Faculty of Science Course Syllabus (revised June 2018)
Department of Biology

BIOL 3061 Communities and Ecosystems
Fall 2019

Instructor(s): Patricia Lane **Email: patricia.lane@dal.ca** **Office Location: Biology 5130**

TAs: Liam MacNeil (marks quizzes and tests) and Shannon Landovskis (marks assignments)
Lectures: Tuesdays & Thursdays 10:05-11:35 in Life Science Center, Common Area Room C236

Course Description

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

Course Prerequisites

Prerequisites: BIOL 2060.03 (or BIOA 3001.03) or INTD 2001.03 or INTD 2002.03

Course Objectives/Learning Outcomes (Be able to:)

1. Read scientific literature critically and identify the logic flow from assumptions to conclusions.
2. Write insightful, well-reasoned, and well-organized scientific reports.
3. Understand systems and why they are important at the ecological level.
4. Compare qualitative versus quantitative approaches and models for ecosystems.
5. Analyze the main types of two-species biological interactions (competition, predation, and mutualism) and their role in community structure.
6. Differentiate different types of food web models and evaluate their usefulness.
7. Understand trophic cascades and escalades, and their effects in food webs and ecological networks.
8. Distinguish ecological complexity and ecological complication.
9. Understand the controversy of whether nature is in balance and the concept of ecological stability.
10. Explain if ecosystems are chimeras, and if so, what does this mean for community evolution.
11. Recognize the relationship between community structure and function.
12. Contrast different types of change in ecosystems and their alternative steady states.
13. Translate what you have learned about ecosystem theory to issues in environmental management.
14. Appreciate how many environmental issues cannot be resolved by science alone and often aspects of their social, economic, and political context need to be included.

Course Materials

This course relies on the scientific literature and the use of the class website on Brightspace. Each week there is an on-line study unit with readings, website visits, activities, and study questions that support the lectures. You are expected to complete the study unit before the associated lectures. The class schedule indicates when assignments are due and when quizzes and tests will be conducted.

Course Assessment

Component	*% of final grade*	*Date*
Quizzes (8 in total)	*40% (5% each)*	*Sept. 12, 19, 26, Oct. 3, 10, 24, 31, Nov. 1, 7*
Assignments (1)	*10%*	*September 24*
(2)	*20%*	*October 22 (including presentation)*
(3)	*10%*	*November 5*
Test	*20%*	*November 28, 2019*

Other Course Requirements

Attendance-you are expected to attend every lecture and attendance will be taken.

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)	

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 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 a A-.

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

Absences

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. Two submissions are permitted per term. The possibility of making up late work is at the discretion of the professor. For longer illnesses, you will need a medical excuse and meeting with the professor.

Individual Work

All work in this class is to be done individually except for Assignment 2 and your group Presentation.

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 medical 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 how the missing work will be treated. Missing a test is serious and you must inform Dr. Lane why you will not take the test no later than 9 pm on the night before the test. Failure to do this could result in you not having the opportunity for a retest.

Marking:
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. The final grade that you receive in a class is the sum 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 has to maintain fair and high standards of academic achievement.

Office Hours:
Room 5130 by appointment.

Plagiarism

Plagiarism software (Urkund) will be used in this course for the assignments. On the day your assignment is due, you need to submit a paper copy in class and an electronic and identical version on-line at the class website by midnight of the same day. All instances of suspected plagiarism will be reported promptly to the Academic Integrity Officer of the Faculty of Science.

Use of Electronic Equipment in Class:
The use of cell phones, both calls and texts, during class is strictly forbidden. Cell-phones and other communication devices should be set to vibrate during class. No electronic devices are allowed during quizzes and tests and they need to be placed at the front of the room.

Seating
Please sit in the first five rows of the classroom.

BIOL 3061 Communities and Ecosystems 2019 Class Schedule

Week	Date	Date Due	Topic and Question	Study Unit
1A	Sept 3		Q1: What Is a System and Are Ecosystems Systems or Random Assemblages? Why?	1
1B	Sept 5			
2A	Sept 10		Q2: What Is A Model & Why Do We Use Them in Ecology? (Comparison of a Conceptual Model & a Math Model).	2
2B	Sept 12	Quiz 1 (on Week 1)		
3A	Sept 17		Q3: Why are Two-Species Interactions Often Misleading and Inadequate at the Community Level?	3
3B	Sept 19	Quiz 2 (on Week 2)		
4A	Sept 24	Assignment 1	Q4: How Are Food Webs and Ecological Networks Useful for Characterizing Ecosystems?	4
4B	Sept 26	Quiz 3 (on Week 3)		
5A	Oct 1		Q5: Do Trophic Cascades or Trophic Escalades Control Food Webs? How Can We Know?	5
5B	Oct 3	Quiz 4 (on Week 4)		
6A	Oct 8		Q6: Are Ecosystems Complex or Merely Complicated?	6
6B	Oct 10	Quiz 5 (on Week 5)	Use rest of class to plan field trip & Presentation/Assignment 2 in groups.	
7A	Oct 15	Presentations 2 days/No quiz	Student Presentations Part of Assignment 2	7
7B	Oct 17			
8A	Oct 22	Assignment 2	Q8: Are Ecosystems Chimeras and Why Would They Matter?	8
8B	Oct 24	Quiz 6 (on Week 6)		
9A	Oct 29		Q9: How do Ecosystems Change and Evolve and is Nature in Balance?	9
9B	Oct 31	Quiz 7 (on Week 8)		
10A	Nov 5	Assignment 3	Q10: Can Ecosystems be Managed and What Is 'Ecosystem-Based Management'?	10
10B	Nov 7	Quiz 8 (Week 9)		
			STUDY WEEK: NOVEMBER 12-16	
11A	Nov 19	No quiz this week	Q11: Who Has Power over Ecosystem Goods and Services? -Political Ecology	11
11B	Nov 21		Guest Lecture 1	
12A	Nov 26		Guest Lecture 2	
12B	Nov 28	Test	Test	

Faculty of Science Course Syllabus (Section B) (revised June-2018)

BIOL 3061 Communities and Ecosystems (Fall 2018)

University Policies and Statements

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

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

Missed or Late Academic Requirements due to Student Absence (policy)
https://www.dal.ca/dept/university_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.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