

Ecosystem Management 3222G Course Outline

1. Course Information

Course Information

Ecosystem Management
Biology 3222G

List of Prerequisites

A minimum mark of 60% in Biology 1001A or Biology 1201A and Biology 1002B or Biology 1202B or Integrated Science 1001X, and at least one half course in Biology at the 2200 level or above, or permission of the Department.

Unless you have either the requisites for this course or written special permission from your Dean's Designate (Department/Program Counsellors and Science Academic Advisors) to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

2. Instructor Information

Instructors	Email
Robert Buchkowski (PhD)	rbuchkow@uwo.ca

Students must use their Western (@uwo.ca) email addresses when contacting their instructors. Include the course name or number in the subject line of your email so that it is clear what course you are asking about.

Office hours are held in-person or on Zoom by request.

3. Course Syllabus, Schedule, Delivery Mode

Course Description: The theory and practice of managing ecosystems. Topics include ecosystem functioning and relationships at various spatial scales, sustainable management, restoring degraded ecosystems, species-at-risk, invasive species management, and indigenous management. The value of ecosystem services, financial and practical considerations will be considered.

Learning Outcomes and Objectives:

Upon completion of the course, students will be able to:

1. Describe sustainable management and explain how it can be achieved via different ecosystem management philosophies (e.g., conservation, preservation)
2. Understand the process for developing an ecosystem management plan
3. Describe the biotic and abiotic ecosystem properties that affect management planning and management objectives
4. Describe the environmental legislation that governs ecosystem management in Canada
5. Describe and evaluate the methods used for assessing ecosystems, supporting management recommendations, and monitoring progress

TENTATIVE CALENDAR: *Students will be informed in advance of any changes.*

Week	Lecture Topics
1	Introduction to Ecosystem Management <ul style="list-style-type: none"> - Philosophies for human-nature relationships: conservation, preservation, indigenous perspectives - What is the objective of ecosystem management? - Ecosystem services: provisioning, regulating, supporting, and cultural services. - What is sustainability? Is it only realized within the ecosystem?
2	Ecosystem Management Planning <ul style="list-style-type: none"> - A case study of a management plan - Why do we construct management plans? - Strategic, Tactical, Operational planning - Setting the scope of management plans - Setting management objectives - Financial constraints and resource allocation (introduction)
3	Ecosystem properties and management <ul style="list-style-type: none"> - How do we apply our understanding of ecosystem function to aid management planning? - Succession/ species interactions / nutrient cycling / self-assembly / hysteresis / - Diagnosing the causes of poor ecosystem function
4	Predicting ecosystem change <ul style="list-style-type: none"> - Tools for anticipating changes in ecosystems over time? - How will climate change influence ecosystem management? - Why do we need to predict change over time? - How do we assess data/models used to justify management actions?
5	Adaptive management <ul style="list-style-type: none"> - How prescriptive should management plans be?

	<ul style="list-style-type: none"> - How do we build contingencies for unexpected events? - Major disruptions: fire, natural disasters, pests, invasive species, climate change
6	<i>Presentations</i>
7	Environmental Legislation <ul style="list-style-type: none"> - How do legislative requirements influence management planning? - When do they require management planning? - Major acts and indigenous rights - Special types of management plans: species-at-risk, parks, conservation areas, urban areas
8	Measuring baselines <ul style="list-style-type: none"> - Collecting data on ecosystems to start management planning (soils, plants, animals) - Questions about data resolution - Engaging stakeholders - Surveying the literature
9	<i>Midterm Exam</i> Restoring degraded systems <ul style="list-style-type: none"> - Management plans for restoration - Principles of ecological restoration
10	Monitoring and evaluating progress <ul style="list-style-type: none"> - How do we measure ecosystem properties to match management plan objectives? - Power and sampling frequency? - How are statistical analyses conducted?
11	Tools for testing and comparing management scenarios <ul style="list-style-type: none"> - Models, optimization, bioeconomic frameworks, ecosystem valuation - Technologies: remote sensing, big data, artificial intelligence, drones
12	Global perspectives on Ecosystem Management <ul style="list-style-type: none"> - Convention on biological diversity - Global conservation initiatives - Globally at-risk ecosystems

4. Course Materials

There is no required textbook for this course.

All course material will be posted to OWL: <https://westernu.brightspace.com/>

Students are responsible for checking the course OWL site (<https://westernu.brightspace.com/>) regularly for news and updates. This is the primary method by which information will be disseminated to all students in the class.

