

Biology 4230B: Ecosystem Health

Winter 2025-26 Course Outline

1. Course Information:

Course Title: Biology 4230B – Ecosystem Health

Session: Winter 2025-26

Lectures:

List of Prerequisites

Biology 2483A/B or registration in year 4 of an Honours Specialization offered by the Department of Biology, Environmental Science or the Basic Medical Sciences Department or a Major in Ecosystem Health.

Unless you have either the prerequisites for this course or written special permission from the Department of Biology to enroll in it, you may be removed and withdrawn from this course in accordance with university policy. This may be done after the add/drop deadline of the academic term, and the course will be marked as withdrawn (WDN) on your academic record. This decision may not be appealed.

2. Instructor and Contact Information

Individual meetings (virtual or in-person) may be requested at any time to address matters that are not suitable for office hours. Use the course email address above to request a meeting with the instructor.

3. Course Description

[Official Calendar Description]. A characterization of ecosystems, contaminants, and the human health concerns. Course material will cover the production, transport, transformation and fate of environmental contaminants, with an emphasis on their anthropogenic impacts. Emphasis will include the assessment of human health exposure and biomarkers of environmentally associated disease.

Course Objectives

The goals of this course are to:

- a) Explore how anthropogenic activity impacts ecosystems, and how those impacts feed back to affect human health.
- b) Without any expectation of in-depth prior knowledge, provide a solid background into the science of pollutant release and cycling, biological toxicity, human exposure, and direct and indirect impacts on health and well-being using well known examples of organic and inorganic pollutants in the environment (DDT, PCBs, Hg, Cr).
- c) Identify the broader dimensions of negative ecosystem-human health interactions beyond pathology (e.g. enviro-social determinants of health; chemophobia; food security).
- d) Teach you to critically read and evaluate scientific papers from the primary literature. Lectures will be supplemented with in-depth readings to demonstrate methodological, applied or theoretical principles in ecosystem health and environmental toxicology.

Learning Outcomes

Using knowledge derived from the lecture material delivered and assigned readings, students should be able to do the following in exam assessments:

- a) Describe/define ecosystems, ecosystem health, and environment-human health interactions.
- b) Understand and describe the release, movement, transformation and biological involvement of important environmental pollutants such as mercury.
- c) Understand and describe the health implications and pathways of exposure to different organic and inorganic pollutants and toxins.

Mode of Delivery

TENTATIVE CALENDAR Jan-Apr 2025: The schedule of lecture topics/content is subject to change. The timing of the Mid-Term exam is NOT subject to change.
* or handled by Accommodated Exams, if applicable.

4. Course Materials

Required Reading:

PDFs/links to weekly assigned readings will be posted on the course Brightspace website regularly. Students are expected to complete readings before corresponding discussions associated with that reading (identified as part of the lecture schedule to be provided and announced weekly).

Over the course of the semester, students are required to read the book “**Silent Spring**” (R. Carson, 1962) at their own pace. Questions on the final exam (NOT the mid-term exam) will require students to relate course content to concepts and examples in “Silent Spring” and incorporate ideas from this historically important book into written answers. This book is available in hard copy and as a free e-book from Western Libraries (simply search “Silent Spring”), and is also available in hard copy and as a PDF from other sources. If you have any difficulty accessing this resource, please contact your instructor as soon as possible.

All course documents and information (syllabus, lecture files, instructional documents, required readings, etc.) will be posted to Brightspace and students are responsible for checking the course Brightspace site on a regular basis for updates.

5. Methods of Evaluation

Due to budget cutbacks to the Department of Biology enacted by the Faculty of Science and Western University, there are no teaching assistants (TAs) available to support the delivery of higher level assessment methods previously offered in this course, and that are appropriate for a 4000-level course in Biology. Due to workload and available time, these budget decisions unfortunately restrict this courses evaluation to a quiz, test and exam-only format.

The overall course grade will be calculated as:

Evaluation

Weekly Quizzes	10 @ 2.5% each (completed in Brightspace)	25%
Mid-Term Examination	February 26 (in-class; 2 hrs)	30%
Final exam (cumulative)	Scheduled by University	45%

Weekly Quizzes

Short, timed (15 minutes) quizzes will be administered weekly through Brightspace and will comprise questions pertaining to materials covered in the assigned reading for that week. The multiple choice, yes/no format is easily completed in 5 minutes if you have completed and comprehended the assigned reading. Therefore the 15 minutes that are available to all students universally accommodates all students requiring extra time for assessments. Quizzes may be accessed from any location at any time of day, accommodating any test-taking conditions that may be required. Each weekly quiz will be available to students from the Friday morning (12:01 am) prior to the Tuesday reading discussion, until the beginning of the Tuesday lecture time (11:30 am). This extended window of availability provides accommodation for all students and their lecture schedules, competing deliverables for other courses, or other unexpected conflicts. Your final grade for the quiz scores will be for the top 10 scores of 12 quizzes over the semester, allowing for two quizzes to be missed without grade consequence thus accommodating unexpected illness or absence.

