

BIOLOGY 3435G Course Outline

1. Course Information

Biology 3435G – Animal Ecology – Winter 2025

List of Prerequisites

Biology 2483A/B, and Biology 2244A/B or Statistical Sciences 2244A/B, with a minimum grade of 60%.

Unless you have either the requisites for this course or written special permission from your Dean's Designate 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

Instructor	Contact Information
Dr. Emma Churchman (she/her)	echurchm@uwo.ca
Teaching Assistants	Section
Evan Bennett	ebenne29@uwo.ca
Tristan Ducharme	tduchar5@uwo.ca
Evelyn Petro	epetro@uwo.ca
Parker Van Belleghem	pvanbel3@uwo.ca

Students must use their Western (@uwo.ca) email addresses when contacting their instructor, and include "BIO3435" in the subject line. Other email address or forms of online contact will not be responded to. If you have an urgent question that requires my attention and is not answered in the syllabus, please direct it to my email. My office hours are by appointment only and will be held via Zoom.

I will answer questions about course content up until 24 hours prior to exams. Your TAs will not have office hours and are available for questions during lab hours. They are available for questions pertaining to statistics DURING your computer labs and will not answer statistics questions via email. You may email them for questions pertaining to labs up to 24 hours before assignments are due. Any questions pertaining to grades should be directed to the person who graded the assignment. Please be aware that questions regarding grades should be sent via email, and at least 24 hours after the grades have been released.

3. Course Syllabus, Schedule, Delivery Mode

This course explores key concepts in animal ecology, focusing on individual-based approaches to understanding ecological and evolutionary processes. Topics include biomes, annual and daily cycles, natural selection, life histories, ecological niches, trophic interactions, habitat selection, movement, dispersal, migration, energy storage, growth, morphology, and phenotypic flexibility. Emphasis will also be placed on how anthropogenic factors such as

urbanization and climate change shape ecological dynamics. The course will focus on these fundamental concepts and how animal ecologists conduct research in these topics. While considering observational, experimental, and comparative research methods – the course will also incorporate traditional ecological knowledge and perspectives on biodiversity and sustainability.

By the end of the course, students will be able to:

- Analyze how environmental and anthropogenic factors interact with individual-level processes to shape species' niches, ranges, and ecological strategies.
- Discuss key principles of animal ecology using precise ecological and evolutionary terminology.
- Apply ecological concepts to predict and interpret species' responses to environmental challenges.
- Use software tools to analyze ecological data statistically and visually.
- Evaluate existing scientific literature to design experiments and communicate their objectives through written and oral assignments.

The lecture topics listed below are subject to change based on emerging research and course dynamics. Periodic readings will complement lecture material, and specific outcomes for each lecture will be provided throughout the semester. Students are encouraged to actively participate in discussions to connect ecological concepts with practical applications:

Week of:

06 January - Introduction / Writing a Research Proposal
13 January - Biomes / Annual & Daily Cycles
20 January - Natural Selection / Life Histories
27 January - Niche Concepts I & II
03 February - Range & Distribution / Trophic Interactions
10 February - Habitat Selection / IN-CLASS MIDTERM
17 February - Reading Week
24 February - Territoriality / Dispersal
03 March - Migration / Movement
10 March - Movement Paths / Energy Storage
17 March - Growth & Maturation / Morphology
24 March - Flexible Phenotypes / Urbanization
31 March - Climate Change / Review

Assessment Schedule:

Lab: Analyzing Animal Ecology Research - Due January 24th by 11:59pm
Lab: Workshop in R - Due January 29/30th (deadline is section specific, due 48 hours after the end of your tutorial)
Proposal Topic Approval - Due January 31st by 11:59pm, submitted via quizzes
Midterm - In-Class
Proposal Methods Review - Due February 14th by 12:00pm, submitted via quizzes
Lab: Statistical Analysis in Animal Ecology Research - Due February 24/25 (deadline is section specific - due by start of your section)
Written Research Proposal - Due March 5th by 11:59pm
Proposal Peer Review - Completed in-lab on either March 10/11 (section-specific)
Research Pitch Presentation - Submission due by March 17/18 (section specific, regardless of assigned presentation date)
Final Exam - Scheduled by OOR

4. Course Materials

Required texts:

- Instructions for labs/tutorials will be posted to Brightspace

- Getting Started with R (Beckerman et al., 2017) will be used as support for the labs. Western has an electronic version available for free [here](#).

