

Faculty of Science Course Syllabus (Section A) (revised June 2020)
Department of Biology
BIOL 3061 Communities and Ecosystems
Fall 2020

Instructor(s): Patricia Lane e-mail: patricia.lane@dal.ca

TAs Amelié Paulin (marking 3 Assignments, Loop Analysis, and Computer-Brightspace Help)
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Office hours by appointment on Microsoft Teams

Lectures: asynchronous, lecture and slides posted on Brightspace

Course Description Part 1 includes ecosystem history and theory, species interactions, modelling, complex systems theory, systems ecology, quantitative approaches such as computer simulation and qualitative approaches such as loop analysis. Part 2 discusses food webs, ecological networks, trophic cascades, ecological complexity and stability, regime shifts, and ecosystem-based management.

Course Prerequisites BIOL 2060.03 (or BIOA 3001.03) or INTD 2001.03 or INTD 2002.03 or OCEA 2000X/Y.06

Learning Objectives At the end of this class, students will be able to:

1. Read scientific literature critically, evaluate the logic flow from assumptions to conclusions, and identify any shortcomings.
2. Write insightful and well-organized scientific reports.
3. Design and conduct an independent field investigation and provide your results in a video presentation.
4. Learn how to ask interesting questions about an ecosystem and provide ways to obtain answers to your questions.
5. Understand systems and why ecosystems are systems in more than name only.
6. Compare qualitative versus quantitative approaches and models for ecosystems.
7. Analyse the main types of two-species biological interactions and their role in community structure.
8. Understand different types of food web models and evaluate their usefulness.
9. Model a real-world ecosystem using loop analysis.
10. Understand trophic cascades and escalades, and their effects in food webs and ecological networks.
11. Distinguish ecological complexity and ecological complication.
12. Understand the concept of ecological stability by contrasting different types of change in ecosystems and their alternative steady states.
13. Explain if ecosystems are chimeras, and if so, what does this mean for ecosystem evolution?
14. Translate what you have learned about ecosystem theory to issues in ecosystem-based management.

Course Materials and Communications

This course relies on the scientific literature and the use of the class website on Brightspace. Each week there is an on-line study module with readings, websites & videos, activities, and study questions that expand the lectures.

- Required textbook(s): none
- Course Brightspace page with Panopto (video lectures) and Collaborate Ultra (discussions).
- e-journal articles involving research literature available online from the Dalhousie Library
- Any online platforms outside Brightspace-Microsoft Teams – Office 365 & Zoom
- Email-class messages, reminders, and announcements will be sent to all students via Brightspace but a student should email Dr. Lane (patricia.lane@dal.ca) to ask a question directly, set up a virtual meeting, etc.
- A student should email the Teaching Assistants directly to ask a question about the marking of a quiz or assignment.

Course Assessment

Component	Weight (% of final grade)	Date Due
10 Quizzes on Modules @ 6 pts each	60%	Sept 13, 20, 27, Oct 4, 11, 18, 25, Nov 1, 15, 22
Assignment 1-Critique of a Scientific Paper	10%	Oct 7
Assignment 2-50 Questions, Ecosystem Field Observations, Modelling & Video Presentation	20%	Nov 5
Assignment 3-Critique of an Ecosystem-Based Management Plan	10%	Dec 5
Total	100%	

Other Course Requirements:

1. There are no synchronous components and no ungraded components.
2. Assignments 1, 2 and 3 as well as quizzes 1-10 will be typed and submitted online for Urkund checking by 11:59 pm on the date dues listed above. Points will be deducted for lateness.

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale

A+ (90-100)	B+ (77-79)	C+ (65-69)	D	(50-54)
A (85-89)	B (73-76)	C (60-64)	F	(<50)
A- (80-84)	B- (70-72)	C- (55-59)		

BIOL 3061 2020 CLASS SCHEDULE

*Module quizzes due each week at 11:59 pm Atlantic Standard Time (AST) on first Sunday after end of week as listed below. Assignment and video presentation due dates as indicated below.

