

## Biology 3445F Course Outline

### 1. Course Information

#### Course Information

Biology 3445F – Community Ecology

Lectures: Monday and Wednesdays, 12:30 pm – 1:30 pm (In-person; WIRB-1170).

Labs: Section 002: Thursdays, 2:30-5:30 pm (In-person; BGS 2077)

Section 003: Wednesdays, 2:30-5:30 pm (In-person; BGS 2077)

Section 004: Thursdays, 9:30-12:30 pm (In-person; BGS 2077)

#### List of Prerequisites

Biology 2483A – Ecology

Biology 2244A – Biostatistics with a minimum 60%.

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 Information

Dr. Zoë Lindo (they/them)

Samantha Hopkins (she/her)

Pedro Conceição (he/him)

Professor

Teaching Assistant

Teaching Assistant

zlindo@uwo.ca

shopki23@uwo.ca

pconcei@uwo.ca

Students must use their Western (@uwo.ca) email addresses when contacting their instructors. Please put '3445' at the beginning of the subject for all email correspondence, including to your TA. Please note, we cannot guarantee response to questions in the 24-hour period prior to assignment deadlines and exams.

Office hours will be online (Zoom) or otherwise announced.

### 3. Course Syllabus, Schedule, Delivery Mode

An integrative approach to ecology, stressing the structure and function of ecological communities. Theoretical explanations for patterns of diversity, stability and productivity across a variety of spatial and temporal scales, and community types are evaluated in light of empirical evidence.

As a result of attending lectures, in assessments students should be able to:

- recognize typical patterns in ecological communities across space and time
- outline (categorize) and describe in words factors affecting the structure of ecological communities

- interpret the graphical presentation of ecological community data, often in relation to other biotic or abiotic factors
- recognize and apply theoretical principles of community ecology to scenario-based examples

As a result of participating in hands-on laboratory activities, students should be able to:

- recognize and measure ecological community response variables
- generate and manage community data using spreadsheets
- use statistical analysis software to import data, perform summary statistics, perform visualizations of the data, and perform standard descriptive and statistical tests for both univariate and multivariate data
- independently collect, analyze, and interpret data, and communicate these results in written form
- present an interpretation of results in a written form using support from the primary literature.

### Lecture Schedule

Classes begin: September 8, 2022

Fall Reading Week: October 31 – November 6, 2022

Classes end: December 8, 2022

Exam period: December 10 – 22, 2022

Section	Date	Lecture	Topic
Introduction	Sept 12	1	Introduction and course organisation
Section I: How do we study communities?	Sept 14	2	Describing communities: richness, abundance, composition
	Sept 19	3	Experimental design and common statistics: multivariate and ordinations
	Sept 21	4	Common patterns: Intro to SADs, SARs, rank abundance, rarefaction, latitude, altitude
	Sept 26	5	SARs: 3 hypotheses
	Sept 28	6	Niche vs Neutral: underlying themes (space / environment) and debates
Section II: Community assembly	Oct 3	7	Community assembly: overview, niches: fundamental vs realised
	Oct 5	8	Interactions: Competition, Predation, Facilitation
	Oct 10	Thanksgiving	
	Oct 12	9	Island Biogeography Theory (target effect etc.)
	Oct 17	10	Colonisation: space and dispersal – connectivity and corridors
	Oct 19	11	Gradients and boundaries: distance decay models
	<b>Oct 24</b>	<b>In-term test (lecture 2-11)</b>	
Section III: Community Properties	Oct 26	12	Metacommunities
	Oct. 31 – Nov 4	Reading Week	
	Nov 7	13	Succession: communities over time
	Nov 9	14	Interactions and Stability
	Nov 14	15	Food webs
	Nov 16	16	Trophic cascades

Section IV: Community disassembly	Nov 21	17	Disassembly: the process of extinction
	Nov 23	18	Disturbance: IDH
	Nov 28	19	Stressors: climate change, habitat loss, SLOSS
Section V: Consequences of Biodiversity Loss	Nov 30	20	Biodiversity-Ecosystem Function relationships
	Dec 5	21	Trait-based approaches and functional diversity
	Dec 7	22	Ecosystem services and planetary boundaries

### Lab Schedule

This is a tentative schedule of labs. Due to logistical considerations of your TAs, you must attend your own lab section. Your TAs are not required to explain background information that is presented in lectures prior to your lab sessions.

