

# Ecology

## BIOL-2101

Updated: 8 Sept 2021

### Ecology (BIOL-2101) Course Outline

<b>Professor:</b>	<b>Dr. Dan Mennill</b> (pronouns: he/him)
<b>Lectures:</b>	Live Zoom Lectures are Tues and Thurs at 11:30; recordings will be posted on Blackboard but you are encouraged to attend live lectures. Zoom link: <a href="https://us02web.zoom.us/j/84208202006">https://us02web.zoom.us/j/84208202006</a>
<b>Office hours:</b>	Zoom Office Hours are Tues and Thurs from 4:00 to 5:00: <a href="https://us02web.zoom.us/j/83445768857">https://us02web.zoom.us/j/83445768857</a>
<b>Dr. Mennill's Phone:</b>	519-253-3000 ext. 4726 (I receive phone messages from this number during the pandemic)
<b>Dr. Mennill's E-mail:</b>	I cannot interact with you effectively by email with a class of this size. Therefore, course-related correspondence should be done during online Zoom office hours (Tues and Thurs 4:00-5:00) or in the Office Hours discussion board on our Blackboard site (private messages can be sent to me through "Course Messages" section of Blackboard). In the case of emergencies, leave me a telephone message.
<b>Online Laboratories:</b>	Thursdays and Fridays (3 hour slots), begin on September 16 & 17. Lab schedule is below.
<b>Term tests:</b>	Thursday October 7, 11:30-12:50 (online during class; or other time by special arrangement) Tuesday November 16, 11:30-12:50 (online during class; or other time by special arrangement)
<b>Final Exam:</b>	T.B.D. (scheduled by the registrar)
<b>Course webpage:</b>	Accessible through Blackboard: <a href="http://www.uwindsor.ca/blackboard">www.uwindsor.ca/blackboard</a>
<b>Course synopsis:</b>	Introduction to the fundamental concepts of ecology including factors affecting species distribution, reproductive strategies, population growth and regulation, species interactions, and community level organization and energetics. Course learning outcomes are below.
<b>Prerequisites:</b>	BIOL-1101 (Cell Biology) and BIOL-1111 (Biological Diversity)
<b>Textbook:</b>	<u><a href="#">Ecology: A Canadian Context, 2<sup>nd</sup> Edition</a></u> by Bill Freedman et al., 2015
<b>Evaluation:</b>	20% . . . Term test 1                      20% . . . Term test 2 30% . . . Final exam                      30% . . . Laboratory materials (details below)
<b>Missed tests/exams:</b>	If you are sick for a term test, the final exam, or a laboratory assignment, please sign in to UWinsite to report your illness – medical notes are not required this semester – and please email Candy Donaldson (for missed tests) or your GA (for missed assignments). There will not be make-up tests or make-up exams in this course; if you miss a test or exam for an approved reason, you will have your final grades pro-rated on the basis of their completed evaluations. When calculating a pro-rated grade, all students will have 70% of their grade arising from term tests and final exams, and 30% arising from laboratory activities.
<b>Academic integrity:</b>	We will follow a code of academic integrity during this course: "Students of the University of Windsor pursue all endeavours with honour and integrity, and will not tolerate or engage in academic or personal dishonesty." At the start of each test or assignment, each student will be required to write the following pledge of academic integrity: "As a student of the University of Windsor, I pledge to pursue all endeavours with honour and integrity, and will not tolerate or engage in academic or personal dishonesty."
<b>Classroom decorum:</b>	During the live lectures, you are expected to follow my directions about appropriate decorum.
<b>Laboratories:</b>	Each student is required to attend a laboratory most weeks (see below).
<b>Laboratory coordinator:</b>	<b>Candy Donaldson</b> (pronouns: she/her) Email: <a href="mailto:candy@uwindsor.ca">candy@uwindsor.ca</a>
<b>Pandemic statement:</b>	This will be an unusual semester, learning online during the pandemic, but Candy and I ran this course effectively in Fall 2020 and I have confidence that we will offer a rewarding learning experience for you. I ask you to be patient with me, Candy Donaldson, and your GAs while we strive to do our best. I promise to be patient with you while we learn together. If you face difficulties with learning online, please reach out to me through a private message on the Office Hours section of our Blackboard site.
<b>Inclusivity statement:</b>	I am committed to creating an academic environment that prioritizes equity, diversity, and inclusivity. <b>Everyone is welcome in our classroom</b> , regardless of gender, gender-identity, sexuality, ethnicity, religion, culture, and national origins. We are better learners when we recognize and respect diverse perspectives, and when everyone in our class knows that their contribution is welcome and valuable. Please let me know how I can help to support you during this class, and I will do my best to do so.
<b>Land acknowledgement:</b>	Our university sits on traditional territory of the Three Fires Confederacy of First Nations, which includes the Ojibwa, the Odawa, and the Potawatomie. As an ecologist and as your professor for this course, I respect and acknowledge the long relationship between First Nations people in this place.