Recommended textbook: Bowman & Hacker, Ecology, 6th edition, Oxford University Press, 2021. The physical textbook costs \$220.35 to purchase, or an electronic copy can be rented for 180 days for \$84 through the Bookstore.

- This textbook is recommended, but not required. If you choose to purchase the textbook, you should purchase the 6th edition. Earlier editions do not contain all the same information.

All course material will be posted to OWL Brightspace: <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.

Intellectual Property and Course Conduct Policy in the use of Lecture, Tutorial, and other materials: All materials that are posted for and/or presented to you are for your individual use only. Course material, assignments, tests, and exams, are the intellectual property of your instructor that are shared with the student and the University. To post, share, or sell any of this content is a breach of intellectual property. Visual recording is not allowed, however audio recording is permitted for personal use only.

Technical Requirements

You will need to download R Studio to complete the lab assignments in the course. This is available for download on Windows or Mac for free here: <https://posit.co/download/rstudio-desktop/>

5. Methods of Evaluation

Grading Scheme and Assessment Dates

The overall course grade will be calculated as listed below:

Lab Assignments (30% total):

Analyzing Animal Ecology Research (12.5%)

Introduction to R (5%)

Statistical Analysis in Animal Ecology Research (12.5%)

Research Proposal (15%)

Proposal Peer Review (5%; in-class)

Research Pitch Presentation (7.5%; in-class)

Exams/Tests:

Midterm Test (in-class – February 12th, L3-10; 12.5%)

Final Exam (Scheduled by OOR, cumulative; 30%)

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 normally 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:

- Examinations scheduled during official examination periods (Defined by policy)
- Midterm (Designated by the instructor as the one assessment that always requires documentation when requesting Academic Consideration)

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

The course policies regarding missed assessments are designed to ensure fairness and maintain the integrity of the grading process. Students are expected to submit all assessments within the specified timelines. Assessments not submitted within these timelines will receive a grade of zero unless academic consideration. The instructor cannot grant extensions unless consideration has been approved by Academic Advising. Requests of academic consideration must be submitted to Academic Advising within 48 hours of the missed assessment or deadline.

For assignments with deadlines, a late penalty of 10% will be applied each day starting 5 minutes after the specified deadline for the student's section and an additional 10% penalty will be deducted for each subsequent 24-hour period. For assignments with a 48-hour no-penalty period, the late penalty will be applied each day starting 5 minutes after the end of the 48-hour no-penalty period, and an additional 10% penalty for each subsequent 24-hour period.

Midterm: If a student misses the midterm, they must seek academic accommodation to be eligible to write the makeup. If approved, the student will write the make-up midterm on February 13th at 7pm. There will only be one makeup midterm scheduled for the course, if the student is unable to write either the in-class or the makeup test, the weight of the midterm will be shifted to the final exam.

Lab Assignments: Failure to submit a lab assignment will result in a grade of zero for that lab. Assignments have a 48-hour grace period after the deadline during which they can be submitted without penalty. If a student cannot submit within this 48-hour period, they must obtain academic consideration for a late submission.

- *Without Documentation:* Students requesting academic consideration without documentation must submit their assignment within 72 hours of the original deadline. Extensions beyond 72 hours will not be granted without documentation.
- *With Documentation:* Students must request academic consideration with documentation through the Academic Advising portal. If approved, the assignment must be submitted within 24 hours of the extended deadline.

Assignments cannot be submitted after grades or feedback have been released for any section. No assignment will be accepted more than 10 days past the original deadline. If academic consideration is approved but the assignment remains incomplete, the assignment's weight will be reallocated to the remaining lab assignment(s).

Written Research Proposal: The written proposal has a 48-hour grace period after the deadline during which it can be submitted without penalty. If a student cannot submit within this 48-hour period, they must obtain academic consideration for a late submission.

- *Without Documentation:* Students requesting academic consideration without documentation must submit their proposal within 72 hours of the original deadline. Extensions beyond 72 hours will not be granted without documentation.
- *With Documentation:* Students must request academic consideration with documentation through the Academic Advising portal. If approved, the proposal must be submitted within 24 hours of the extended deadline.

