University of Alberta
BIOL 208: Principles of Ecology
Lec. B01
Winter 2020

Instructor: Dr. Stephanie Green
Office: Biological Sciences Building Z-622
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Please include "Biol 208" in the subject line of all emails. Emails without this subject line will not receive a response.

Office Hours:
Phone/Skype meetings via email appointment- include 'Biol 208' in the subject linen
Online (*eClass* Forum): 10-11am Weds and 10:30 -11:30 am Fridays

Lab coordinator: Dr. Melissa Roach
Office: Biological Sciences Building CW 405
Office Hours: By email appointment only. For all inquiries, please put "BIOL 208- [your Lab Section Number]" in the email subject line.
Email: Biol208@ualberta.ca

Web Page: Available in *eClass*. Please note that there are separate *eClass* pages for Lecture and Lab components of the course.

Have a question? Email should be used judiciously to address questions pertaining to course administration/scheduling. **Questions about course material will not be answered by email.** If you are unclear about something we've covered in class, I encourage you to confer with your peers, and use your course notes and textbook. If you need further assistance, post your question to the eClass Forum. I will regularly read and respond to these posts and welcome feedback from other students. If you need more clarification, please come and see me in person. If your question pertains to the lab, please contact your TA or the lab coordinator. Include "Biol 208" in the subject line of all emails. Emails without this subject line will not receive a response.

Lecture Room & Time: MWF 1:00pm-1:50pm in ETLC E1 001
Via *eClass* starting March 18th

Course Description:

Ecology is the scientific study of interactions between organisms and their environment in a hierarchy of levels of organization: individuals, populations, communities, and ecosystems. This course provides a comprehensive survey of general concepts in ecology that can stand-alone or serve as preparation for advanced courses in ecology. Labs emphasize the collection, analysis, and interpretation of data from ecological experiments and field studies to illustrate and complement lecture material. Examples are drawn from a broad range of organisms and ecosystems.

Course Prerequisites: BIOL 108 or SCI 100

Open to students in the BSc Forestry and BSc Forest Business Management program once they have completed REN R 120 and REN R 205.

It is important to prepare yourself for this course through a review of the prerequisite material. Students who do not have the required prerequisites at the time of taking this course should not expect supplementary professorial tutoring from the instructor.

Course Objectives and Expected Learning Outcomes:
This course is an introduction to the science of ecology, and how interactions between organisms and their environment shape the natural world. This course will provide students with a foundation upon which they may take many of the advanced ecology courses offered at the University of Alberta.

Upon completion of this course students will be able to:

1. Describe and explain the basic concepts and principles related to interactions between organisms and their environment.
2. Interpret and discuss key components of individual, population, community, and ecosystem ecology.
3. Interpret and apply the scientific method to ecological questions.
4. Critically evaluate various forms of scientific communication.
5. Appraise the complexity of ecological interactions and the interconnectedness of ecological processes.

Your mastery of these learning outcomes will be determined through two midterm exams and a final exam at the end of the term. Throughout the course, you will have the opportunity to apply your knowledge and obtain feedback through practice questions during class. In addition to lecture material and exercises, students will gain hands-on experience applying ecological concepts during weekly laboratory sessions which will be evaluated through a range of individual and group work activities.

Treaty Statement
The University of Alberta respectfully acknowledges that we are located on Treaty 6 territory, a traditional gathering place for diverse Indigenous peoples including the Cree, Blackfoot, Metis, Nakota Sioux, Iroquois, Dene, Ojibway/ Saulteaux/Anishinaabe, Inuit, and many others whose histories, languages, and cultures continue to influence our vibrant community. See the Biol 208 Lab Manual 2019-2020 for details.

Required Textbook and Supplies:

BIOL 208 Lab Manual 2019-2020. ISBN: 9786038902202

Molles, Manuel C., Cahill, James F., and Laursen, Andrew. *Ecology: Concepts and Applications.* Fourth Canadian Edition. 2017. ISBN: 9781259468421

Recommended or Optional Learning Resources:

While your textbook is your starting point for previewing and reviewing concepts we discuss in class, you may find it useful see things rephrased in a different manner.

For additional textbook resources, I recommend the following texts (all of which are available as Course Reserves at the Cameron Library):

> Ricklefs, Robert, Relyea, Rick, and Richter, Christoph. *Ecology: The Economy of Nature*. First Canadian Edition. 2015.
>
> Freedman, Bill, et al. *Ecology: A Canadian Context*. Second Edition. 2014.