## Ecology (BIOL-2101) Lecture Schedule

<b>Dates</b>	<b>Topic (with chapter number in textbook)</b>
Sept 9	Introduction to Ecology (1)
Sept 14 & Sept 16	Environmental Influences (2); Ecological Energetics (3)
Sept 21 & Sept 23	Nutrients and Their Cycling (4); Population Ecology (5)
Sept 28 & Sept 30	Behavioural Ecology (6)
Oct 5 & Oct 7	Physiological Ecology (7) <b>TERM TEST #1 ON THURSDAY OCTOBER 7 (IN CLASS)</b>
Oct 12 & Oct 14	October 12-16 is Fall Reading Week; No classes
Oct 19 & Oct 21	Life Histories (8); Community Ecology (9)
Oct 26 & Oct 28	Community Ecology (9); Disturbance and Succession (10)
Nov 2 & Nov 4	Biomes and Ecozones (11); Biodiversity (12)
Nov 9 & Nov 11	Biodiversity (12); Landscape Ecology (13)
Nov 16 & Nov 18	<b>TERM TEST #2 ON TUESDAY NOV 16 (IN CLASS);</b> Conservation and the Natural World (14)
Nov 23 & Nov 25	Conservation and the Natural World (14); Resource Ecology (15)
Nov 30 & Dec 2	Paleoecology (16); Ecology and Society (17)
Dec 7	Global Change (17)

## Ecology (BIOL-2101) Weekly Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
8:30-11:20				<b>Lab Section 51 (online in Teams)</b>	<b>Lab Section 53 (online in Teams)</b>
11:30-12:50		<b>Tuesday Lecture (online in Zoom)</b>		<b>Thursday Lecture (online in Zoom)</b>	
2:30-5:30				<b>Lab Section 52 (online in Teams)</b>	<b>Lab Section 54 (online in Teams)</b>
4:00-5:00		<b>Dr. Mennill's Office Hours (online in Zoom)</b>		<b>Dr. Mennill's Office Hours (online in Zoom)</b>	

