

# BIO3440a: Ecology of Populations – Syllabus 2025

## 1. Course Information

### Lecture hours and location

### Lab hours

### Lab Locations:

### Mandatory Lab Days

There are four data collection days that require **MANDATORY** attendance. If you do not attend, you will not be collecting the data necessary to complete the lab. See lab schedule for details.

**List of Prerequisites**, Biology 2483A/B, One of Biology 2244A/B, Psychology 2810, Statistical Sciences 2244A/B, or the former Statistical Sciences 2122A/B.

Unless you have either the requisites for this course or written special permission from your Dean 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 & TA Information

Students must use their Western ([@uwo.ca](mailto:@uwo.ca)) email addresses when contacting their Instructor and TAs.

## 3. Course Syllabus, Schedule, Delivery Mode

### Goals of the Course

Population ecology is the scientific study of the mechanisms that influence the abundance of organisms. In an era where populations are declining at precipitous rates leading to an “extinction crisis”, the role of population ecology has never been so critical and the need for population ecologists so urgent. This course uses concrete examples to explain the central tenets of population ecology with a strong emphasis on its practical application. You will learn about what population ecologists do and will learn many of the techniques needed in order to **DO** population ecology.

More specifically, our goals are:

1. *To teach you the basic principles of population ecology.* These include theoretical principles as well as field techniques. We will discuss how to measure a population’s abundance, describe a population’s dynamics, and investigate the mechanisms that cause population dynamics.
2. *To improve your data collection and analysis skills.* During the course of completing the experimental labs you will collect and analyse data. You will learn and be expected to apply several methods of analyses. A previous course in statistics is strongly recommended.
3. *To improve your critical thinking skills.* This will be achieved by developing hypotheses and

making comparisons between experimental methods.

## Learning outcomes

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

1. Recognize the importance of population ecology as a discipline and how it is used
2. Learn and apply your knowledge of population abundance and dynamics to data sets
3. Implement sampling regimes that will ensure experimental rigour
4. Collect, manage, and analyze your own data using spreadsheets
5. Interpret results in written form
6. Recognize factors that limit populations and the importance of experimental manipulations in identifying those factors

## Topics Covered in the Course

LECTURE TOPICS
Introduction to Population Ecology
Abundance I: Quadrats and Statistics
Abundance II: Mark-Recapture Techniques
Parameters and Basic Models of Population Growth
Age-Structured Population Models
Survival Analysis
Limiting Factors
The Ecology of Fear

## Key sessional dates for the fall term

Sept. 4 Classes begin (Thursday)

Sept. 12 Last day to add a Fall/Winter 24-week course or a Fall 12-week course.

Sept. 30 National Day for Truth and Reconciliation (observed at Western). No classes.

Oct. 13 Thanksgiving (No classes)

Nov. 3-9 Fall Reading Week (Monday to the following Sunday)

Dec. 1 Last day to withdraw from a Fall 12-week course without academic penalty

(extended from Sunday, Nov. 30)

Dec. 9 Last day of classes in the Fall term

Dec. 10 Study Day

Dec. 11-22 December examination period

## Technical Requirements

You will be required to have a laptop.

## Contingency plans in-person class

Although the intent is for this course to be delivered in person, should any university-declared emergency require some or all of the course to be delivered online, either synchronously or asynchronously, the course will adapt accordingly. The grading scheme will **not** change. Any assessments affected will be conducted online as determined by the course instructor.

# 4. Course Materials

## Readings

Readings are available on the Readings tab at no cost. You will not be able to do the labs without the Readings. I base some of my Lectures on Krebs, Ecological Methodology. I have listed chapters in that book mainly as Supplemental Reading because I go over it in class, but you are strongly encouraged to read them to gain a better understanding of the lab and lecture material. It is to your benefit to do the readings in advance of the associated lecture/lab. Readings may be added as we move along in the course. The information will be posted on the Readings tab where I will indicate whether the new material is

Required or Supplemental. Citations that I provide on my Lecture slides also would be considered Supplemental. Please use them to help you better understand the content. Please see the Readings tab on the course webpage for further details, and refer back to the Readings tab often to keep updated. It is your responsibility to do so.

