Subject Biol 3445F Course Outline

1. Course Information

Course Information
Biology 3445F – Community Ecology

List of Prerequisites
Biology 2483A – Ecology
Biology 2244A – Biostatistics with a minimum 60%.

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for this course or written special permission from the Department of Biology to enroll in it, you may be removed and withdrawn from this course in accordance with university policy. This may be done after the add/drop deadline of the academic term, and the course will be marked as withdrawn (WDN) on your academic record.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 Information

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.

3. Course Syllabus, Schedule, Delivery Mode

This course is 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 4, 2025
Fall Reading Week: November 3–9, 2025
Classes end: December 9, 2025
Exam period: December 11–22, 2025

Theme	Date	Lecture	Topic
Introduction		1	Introduction and course organisation
Theme 1: How do we study communities?		2	Describing communities: richness, abundance, composition
		3	Experimental design and common statistics: multivariate and ordinations
		4	Common patterns: Intro to SADs, SARs, rank abundance, rarefaction, latitude, altitude
		5	SARs: 3 hypotheses
Theme 2: Community assembly		6	Niche vs Neutral: underlying themes (space / environment) and debates
		7	Community assembly: overview, niches: fundamental vs realised
		8	Interactions: competition, predation, facilitation
		9	Island Biogeography Theory (target effect etc.)
		In-term test 1 (lectures 2-8)	
		Thanksgiving	
		10	Colonisation: space and dispersal – connectivity and corridors
		11	Gradients and boundaries: spatial autocorrelation

Theme 3: Community properties		12	Metacommunities
		13	Succession: communities over time
		14	Interactions and Stability
		Reading Week	
		15	Food Webs & Trophic Cascades
Theme 4: Community disassembly		16	Disassembly: the process of extinction
		In-term test 2 (lectures 9-15)	
		17	Disturbance: IDH
		18	Stressors: climate change, habitat loss
		19	Biodiversity-Ecosystem Function relationships
		20	Trait-based approaches and functional diversity
		21	Ecosystem services

Lab Schedule
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*
	No labs			
	1	Plant communities: species area curves	data	
	2	Coarse Woody Debris invertebrates: data collection	data	
	3	Stream invertebrates 1: sampling & site characterization	data	
	4	Stream invertebrates 2: identification	data	
	5	Introduction to lab assignments and lab report		
	6	Introduction to community data in R; diversity indices and univariate statistics	data	Assignment
	7	RADs, accumulation curves, and richness estimators; Incorporating environmental and spatial data; SARs	data	
	Reading week			
	8	Introduction to multivariate data; Similarity matrices and common community ordination techniques	data	
	9	Open lab session		Assignment
	10	Open lab session		
	11	Open lab session		
	Final lab report due			Final report

* see evaluations

4. Course Materials

There is no textbook for this course.
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.

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.

Technical Requirements
For labs working with data and performing statistical analyses, 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

Grading Scheme and Assessment Dates

The overall course grade will be calculated as listed below:

Lecture participation (10/11)	5% (0.5% each)	Half-sheets
Lab participation (5/7)	5% (1% each)	In-class submissions
Lab assignments (0/2)	5% (2.5% each)	See lab schedule
In-term tests (2)	30% (15% each)	See lecture schedule
Final lab report	25%	
Final exam (cumulative)	30%	Set by registrar office during exam period

Use of Generative AI Tools
The use of generative AI tools (e.g., ChatGPT, Copilot, Gemini) is prohibited in this course for all assignments, including the final lab report. Biol 3445F is an essay-based course designed to develop your own skills in scientific thinking, analysis, and communication.

- Lab Assignment #1 (Methods) and Lab Assignment #2 (Results) require original analysis and description based on your own work—AI tools will not assist with these tasks.
- The Final Report is a complete lab report synthesizing your own methods, results, and interpretation. All writing must be your own, without AI-generated text, figures, or analysis.

Using AI tools for any part of these assignments will be treated as academic misconduct under the university's policies.

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)

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

- Lecture participation will be assessed using 'half-sheets'. These are a quiz-style learning tool that I use to demonstrate learner-centred progress. 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 (0.5% each; 10/11 half-sheets will be graded/considered). **Weekly half-sheets cannot be made-up.**
- There are seven (7) labs with associated hand-in data considered as participation; these are due prior to leaving your lab session for your 5% participation mark (1% each; 5/7 lab data hand-ins will be graded/considered). **In-lab submissions cannot be made up. Labs are a mandatory component of the course.**
- The two lab assignments (2.5% each) are due via Brightspace submission prior to the beginning of the lab section that you are assigned (see lab schedule). Lab assignments help prepare you for the final lab report by providing feedback and opportunity for an improved grade on the final report. **Late lab assignments will not be accepted. The percent of your assignment grade (either 2.5% or 5%) for missing one or both assignments will be carried over to your final lab report [i.e., this means your final lab report could be worth 25%, 27.5% or 30% of your final grade].** It is highly recommended that you complete the assignments for feedback.
- In-term tests will be during class hours and formal documentation is required for academic consideration. **Students must request academic consideration as soon as possible and no later than 48 hours after the missed test.** Make-up tests will be scheduled on a need basis and held within 1 week of the original test.
- The final lab report is due via Brightspace submission. A no penalty late extension period will be granted (4 days). **Following that period, late lab reports will be penalized 10% per day or part thereof (including weekends) and will not be accepted after December 13th, 2025 at 11:55 pm.**
- All written assignments and the final lab report will be submitted to plagiarism detection software.

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.

Essential Learning Requirements
Even when Academic Considerations are granted for missed coursework, the following are deemed essential to earn a passing grade.

- 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 two midterm tests 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.

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

Flexible Completion

Lecture participation. This course has 21 lectures of which 11 will be assessed for participation using in-class half-sheets; 10 in-class half-sheets will be considered for 5% participation marks towards your final grade. Academic Consideration requests will not be considered for missed lecture participation.
Lab participation. This course has seven (7) labs with associated in-lab completion of data that are considered as participation of which five (5) will be considered towards your final grade. These are due during the designated lab session times, and laboratories are a mandatory component of this course. Academic Consideration requests will not be considered for missed lecture participation.
Lab assignments. This course has two (2) lab assignments each worth 2.5%. These assignments form part of the preparation for your final lab report by giving you feedback on your work and supporting successful, timely completion of the final lab report. Completion of the lab assignments is strongly recommended but not mandatory. If you choose not to submit one or both assignments, the corresponding percentage (2.5% or 5%) will be reallocated to the final lab report grade. This means your final lab report may be worth 25%, 27.5%, or 30% of your final grade, depending on the number of lab assignments completed.

Deadline with a No-Late-Penalty Period
Final Lab Report. Students are expected to submit their final lab report 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 4 days past the deadline without a late penalty. Should students submit their assessment beyond 4 days past the deadline, a late penalty of 10% per day will be applied. Late lab reports handed in beyond Dec 13th, 2025 at 11:55pm, will not be graded and the student will receive a grade of zero.

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.

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.

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.

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/.