Date	Lab #	Topics covered	Due in-class	Due online
Sept. 14-15		No labs		
Sept. 21-22	1	Plant communities: species area curves	data	
Sept. 28-29	2	Stream invertebrates 1: sampling & site characterization	data	
Oct. 5-6	3	Stream invertebrates 2: identification	data	
Oct. 12-13	4	Coarse Woody Debris invertebrates: data collection	data	
Oct. 19-20	5	Introduction to community data in R; Diversity indices and univariate statistics		Assignment
Oct. 26-27	6	RADs, accumulation curves, and richness estimators; Incorporating environmental and spatial data; SARs		
<b>Nov. 2-3</b>		<b>Reading Week (no labs)</b>		
Nov. 9-10	7	<b>Open lab session - help with class data analyses</b>		
Nov. 16-17	8	<b>Information about your lab report</b>		Assignment
Nov. 23-24	9	Introduction to multivariate data; Similarity matrices and common community ordination techniques	data	
Nov. 30- Dec. 1	10	<b>Open lab session - help with final lab report</b>		
<b>Dec. 7-8</b>		<b>Final Lab Report due</b>		Final report

### Contingency plan for an in-person class pivoting to 100% online learning

In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, affected course content will be delivered entirely online, either synchronously (labs via Zoom) or asynchronously (e.g., lectures posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor.

## 4. Course Materials

All course material will be posted to OWL: <http://owl.uwo.ca>. This is the primary method by which information will be disseminated to all students in the class, and students are responsible for checking OWL on a regular basis. There is no textbook for this course. All lecture and lab material will be posted on OWL.

Proper clothing must be worn for all in-person labs (long pants, socks, closed-toed shoes). Some labs will be outside, please come prepared for rain, sun, wind, etc. and dress appropriately.

If students need assistance with the course OWL site, they can seek support on the OWL 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

In the event of pivoting from in-person to completely online, you must have access to a computer with the following:

- Stable internet connection
- Zoom

As a contingency plan, labs 1-4 will focus on data collection; labs 5-10 will focus on data exploration, analyses, and visualization. Whether in-person or online, you must have access to a (laptop) computer with the following:

- Office suite with Word, Excel
- The statistical software R (<https://cran.r-project.org/>) and RStudio (<https://rstudio.com/products/rstudio/download/>). Both are available for free. Please ensure that you have administrator access for your computer as you will need to install different R packages for different labs. **Note:** tablets are not functional computers for these labs.

## 5. Methods of Evaluation

The overall course grade will be calculated as listed below:

Lecture participation	5%	Half-sheets* (2% each)
Lab participation (5)	5%	In-class submission (1% each)
Lab assignments (2)	10%	See lab schedule (5% each)
In-term test	20%	Oct. 24, 2022
Laboratory report	20%	Dec. 7-8, 2022
Final exam (cumulative)	40%	Dec. 10 – 22, 2022

The final exam will be scheduled by the Registrar's Office during the December exam schedule.

### Important Notes about Evaluations

- \*Lecture participation will be assessed using 'half-sheets'. These are a quiz-style learning tool that I use to demonstrate learner-centred progress. Monday class will start and end with a one question quiz. There are no marks associated with the answer, but you are expected to hand in half-sheets at the end of class for your 5% participation mark (2% each). **Weekly half-sheets cannot be made-up.**
- There are five (5) labs with hand-in class data; these are due prior to leaving your lab session for your 5% participation mark (1% each). Lab data will be used in the final lab report. **In-lab submissions cannot be made up.**
- The two lab assignments (5% each) are due via OWL submission prior to the beginning of the lab section that you are assigned (see lab schedule). Lab assignments help prepare for the final lab report. **Late lab assignments will be penalized 10% per day or part thereof (including weekends) and will not be accepted more than 4 days late.**

- The final lab report is due via OWL submission prior to the beginning of the lab section that you are assigned on week of December 7<sup>th</sup> / 8<sup>th</sup>, 2022. **Late lab reports will be penalized 10% per day or part thereof (including weekends) and will not be accepted more than 4 days late.**
- All written assignments and the final lab report will be submitted to plagiarism detection software Turnitin.
- This course is designated as an ‘essay course’ (i.e., with a suffix of E, F, G, or Z). The written lab assignments and final lab report are a compulsory component of the course. To satisfy the Senate requirement that students must demonstrate “some minimal competence in essay writing” in order to pass the course, **a passing grade (50%) on the combined weighted average of the written lab assignments and final lab report is required to pass the course.**
- A minimum average grade on the midterm test and final exam of 45% is required to pass the course to ensure that students demonstrate sufficient mastery of the learning outcomes.
- An overall weighted average grade across all assessments of 50% is required to pass this course.

