Information policies please see the Undergraduate Calendar.

(<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/intro/index.shtml>)

8 University Statements

8.1 Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

8.2 When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Graduate Calendar - Grounds for Academic Consideration

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions
<https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml>

8.3 Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses
<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

Graduate Calendar - Registration Changes
<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml>

Associate Diploma Calendar - Dropping Courses
<https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml>

8.4 Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

8.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance and not later than the 40th Class Day.

For Guelph students, information can be found on the SAS website
<https://www.uoguelph.ca/sas>

For Ridgetown students, information can be found on the Ridgetown SAS website
<https://www.ridgetownc.com/services/accessibilityservices.cfm>

8.6 Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity, and it is the responsibility of all members of the University community-faculty, staff, and students-to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff, and students have the responsibility of supporting an environment that encourages academic integrity. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Undergraduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Graduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

8.7 Recording of Materials

Presentations that are made in relation to course work - including lectures - cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

8.8 Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars

<https://www.uoguelph.ca/academics/calendars>