## Ecology (BIOL-2101) Laboratory Outline

- Goal of the labs:** I have restructured the laboratories for Ecology during the pandemic, with the help of the Graduate Teaching Assistants (GAs). The labs are all designed around a large independent project that you will conduct as an ecologist! You will collect real data from camera traps in Africa, you will analyze data, you will write your own scientific paper, and you will present your findings as an infographic or research video. Throughout the semester there will be a series of 7 assignments that help you succeed with your independent project.
- Working with partners:** You will submit your own Assignment 1 and Assignment 2. For Assignments 3-7 and the Independent Project, you can work alone or with one partner. In Assignment 3, you must identify your partner, and both partners must agree to receive the same mark on Assignments 3-7 and the Independent Project. Even if one partner later feels they worked harder than the other, both partners will receive the same grade.
- Submitting assignments:** During the pandemic, assignments will be submitted by email to your GA using the email address they provide you in the first lab. Please make sure that the word "Ecology" is the first line of the subject of your email message. Whenever you submit an assignment to your GA, please cc yourself to confirm that the email sent. If you choose to conduct Assignments 3-7 and the Independent Project with a partner, please cc your partner. If a GA claims that an assignment was not submitted in time, and you dispute this claim, Candy Donaldson will request that you forward the original message so she can see the time stamp.
- Lab participation:** You are expected to attend all labs and attendance will be taken at the start of each lab. You should follow the instructions of the Lab Coordinator and the Graduate Teaching Assistants. Failure to attend a lab without a legitimate reason will result in zero mark for graded components of the labs. Note: attendance in lab 4 and lab 8 is optional, due to the term tests.
- Missed labs:** If you are going to miss a lab, you must contact Candy Donaldson (candy@uwindsor.ca) to explain your absence. Candy Donaldson will notify your GA.
- Lab Grades:** Lab activities are worth 30% of your final grade in Ecology. The breakdown is as follows:
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|-------|--|
| 2.0%  | Assignment 1: Web of Science Research Assignment (due Sept 23/24)    |
| 0.5%  | Assignment 2: Animal Identification Assignment (due Sept 30/ Oct 1)  |
| 0.5%  | Assignment 3: 1-page Independent Project Proposal (due 8pm on Oct 5) |
| 0.5%  | Assignment 4: Initial dataset and introduction (due Oct 21/22)       |
| 0.5%  | Assignment 5: Two-sample Test Assignment (due Oct 28/29)             |
| 0.5%  | Assignment 6: Final dataset (due Nov 4/5)                            |
| 20.0% | Independent Project (due by 8pm on Fri Nov 19)                       |
| 5.0%  | Assignment 7: Infographic or Research Video (due Nov 25/26)          |
| 0.5%  | Self-reflection on independent project (due date to be determined)   |
- Assignments 2-6 are all-or-nothing; you receive the full mark if you complete the assignment on time, or 0% if you do not complete the assignment on time. You will receive feedback on these assignments that will help you achieve success with your Independent Project.
- Late Lab Assignments:** All lab assignments are due at the times indicated in the schedule below. For Assignment 1, Assignment 7, and the Independent Project, late assignments will be docked 10% per day. For Assignments 2 through 6 and the self-reflection, late assignments will receive 0%. Exceptions to these policies will be made when you request a medical exemption from Candy Donaldson (candy@uwindsor.ca) before the lab begins, and if you receive support for the exemption by email.