Test and Examination

There will be one in-class term test and a cumulative final exam in this course; all tests and exams are compulsory. Students are responsible for material presented in lecture, and

assigned readings in the course textbook. You can expect the test and exam to include any or all of the following question types: multiple choice, matching, fill-in-the-blank, short answer and/or essay. The midterm test will cover material up to and including materials covered in scheduled course times in the week prior to the mid-term. The final exam is cumulative and will include questions covering the entire term.

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://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. *Students that miss an assessment and are submitting an Academic Consideration request must notify the instructor within 48 hrs of the missed assessment so that alternative arrangements can be made.*

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. However, the following assessments are **excluded** from this and, therefore, always require formal supporting documentation:

- **Midterm Test (Feb 26)**
- **Examinations scheduled during official examination periods (Defined by Policy)**

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

When a student misses the midterm test and their Academic Consideration has been granted, then a make-up mid-term test will be offered within one calendar week of date of the scheduled regular mid-term test. *Students that miss an assessment and are submitting an Academic Consideration request must notify the instructor within 48 hrs of the missed assessment so that alternative arrangements can be made.*

When a student misses the Final Exam and their Academic Consideration has been granted, they will be allowed to write the Special Examination (the name given by the University to a makeup Final Exam). See the Academic Calendar for details (under Special Examinations), especially for those who miss multiple final exams within one examination period.

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 weekly online quizzes. The top 10 out of 12 scores will be used to calculate the weekly quiz component of the final grade. Since 2 quizzes can be missed without academic penalty, no Academic Consideration requests will be accepted for missed weekly quizzes.

6. Additional Statements

6.1 Religious Accommodation

When a recognized religious holiday or observance conflicts with an examination, test, or other scheduled academic obligation, students must request accommodation via the University's Student Absence Portal (SAP). This request should identify the conflict and specify which course component(s) (e.g. test, midterm, exam) are affected.

Students are encouraged to submit the SAP request as early as possible, but no later than two weeks before any examination, or one week before any mid-term test or quiz, to allow sufficient time for adjustment.

The SAP request serves as official notification to both the course instructor and the Academic Advising Office, in accordance with University policy:

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

The Faculty of Science considers religious accommodations as scheduling conflicts. Instructors should provide either a make-up exam or an earlier sitting of the same exam to accommodate the student.

For more information on recognized religious holidays, please visit the Diversity Calendar posted on the Equity, Diversity & Inclusion website - <https://www.edi.uwo.ca>

6.2 Academic 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

6.3 General Academic Policies

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

Use of @uwo.ca email: 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 email address. It is the responsibility of the account holder to ensure that emails received from the University at their official university address are attended to in a timely manner.

Requests for Relief (formally known as "appeals")

Policy on Request for Relief from Academic Decision:

https://uwo.ca/univsec/pdf/academic_policies/appeals/requests_for_relief_from_academic_decisions.pdf

Procedures on Request for Relief from Academic Decision (Undergraduate):

https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf

6.4 Scholastic Offences

Policy on Scholastic Offences:

https://uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_offences.pdf

Procedures on Scholastic Offences (Undergraduate):

https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf

Use of Electronic Devices During Assessments

In courses offered by the Faculty of Science, the possession of unauthorized electronic devices during any in-person assessment (such as tests, midterms, and final examinations) is strictly prohibited. This includes, but is not limited to: mobile phones, smart watches, smart glasses, and wireless earbuds or headphones.

Unless explicitly stated otherwise in advance by the instructor, the presence of any such device at your desk, on your person, or within reach during an assessment will be treated as a *scholastic offence*, even if the device is not in use.

Only devices expressly permitted by the instructor (e.g., non-programmable calculators) may be brought into the assessment room. It is your responsibility to review and comply with these expectations.

Use of Generative AI Tools

Unless otherwise stated, the use of generative AI tools (e.g., ChatGPT, Microsoft Copilot, Google Gemini, or similar platforms) is **not permitted** in the completion of any course assessments, including but not limited to: assignments, lab reports, presentations, tests, and final examinations.

Using such tools for content generation, code writing, problem solving, translation, or summarization—when not explicitly allowed—will be treated as a **scholastic offence**.

If the use of generative AI is permitted for a particular assessment, the conditions of use will be specified by the instructor in advance. If no such permission is granted, students must assume that use is prohibited. It is your responsibility to seek clarification before using any AI tools in academic work.

6.5 Support Services

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, requests for relief, 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 (GBSV) and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced GBSV (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. If you have any questions regarding accommodations, you may also wish to contact Accessible Education at

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

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.

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