Module /Week	Assignments Due	Module Topic and Question (Q.)
1 Sept 8-12		Q1: What Is a System and Are Ecosystems Systems or Random Assemblages of Species?
2 Sept 13-19	Quiz Module 1 due Sept 13	Q2: What Is A Model & Why Do We Use Them in Ecology? (Comparing a Conceptual Model & a Math Model).
3 Sept 20-26	Quiz Module 2 due Sept 20	Q3: Why are Two-Species Interactions Often Misleading and Inadequate at the Community Level?
4 Sept 27 Oct 3	Quiz Module 3 due Sept 27	Q4: How Are Food Webs and Ecological Networks Useful for Characterizing Ecosystems
5 Oct 4-10	Quiz Module 4 due Oct 4 Assignment 1 Due by 11:59 AST on Oct 7	Q5: ABC's of Loop Analysis TA 1: Video on Loop Analysis Modelling Submission
6 Oct 11-17	Quiz Module 5 due Oct 11	Q6: Do Trophic Cascades or Trophic Escalades Act as Controllers in Food Webs?
7 Oct 18-24	Quiz Module 6 due Oct 18	Q7: Are Food Webs Controlled Internally or Externally and What Does This Mean for Ecosystem Stability?
8 Oct 25-31	Quiz Module 7 due Oct 25	Q8: Are Ecosystems Complex or Merely Complicated?
9 Nov 1-7	Quiz Module 8 due Nov 1 Assignment 2 due by 11:59 AST on Nov 5	Q9. Do Ecosystems Function as Chimeras and How Do They Evolve at the Ecosystem Level?
Nov 8-14	STUDY BREAK	STUDY BREAK
10 Nov 15-21	Quiz Module 9 due Nov 15	Q10: Can Ecosystems be Managed and What Is 'Ecosystem-Based Management'?
11 Nov 22-28	Quiz Module 10 due Nov 22	Summing Up Assignment 2: What Are the Most Interesting Ecosystem Questions-TA 1
12 Nov 29- Dec 3	Assignment 3 Due Dec 5	Future Challenges in Ecosystem Ecology From My Viewpoint by TA 1 Future Challenges in Ecosystem Ecology From My Viewpoint by TA 2

Course Policies (See also university policies and websites on last pages of this syllabus.)

Grading and Marking

You will not receive a letter grade lower than what is indicated for your final point value listed above, although the professor reserves the right to give you a higher grade. Because the scale is generous for A's and B's (30 points) as compared to C's and D's (20 points), individual marks will only be rounded up if the student has more than 0.50 above the maximum value for a particular letter grade. For example, if you received 79.51 points, you would receive an A- in the class and not a B+. If you received 79.49 points, you would receive a B+ and not an A-. The final grade that you receive in a class is the total of the work that you did and the knowledge that you gained. A grade is something that you earn. If you require a final grade at a particular level for an honours degree, job, graduate or professional school, or other purpose, you should ensure that you put the time and effort in during the term to earn that grade. The Professor is willing to give you extra help and study assignments if you believe that you are not achieving a satisfactory level of proficiency in the class. Please do not come at the end of the term requesting a higher grade because you need it to fulfil a requirement, enter graduate school, you worked hard, or because you paid your tuition. These are not satisfactory reasons. It is unfair to the other students in the class who have done the work, and to the university, which needs to maintain fair and high standards of academic achievement. Although assignments will have a detailed point distribution for marking, the Teaching Assistant has discretionary power to deduct additional points (up to 10%) for overall sloppy writing, poor grammar and spelling, messy format, inadequate referencing, and overall inferior quality of the assignment. All assignments are to be typed and spell & grammar-checked before submission.