### **Lecture, Lab and other materials:**

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.

### **Intellectual Property and Course Conduct Policy in the use of Lecture, Lab and other materials**

All materials that are posted for and/or presented to you are for your individual use only. DO NOT re-post, share, or sell any of this content with any other person(s), including crowd sharing sources. To do so is a breach of intellectual property. Audio and/or visual recording is not allowed (unless permission is given by the instructor, following Section 6).

## **5. Methods of Evaluation**

The overall course grade will be calculated as listed below:

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Test x 1	in class, 50 min, mixed format, on L0,L1,L2	10%
Labs x 4	each worth 12.5%	50%
Final exam x 1	cumulative, mixed format, to be scheduled by the Registrar's Office	40%

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## **IMPORTANT COURSE-SPECIFIC CONDITIONS THAT ARE REQUIRED – PLEASE READ:**

### **Policy on Essential Learning Requirements to Earn a Passing Grade**

To receive a passing grade:

- Students must complete the final exam. 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.
- Students must have a passing grade (50% or higher) on the final exam to pass the course so as to demonstrate sufficient mastery of the course material.
- Students must complete all labs and be in attendance on MANDATORY data collection days as noted on the lab page.

### **Policy for the In-Class Test:**

- The test is currently scheduled for Tues Nov 13. This may change. Please refer to the Lecture page on Brightspace for the most up to date information regarding the in-class test.

- Only Accommodations with Documentation will be considered for the test.
- A make-up for the in class test is not currently planned. If it is missed and formal accommodation with documentation accepted, the percent value will be added to the final exam. Otherwise, a mark of 0 % will be given.

### Policy on Lab Assignment Due Dates and Late Labs

- Students are expected to submit each lab by the due date listed. Should extenuating circumstances arise, students do not need to request Academic Consideration. Instead, they are permitted to submit their lab up to 96 h past the due date without a late penalty (weekends and holidays are counted). Should students submit their lab beyond 96 h past the due date, a late penalty of 1.25% will be deducted for every 6 h late (weekends and holidays are counted).
- Academic Consideration requests may be considered only for extenuating circumstances that started before the due date and lasted longer than the No Penalty Period (96h). In such cases, the lab would normally be due within your accommodation period. For example, if you have an accommodation that ends September 15<sup>th</sup> at 11:59pm, your lab would be due no later than September 15<sup>th</sup> at 11:59pm. After that, a late penalty of 1.25% will be deducted for every 6 h late (weekends and holidays are counted).
- By policy, instructors may deny Academic Consideration requests for assessments with a no penalty period.
- All requests for Academic Consideration must be made within 48 hours after the due date.
- If you are with accessible education and are requesting an extension for a lab, please have your councillor contact me directly. Such labs would normally be due no later than 48 hours after the original due date.
- All class work must be submitted no later than the end of classes, consistent with Academic Policy. This can only be waived with an accommodation with documentation or via accessible education. One important proviso to such accommodations is that labs will only be accepted up to and including the end of the first week of exams. If your accommodation extends beyond this, you will receive an INCOMPLETE and will be given the opportunity to submit the lab the next time the course is offered.

### Policy on Submitting Labs

- All lab materials **must** be submitted electronically to verify time and date of completion. There are no exceptions. A hard copy of each report may also be required.
- Submit labs using the Brightspace webpage specifically for your lab section. Use the section specific webpage ONLY for lab submissions. Everything else, will be found on our main Brightspace coursepage (Biology3440 001).
- If you have any issues submitting your lab work to Brightspace, email all required documents to your TA by the deadline. This is acceptable only as an emergency measure.
- It is the student's responsibility to ensure that all graded materials are submitted properly and to the correct individuals. Claims that materials were submitted with no physical evidence that they had been, will be rejected. Submissions that are corrupted or that we are otherwise not able to be open are not considered submissions.