If students need assistance with the course OWL site, they can seek support on the [OWL Brightspace Help](#) page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

Technical Requirements

This course includes guest speakers and some of them will not be able to attend our lectures in person. To facilitate a productive discussion, these lectures may be held online using Zoom. Students will be notified ahead of time when guest lectures are remote. During these lectures, the following will be required:



Stable internet connection



Laptop or computer with webcam



Working microphone

5. Methods of Evaluation

Grading Scheme and Assessment Dates

The overall course grade will be calculated as:

Assignment	Weight	Due Date
Quizzes	10%	Weekly
Participation in lectures and tutorials via attendance and submitting assignments 'for completion'	15%	Weekly
Review of possible management actions	15%	February 3 rd @ 11:00AM (Week 5)
Presentation	10%	Week 6 (Week of February 10 th)
Midterm	20%	March 10 th @ 11:30AM (Week 9)
Management Plan	30%	March 31 st @ 11:00AM (Week 12)

The midterm exam will cover all lecture material, tutorial material, and readings assigned to students from the beginning of the course up to the midterm exam date.

General information about missed coursework

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs* posted on the Academic Calendar:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf,

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult [Accessible Education](#).

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage:

https://registrar.uwo.ca/academics/academic_considerations/

All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

All Academic Consideration requests must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request **without supporting documentation** in this course.

When a student *mistakenly* submits their one allowed Academic Consideration request **without supporting documentation** for the assessments listed above or those in the **Coursework with Assessment Flexibility** section below, the request cannot be recalled and reapplied. This privilege is forfeited.

Evaluation Scheme for Missed Assessments

Review of possible Management Actions: This assignment is mandatory for passing the course. It will be due February 3rd. With appropriate Academic Accommodations in place (see Deadline with a No-Late-Penalty Period and Academic Considerations above), this assignment can be accepted up until February 14th at 11:59PM.

Presentation: Students who miss their presentation date will be required to complete a make-up presentation at a later date. All presentations must be completed before March 3rd at 5:00PM. The presentation assignment can be completed in groups. If one group member receives an academic consideration because they are unable to present during the assigned time, the group can continue with the presentation or request a delay to either include that group member or revise the presentation accordingly.

Midterm: A make-up midterm exam will be offered to students who are unable to complete the midterm at the scheduled date and time. The make-up midterm is tentatively scheduled for March 14th but may be rescheduled after consultation with the students who require it. The midterm exam must be completed before March 31st at 5:00PM.

Management plan: The management plan assignment is due March 31st and must be submitted by April 5th. When a group member requests an academic accommodation for this assignment, the remainder of the group should submit the assignment on time with outstanding sections highlighted. The accommodated student(s) will have the opportunity to complete the assignment as per their accommodation.

Essential Learning Requirements

Even when Academic Considerations are granted for missed coursework, the following are deemed essential to earn a passing grade.

Students must complete and pass (grade >50%) the “Review of possible Management Actions” assignment to pass the course. A grade of 45% will be given to a student who fails to pass this assignment.

Coursework with Assessment Flexibility

By policy, instructors may deny Academic Consideration requests for the following assessments with built-in flexibility:

Flexible Completion

Quizzes. This course has 12 quizzes, and the 10 quizzes with the highest marks are counted towards your final grade. Should extenuating circumstances arise, students do not need to request Academic Consideration for the first 2 missed quizzes. Academic consideration requests will be denied for the first 2 missed quizzes. Academic Consideration requests may be granted when students miss more than 2 quizzes, and these additional (3rd, 4th...) missed quizzes will be reweighted the remaining ones.

Deadline with a No-Late-Penalty Period

Assignments. Students are expected to submit each of the course assignments by the deadline listed. Should extenuating circumstances arise, students do not need to request Academic Consideration and they are permitted to submit their assignment up to 72 hours past the deadline without a late penalty. Should students submit their assessment beyond 72 hours past the deadline, a late penalty of 10% per day will be applied. Academic Consideration requests may be granted only for extenuating circumstances that started before the deadline and lasted longer than the No-Late-Penalty Period (72 hours).

6. Additional Statements

Religious Accommodation

When conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early as possible but not later than two weeks prior to the writing or the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays:

<https://www.edi.uwo.ca>.

Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf.

Academic Policies

The website for Registrar Services is <https://www.registrar.uwo.ca/>.

In accordance with policy,

https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf,

the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at their official university address is attended to in a timely manner.

The midterm exam is closed book and electronic devices will not be permitted unless academic consideration is granted.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Support Services

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic-related matters: <https://www.uwo.ca/sci/counselling/>.

Students who are in emotional/mental distress should refer to Mental Health@Western (<https://uwo.ca/health/>) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education at

http://academicsupport.uwo.ca/accessible_education/index.html

if you have any questions regarding accommodations.

Learning-skills counsellors at Learning Development and Success (<https://learning.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: <https://www.uwo.ca/se/digital/>.

Additional student-run support services are offered by the USC, <https://westernusc.ca/services/>.