Absences and Missed Work

Use the Student Declaration of Absence form for missed academic requirements in this course if you are ill for more than 3 consecutive days (not 3 class days) as per university policy. A submission site for your declaration is given on the class website on Brightspace. Two submissions are permitted per term. The possibility of making up late work is at the discretion of the professor. "Students experiencing recurring long-term absences are strongly encouraged to meet with a Faculty or Declared Major Advisor, or Faculty Program Coordinator and refer to the University's Student Accommodation Policy." We do not have the possibility of offering alternative assignments or changes in weighting of points per requirement.

Individual Work and Plagiarism

All work in this class is to be done individually. Do not collaborate on assignments or tests; they will also be checked for originality by Urkund. DO NOT SHOW ANYONE YOUR WORK. All instances of suspected plagiarism will be reported promptly to the Academic Integrity Officer of the Faculty of Science.

Late Assignments and Extensions:

Any material submitted for evaluation after the designated deadline will have marks deducted at the rate of 10% per day late including weekends. Extensions without the mark penalty will be given only with a valid Student Declaration of Absence or other excuse as approved by the professor. If you file a Student Declaration for a short-term absence from class, you need to follow-up with Dr. Lane on when the missed work is due.

Faculty of Science Course Syllabus (Section B) (revised June-2020) Fall 2020

University Policies and Statements

This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate

Missed or Late Academic Requirements due to Student Absence

As per Senate decision instructors may not require medical notes of students who must miss an academic requirement, **including the final exam**, for courses offered during fall or winter 2020-21 (until April 30, 2021).

Information on regular policy, including the use of the Student Declaration of Absence can be found here: https://www.dal.ca/dept/university_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.html.

Academic Integrity

At Dalhousie University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these values in all of the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity.

Information: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Advising and Access Services Centre is Dalhousie's centre of expertise for student accessibility and accommodation. The advising team works with students who request accommodation as a result of a disability, religious obligation, or any barrier related to any other characteristic protected under Human Rights legislation (Canada and Nova Scotia).

Information: https://www.dal.ca/campus_life/academic-support/accessibility.html

Student Code of Conduct

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner—perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution.

Code: https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

Diversity and Inclusion – Culture of Respect

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness

Statement: <http://www.dal.ca/cultureofrespect.html>

Recognition of Mi'kmaq Territory

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel and support. Visit or e-mail the Indigenous Student Centre (1321 Edward St) (elders@dal.ca).

Information: https://www.dal.ca/campus_life/communities/indigenous.html

Important Dates in the Academic Year (including add/drop dates)

https://www.dal.ca/academics/important_dates.html

University Grading Practices

https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html

Student Resources and Support**Advising**

General Advising https://www.dal.ca/campus_life/academic-support/advising.html

Science Program Advisors: <https://www.dal.ca/faculty/science/current-students/academic-advising.html>

Indigenous Student Centre: https://www.dal.ca/campus_life/communities/indigenous.html

Black Students Advising Centre: https://www.dal.ca/campus_life/communities/black-student-advising.html

International Centre: https://www.dal.ca/campus_life/international-centre/current-students.html

Academic supports

Library: <https://libraries.dal.ca/>

Writing Centre: https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html

Studying for Success: https://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html

Copyright Office: <https://libraries.dal.ca/services/copyright-office.html>

Fair Dealing Guidelines <https://libraries.dal.ca/services/copyright-office/fair-dealing.html>

Other supports and services

Student Health & Wellness Centre: https://www.dal.ca/campus_life/health-and-wellness/services-support/student-health-and-wellness.html

Student Advocacy: <https://dsu.ca/dsas>

Ombudsperson: https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html

Safety

Biosafety: <https://www.dal.ca/dept/safety/programs-services/biosafety.html>

Chemical Safety: <https://www.dal.ca/dept/safety/programs-services/chemical-safety.html>

Radiation Safety: <https://www.dal.ca/dept/safety/programs-services/radiation-safety.html>

Scent-Free Program: <https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html>

