BIO3440a: Ecology of Populations – Syllabus 2024

1. Course Information

Lecture hours and location
Tuesday and Thursday, 12:30-1:30pm, WIRB 1170

Lab hours
Section 002, MON 2:30-5:30
Section 003, TUES 9:30-12:30
Section 004, MON 9:30-12:30

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.

Lab Locations:
Labs will occur either in BGS 2077 (data collection days) or SSC 1000 (computer labs for statistical analyses days). One data collection lab will occur at Gibbon's Park. You must dress appropriately for working in meadows, outside, under any weather condition.

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

Instructor	Email	Office	Phone	Office Hours
Dr. Liana Zanette	lzanette@uwo.ca	Collip 207	519-661-2111 x88317	By appointment only*
		*Office hours are not available after classes have ended		

TAs	Email	Section	Time	Office Hours
Amedeo Cortese	acortes8@uwo.ca	004	Mondays, 9:30-12:30	In Lab Only
Tessa Fortnum	tfortnum@uwo.ca	002	Mondays, 2:30-5:30	In Lab Only
Tessa Fortnum	tfortnum@uwo.ca	003	Tuesdays, 9:30-12:30	In Lab Only

Students must use their Western (@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 and Tentative Schedule

TENTATIVE SCHEDULE (see Lecture and Lab Pages for detailed and the most up to date information)

WEEK	LECTURE TOPIC	TUTORIAL
1	L00: Thur 5 September - TBA	*No Lab*
2	L0: Introduction to Population Ecology	*Sep 9-10 - Lab1 - Mandatory - Data Preparation - BGS 2077*
3	L1: Abundance I: Quadrats and Statistics	*Sep 16-17 - Lab 1 - Mandatory - Data Collection at Gibbons Park*
4	L2: Abundance II: Mark-Recapture Techniques	*Sep 23-24: Lab 2 - Mandatory - Data Collection - BGS 2077*
5	L3: Parameters and Basic Models of Population Growth	***see lab schedule - Lab 1 Statistical Analyses*
6	L3: Parameters and Basic Models of Population Growth	*Oct7-8 - Lab 1 DUE ; Lab 2 - Statistical Analyses - Computer Lab*
7	Reading Week	*Oct 14-15 -No Labs*
8	L3: Parameters and Basic Models of Population Growth	*Oct 21-22 - Lab 2 DUE; Lab 3 - Statistical Analyses - Computer Lab*
9	L3: Parameters and Basic Models of Population Growth	*Oct 28-28 - Lab 3 - Statistical Analyses - Computer Lab*
10	L4: Age-Structured Population Models	*Nov 4-5 - Lab 3 DUE ; Lab 4 - Mandatory - Data Collection - BGS 2077*
11	L5: Survival Analysis	*Nov 11-12 - Lab 4 - Statistical Analyses - Computer Lab*
12	L6: Limiting Factors and Interactions	*Nov 18-19 - Lab 4 DUE*
13	L7: Ecology of Fear	*Nov25-26 - NO LABS*
14	L7: Ecology of Fear	*Dec 4-5 - NO LABS*

Key sessional dates for the fall term

Sept. 5 Classes begin
Sept. 13 Last day to add a full-course or a first-term half course or drop a course without showing WDN
Sept. 30 National Day for Truth and Reconciliation (observed at Western). No classes.
Oct. 12-20 Fall Reading Week (including Thanksgiving, Oct. 14)
Dec. 2 Last day to withdraw from a first-term half course or full-year course without academic penalty (extended from Sat. Nov. 30)
Dec. 6 Last day of classes in the Fall term
Dec. 7-8 Study Days
Dec. 9–22 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 Required. You will not be able to do the labs without them, and they will help you better understand the lecture material. It is to your benefit to do the readings in advance of the associated lecture/lab. In many lectures, I provide information from the primary literature which I cite on the lecture slides/notes. Please use these to further help you understand course content. They would be considered Supplemental rather than Required. 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. Please see the Readings tab on the course webpage for further details. Please

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:

Test x 1	in class, 50 min, mixed format, on L0,L1,L2	12%
Labs x 4	each worth 12%	48%
Final exam x 1	cumulative, mixed format, to be scheduled by the Registrar's Office	40%

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

Essential Learning Requirements
The following are deemed essential to earn a passing grade.

- The final exam must be completed. If it is missed and formal accommodation granted, a make up exam will be arranged.
- 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.
- Completion of labs includes MANDATORY attendance on data collection days as noted on the lab page.

Lab Assignment Due Dates and Submission

- Lab assignments are due no later than 10 min into the beginning of lab on their given due dates

- 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.
- 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.

Evaluation Scheme for Late Assessments

- A make-up for the in class test is not currently planned. If it is missed and formal accommodation with documentation provided, the percent value will be added to the final exam. Otherwise, a mark of 0 % will be given.
- Late assignment submissions receive a 3.5% deduction for every 12 h late (weekends and holidays are counted).
- Accommodations for late labs with documentation are due within your accommodation period. For example, if you have an accommodation that ends September 15th at 11:59pm, your lab would be due no later than September 15th at 11:59pm. Submitted accommodations for late labs with no documentation (as described below) will be due 48 hours after the original due date.
- If you are with accessible education and are requesting an extension for a lab without going through the accommodation process, please have your councillor contact me directly. Such labs would normally be due 48 hours after the original due date. The provisos indicated in the two bullet points below apply.
- 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. One important proviso to such accommodations is that labs will only be accepted up to and including the day of the final exam. If your accommodation extends beyond this, we will instead reweight your final exam to include the value of that lab.
- If you have accommodations for a lab that extends into the December final exam period and you also have an accommodation that would permit you to write the final exam make-up, your outstanding lab will be accepted only if received at least 4 days before the end of the December exam period. For example, if the end of the December exam period is December 22, your outstanding lab must be submitted not later than Dec 18. Otherwise, your final exam make-up will be reweighted to include the value of that lab.
- 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.

Queries Regarding 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 final grade after all of your final grades are in 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 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.

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.

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. 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,

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

- Examinations scheduled during official examination periods (Defined by policy)
- Practical laboratory and performance tests (Defined by policy)
- Midterm

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.

Absences from Final Examinations

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under Special Examinations).

Note: missed work can *only* be excused through one of the mechanisms above. Being asked not to attend an in-person course requirement due to potential COVID-19 symptoms is **not** sufficient on its own.

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.

You may use a non-programmable calculator for the test and exam.

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/.

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.