## 6. Student Absences

If you are unable to meet a course requirement due to illness or other serious circumstances, please follow the procedures below.

### Assessments worth 10% or more of the overall course grade:

By policy, academic considerations for work totalling 10% or more of the final course grade can be granted only by the student’s Faculty of Registration (typically by their academic counsellors). For work totalling 10% or more of the final course grade, you must provide valid medical or supporting documentation to the Academic Counselling Office of your Faculty of Registration as soon as possible. For further information, please consult the University’s medical illness policy at

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/accommodation\\_medical.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf).

The Student Medical Certificate is available at

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf).

There are three components of this course with assessment values greater than 10%: the in-term test (midterm), the final lab report, and the final exam.

- A student who misses a final exam due to illness will be offered a Special Examination, which will be scheduled by the Department of Biology.
- A student who misses the in-term (midterm) test due to illness will be offered a make-up test, which will be scheduled four days later (i.e., Friday Oct. 28<sup>th</sup>, 2022).
- A student who misses the final lab report due to illness will be granted an extension of no more than five (5) days without penalty (i.e., Monday Dec. 12 or Tuesday Dec. 13<sup>th</sup>, 2022).

### 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](#)).

### **Assessments worth less than 10% of the overall course grade:**

There are three components with assessment marks less than 10% each: half-sheets (lecture participation), in-class generated lab data (lab participation), and written lab assignments.

- Weekly half-sheets (10 total) are administered in class and are worth 2% each; these cannot be made-up.
- In-lab data submissions are generated from in-lab activities and cannot be made-up. There are five (5) hands-on lab sessions (4 data generation and 1 data analysis; see lab schedule) each worth 1%. Missed in-lab data submissions cannot be made-up.
- Missed submission of lab assignments (5% each) due to illness will be granted an extension of no more than two (2) days without penalty (including weekends) and will be penalized 10% per day (or part thereof, also including weekends) following this extension, and will not be accepted more than 4 after the 2-day extension.
- **No course evaluation assessment value** will be reweighted to another course evaluation assessment.

**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.

## **6. Accommodation and Accessibility**

### **Religious Accommodation**

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

<https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>.

### **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).

## **7. Academic Policies**

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

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 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.

Electronic devices will or will not be permitted on tests and exams except for base-model scientific calculators.

**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:

[http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_undergrad.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf).

Biology 3445F is an essay-based course. Students must write their lab assignments and final lab report in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt by using quotation marks where appropriate (rare in science) and/or by properly paraphrasing and appropriately citing the source of the information. You are expected to know what plagiarism is at this stage of your programme.

All required papers (lab assignments and final lab report) will 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>).

If tests and examinations in this course require on-line assessment (i.e., in the event of a Covid lock-down) they will be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at:

<https://remoteproctoring.uwo.ca>.

### **Professionalism & Privacy:**

Western students are expected to follow the Student Code of Conduct. Additionally, the following expectations and professional conduct apply to this course:

- All course materials created by the instructor(s) are copyrighted and cannot be sold/shared
- Recordings are not permitted (audio or video)

### **Land acknowledgment**

In this course, we acknowledge the historical and ongoing injustices that Indigenous Peoples endure in Canada, and we accept responsibility to contribute toward revealing and correcting miseducation as well as renewing respectful relationships with Indigenous communities through our teaching.

Western University is located on the traditional lands of several First Peoples: the Anishinaabek, Haudenosaunee, Lūnaapéewak and Attawandaron peoples. This land continues to be home to diverse



Indigenous peoples (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 Western University Land Acknowledgement (<https://communications.uwo.ca/comms/land-acknowledgement/>) are available.

## 8. Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling 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](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).

Learning-skills counsellors at the Student Development Centre (<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/>.