Proposals not submitted by the original deadline cannot be reviewed by peers, and the portion of the grade assigned to peer review will be forfeited. This forfeited grade portion will instead be reallocated to the TA's assessment of the proposal. Proposals cannot be submitted after grades have been returned to any section.

Proposal Peer Review: The peer review is conducted during scheduled lab time. Students who do not attend their scheduled lab will not receive feedback from their peers. In this case, the portion of the proposal grade assigned to peer feedback will be reassigned to the TA's assessment of the proposal and clearly communicated to the student. Students unable to attend their lab must obtain academic consideration to be eligible for an electronic "makeup" review.

- *Without Documentation:* Students requesting academic consideration without documentation must submit their assigned electronic review within 48 hours of their scheduled lab time.
- *With Documentation:* Students requesting academic consideration with documentation, upon approval, must submit their review within 24 hours of the end of their coverage period.

All reviews must be submitted by March 16th at 5:00 PM. If a review is not submitted by this deadline, its weight will be shifted to the student's final exam.

Research Pitch Presentation: The presentation is due at the start of the student's scheduled lab section, and the oral component will take place during lab time.

- *Without Documentation:* Students requesting academic consideration to miss their lab section without documentation must submit their presentation within 48 hours of their scheduled lab section. They will deliver their oral presentation during the second week of presentations during their lab section.
- *With Documentation:* Students requesting academic consideration with documentation, upon approval, must submit their presentation within 24 hours of the end of their coverage period. They will then deliver their oral presentation during the second week of presentations. If their approved coverage extends beyond one week, they will be offered a single makeup session to present.

Presentations cannot be submitted after feedback or grades have been returned to any section. If students cannot complete their presentation by the end of classes or before feedback is returned (whichever occurs first), the weight of the presentation will be shifted to the final exam.

Final Exam: Accommodation for the final exam as scheduled by the OOR always requires formal supporting documentation. Students who miss the final exam and are granted academic consideration will write the department scheduled makeup final exam. When a student misses both the Final Exam and make-up Final, 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. The final exam, which is cumulative, assesses a significant portion of the course material. It is designed to ensure students demonstrate mastery of key concepts and skills from the course, including the integration of laboratory methods and proposal writing. This is critical, as the course has both theoretical and practical components. As this is a lab-essay course with a substantial written proposal component, the final exam can be worth a maximum of 55% of the student's grade. However, successful completion of the final exam does not exempt students from fulfilling the Essential Learning Requirements. To pass the course, students must meet all requirements as outlined in the syllabus, including submission of required lab assignments and the research proposal, each with a passing grade.

Essential Learning Requirements

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

- submission of at least 2 out of 3 labs, earning at passing grade in each
- submission of the research proposal, earning a passing grade

Failure to successfully complete the essential learning requirements will result in a failure of the course (a final grade of 49) regardless of performance on other course assessments. In such cases that a student fails to meet the essential learning requirements of the course and has been granted formal academic consideration, they may complete the equivalent assessment(s) during the next offering of the course. In this case, they will receive a grade of Incomplete (INC) and their maximum course load may be reduced during the term in which they complete their course requirements.

Coursework with Assessment Flexibility

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

Deadline with a No-Late-Penalty Period Assignments: Students are expected to submit each of the lab 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 48 hours past the deadline without a late penalty. Should students submit their assessment beyond 48 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 (48 hours).

- *For example:* If your lab assignment is due Monday January 20th at 8:30am, then you are permitted to submit the assignment up to 48 hours past the deadline without a late penalty (Wednesday January 22nd by 8:30am). If you require an extension beyond 48 hours, you must submit for academic consideration via academic advising. If you submit for consideration without documentation, you receive a 24 hour extension to the no-late-penalty period and must submit within 72 hours of the deadline (Thursday January 23rd by 8:30am). If you submit for consideration with documentation, you must submit your assignment within 24 hours of the end of your coverage period from academic advising. If you do not submit for, or receive, approved academic accommodation and submit your assignment after the deadline, you will receive a 10% deduction per day.

6. Land Acknowledgement

We acknowledge that Western University is located on the traditional lands of the Anishinaabek, Haudenosaunee, Lūnaapéewak and Chonnonton peoples, on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum. With this, we respect the longstanding relationships that Indigenous Nations have to this land, as they are the original caretakers.

7. 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.

Students are permitted to use non-programmable calculators on tests.

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.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

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/>.