## Ecology (BIOL-2101) Laboratory Schedule

Dates	Lab	Activity
Sept 16 & Sept 17	1	<p><b>Lab logistics:</b> Each lab will be split into two groups, to meet during the first 1.5h or last 1.5h of all subsequent labs. <b>Web of Science:</b> GAs lead a discussion of scientific literature.</p> <p><b>Assignment 1 is given to students: Web of Science Assignment</b></p>
Sept 23 & Sept 24	2	<p><b>Assignment 1 (Web of Science Assignment) is due before lab starts on Sept 23/24</b></p> <p><b>Snapshot Safari Lab:</b> GAs introduce community science, Snapshot Safari, and the Independent Project. Students start thinking about independent project they can conduct with Snapshot Safari images. Students decide whether to work alone or with a partner on their project.</p> <p><b>Assignment 2 is given to students: Serengeti Animal Identification Assignment</b></p>
Sept 30 & Oct 1	3	<p><b>Assignment 2 (Serengeti Animal Identification Assignment) due before lab starts on Sept 30/ Oct 1</b></p> <p><b>Experimental Design Lab:</b> GAs introduce experimental design in ecology, focused on two-sample comparisons. GAs workshop students' independent project ideas.</p> <p><b>Assignments 3 and 4 are given to students: 1-Page Proposal and Initial Dataset &amp; Introduction.</b></p>
Oct 5		<p><b>Assignment 3 (1-page proposal for Independent Project) is due by 8pm on Tues Oct 5</b></p>
Oct 7 & Oct 8	4	<p><b>Optional Lab</b> (due to Term Test 1 on Thurs Oct 7): Students can join GAs to talk about their independent projects. Students will receive emailed feedback from the GA about project idea before Fall Reading Week, so they can work on the project during Reading Week if they wish.</p>
Oct 14 & Oct 15		<p>October 11-15 is Fall Reading Week; No labs</p>
Oct 21 & Oct 22	5	<p><b>Assignment 4 (Initial Dataset and Introduction) is due before lab starts on Oct 21/22</b></p> <p><b>Two-sample Comparison Lab:</b> GAs introduce statistical analyses in ecology, focused on t-tests and Mann-Whitney U tests. GAs workshop analyses with students' initial datasets.</p> <p><b>Assignment 5 is given to students: Two-sample Tests in Ecology Assignment.</b></p>
Oct 28 & Oct 29	6	<p><b>Assignment 5 (Two-sample Tests in Ecology Assignment) is due before lab starts on Oct 28/29</b></p> <p><b>Scientific Writing Lab:</b> GAs introduce topic of writing in ecology, focused on clear writing, and the style of the journal Biology Letters.</p> <p><b>Assignment 6 is given to students: Final dataset for independent project</b></p>
Nov 4 & Nov 5	7	<p><b>Assignment 6 (Final Dataset for Independent Project) is due before lab starts on Nov 4/5</b></p> <p><b>Science Communication Lab:</b> GAs introduce science communication, focusing on how infographics and videos communicate scientific concepts.</p> <p><b>Assignment 7 is given to students: Infographic or Research Video</b></p>
Nov 11 & Nov 12	8	<p><b>Optional Lab</b> (due to Term Test 2 on Tues Nov 16): Students can join GAs to talk about their independent projects.</p>
Nov 18 & Nov 19	9	<p>Final Consultation on Independent Project: Students have a final chance to consult with the GAs about their independent project, ahead of the deadline on Fri Nov 20.</p>
Nov 19		<p><b>Independent Project is due by 8pm on Fri Nov 19</b></p>
Nov 25 & Nov 26	10	<p><b>Assignment 7 (Infographic or Research Video) is due before lab starts on Nov 25/26</b></p> <p><b>Final Lab:</b> GAs de-brief projects, and review infographics and research videos within each lab group. GAs assign the final component of the lab: a self-reflection about the independent project.</p>

## Ecology (BIOL-2101) Learning Outcomes

<u>Learning Outcomes</u>	<u>Characteristics of a University of Windsor Graduate</u>
At the end of the course, the successful student will know and be able to:	The University of Windsor graduate will have the ability to demonstrate:
Understand the core concepts of ecology, including concepts of niches, ecosystems, energy transfer, nutrient cycles, trophic levels, food webs, populations, animal behaviour, life histories, communities, succession, biodiversity, natural resources, and conservation. Have a basic understanding of the different branches of the field of ecology, including ecological energetics, population ecology, behavioural ecology, physiological ecology, community ecology, landscape ecology, and conservation biology.	A. the acquisition, application and integration of knowledge
Interpret and summarize information from peer-reviewed journal articles. Gather ecological data, organize those data, and communicate the patterns in those data to others.	B. research skills, including the ability to define problems and access, retrieve and evaluate information (information literacy)
Apply and evaluate assumptions of ecology theory as they relate to real-world communities and conservation efforts.	C. critical thinking and problem-solving skills
Read and understand peer-reviewed journal papers and popular science papers on ecological topics. Gather, organize, and interpret numerical data in ecology.	D. literacy and numeracy skills
Recognize and evaluate examples of human impact on the natural world.	E. responsible behaviour to self, others and society
Communicate ecological concepts to others through written and oral communication.	F. interpersonal and communications skills
Understand that ecological research is driven by teams of researchers. Understand the interplay of individual and team-based ecological studies.	G. teamwork, and personal and group leadership skills
Interpret ecological ideas for others. Communicate ecological ideas in creative ways.	H. creativity and aesthetic appreciation
Compare present knowledge in ecology with areas of future study that remain to be answered.	I. the ability and desire for continuous learning