### Policy on the Use of Generative AI Tools

- All written work must be entirely the student's own. Therefore, the use of AI is strictly prohibited in your written work. This would be considered plagiarism and carries a penalty of 0% for that assignment. As plagiarism is a scholastic offense, other higher-level penalties may be enacted (see scholastic offenses). We will be using Turnitin. You may use AI tools for brainstorming only.

### Policy on Plagiarism

- Plagiarism will not be tolerated and carries a penalty of 0% for any assignment. As plagiarism is a scholastic offense, other higher-level penalties may also be enacted (see scholastic offenses). We will be using Turnitin.

## **Policy Regarding Queries of Grades**

- Any and all queries regarding marked material will be accepted for up to 21 days (weekends, holidays are days) once the grade is released. No further consideration will be given beyond this timeline. This is consistent with Academic Policy. If you have a query regarding marked materials, approach the marker first for input. If the input is not satisfactory, contact the instructor.
- Requests to arbitrarily increase your grade on the final exam will be automatically rejected. An example of an arbitrary request is to increase your grade from a fail (below 50%) to a pass (50%) so that you can pass the course.
- Requests to arbitrarily increase your final overall grade will be automatically rejected. Some examples of arbitrary requests include: an increase in your grade to move you from an F to a D, or a D to a C, or a C to a B, or a B to an A; an increase in your grade because you are wanting to apply to medical or dentistry or graduate school.
- Requests to do extra work or credit after all your grades are in so as to improve your final grade will be rejected. We are fortunate to have many resources for this course available to you to succeed. Please understand, however, that those resources are only available while the course is in progress. They do not exist otherwise. Therefore, please take advantage of all resources available to you at the time that they are available.

## **Policy on Intellectual Property of Lecture and Lab Materials**

- all materials posted for and/or presented to you are for your individual use only. DO NOT re-post, share, or sell any of this content with any other person(s), including crowd sharing sources. To do so is a breach of intellectual property. Audio and/or visual recording is not allowed (unless permission is given by the instructor, following Section 6 below).

# **6. Additional Statements**

## **6.1 Religious Accommodation**

When conflicts arise 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 of 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>

## **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](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](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](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](https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf)

[If cross-listed as a grad course] Procedures on Request for Relief from Academic Decision (Graduate):

[https://uwo.ca/univsec/pdf/academic\\_policies/appeals/graduate\\_requests\\_for\\_relief\\_procedure.pdf](https://uwo.ca/univsec/pdf/academic_policies/appeals/graduate_requests_for_relief_procedure.pdf)

#### **6.4 Scholastic Offences**

Policy on Scholastic Offences:

[https://uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_offences.pdf](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](https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf)

[If cross-listed as a grad course] Procedures on Scholastic Offences (Graduate):

[https://uwo.ca/univsec/pdf/academic\\_policies/appeals/graduate\\_scholastic\\_offence\\_procedure.pdf](https://uwo.ca/univsec/pdf/academic_policies/appeals/graduate_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.

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>).

### **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](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](mailto: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](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/>.

## 7. More Information Regarding Student Absences Including the Final Exam

### 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](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/](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

## **8. Land Acknowledgement**

We acknowledge that Western University is located on the traditional lands of the Anishinaabek, Haudenosaunee, Lūnaapéewak and Attawandaron peoples, on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum. This land continues to be home to diverse Indigenous peoples (e.g. First Nations, Métis and Inuit) whom we recognize as contemporary stewards of the land and vital contributors of our society.

More information about Indigenous Services (<https://indigenous.uwo.ca/>) and this Land Acknowledgement (<https://communications.uwo.ca/comms/land-acknowledgement/>) are available.