For a more historical and mathematical view of ecology:

> MacArthur, Robert H. *Geographical Ecology: Patterns in the Distribution of Species*. 1972.

Additional Learning Resources and Assistance

> **Academic Success Centre**:
> Students who require additional help in developing strategies for better time management, study skills or examination skills should contact the Student Success Centre (https://www.ualberta.ca/current-students/academic-success-centre), located in SUB (Student Union Building). They are a great first-stop for any academic concerns, especially if you are unsure where to go or what to do.
>
> **Decima Robinson Support Centre:**
> If you need additional help with the mathematical concepts in this course please visit the Decima Robinson Support Centre (https://www.ualberta.ca/mathematical-and-statistical-sciences/undergraduate-studies/decima-support-centre), located in 528 CAB (Central Academic Building). They are generally open from 9:00 am until 3:00 pm on weekdays, and are available for one-on-one homework help on a drop-in basis.
>
> **Centre for Writers:**
> Students desiring additional assistance with writing assignments (both native and on-native English speakers) can visit the Centre for Writers (https://www.ualberta.ca/current-students/centre-for-writers) located in Assiniboia Hall. One-on-one appointments can be booked online at their website, along with workshops and additional assistance.
>
> **Counselling and Clinical Services, and the University Health Centre:**
> Learning effectively is difficult if you feel unwell, both physically and mentally. For any and all mental health concerns please contact Counselling and Clinic Services (https://www.ualberta.ca/current-students/counselling), located in SUB (Student Union Building). For physical health concerns, please contact the University Health Centre (https://www.ualberta.ca/services/health-centre), also located in SUB.
> Both are great resources, and you shouldn't hesitate to contact either if you have any health concerns.

Accessibility Resources

Eligible students have both rights and responsibilities with regard to accessibility-related accommodations. Consequently, scheduling exam accommodations in accordance with AR deadlines and procedures is essential. Please note adherence to procedures and deadlines is required for U of A to provide accommodations. Contact AR (https://www.ualberta.ca/current-students/student-accessibility-services) for further information.

Grade Evaluation:

Evaluation in this course consists of a combination of two midterm exams and a final exam focused on lecture materials. Laboratory sessions which will be evaluated through a range of individual and group work activities.

Final letter grades for this course are based neither on an absolute numerical scale (e.g. >95% of total marks = A+) nor on a strict curve (e.g. the top 5% of students = A+, regardless of actual marks). Rather, a combination of the two will be used based upon historical patterns, current performance, and natural breakpoints in distributions. The absolute percentage scores to secure a particular grade will vary from year to year because it is not possible to write exams with consistently identical difficulty levels. **However, student will only receive a passing grade (D or higher) if they obtain a final mark of at least 50% in BOTH the lecture and the lab components of the course**. Grades are unofficial until approved by the Department and/or Faculty offering the course.

More information concerning University of Alberta Assessment and Grading Policies are available online at https://policiesonline.ualberta.ca/PoliciesProcedures/Policies/Assessment-and-Grading-Policy.pdf

Course Component	Weighting	Course Objective	Date
Midterm One	15%	1, 2, 4, 5	February 10
Midterm Two	15%	1, 2, 4, 5	March 9
Laboratory	40%	1, 2, 3, 4, 5	Ongoing
Final Exam*	30%	1, 2, 4, 5	April 20**

*There is no possibility of a re-examination in this course, as the final exam weight is less than 40%

** You are responsible for verifying the date of the final exam on *BearTracks* once the schedule has been posted

Format of Exams:
Exams will consist a variety of types of questions. Questions may be in the format of, but not limited to, multiple choice, graphing, math problems, short answer, etc. Exam content will be based on material from the textbook, lecture, the scientific article and in-class exercises, and this syllabus.

For in person exams: Your student photo I.D. is required at exams to verify your identity. Students will not be allowed to begin an examination after it has been in progress for 30 minutes. Students must remain in the exam room until at least 30 minutes has elapsed. Electronic equipment (with the exception of calculators, see below) cannot be brought into examination rooms. Hats, gloves, scarves, coats, and other excessively bulky clothing is not allowed. Head coverings and other clothing worn for religious purposes are allowed; please contact the instructor in advance of the examination if you have any concerns or questions.

For all exams: Students may be asked to bring non-programmable calculators to examinations. Students who bring unauthorized (programmable) calculators to examinations will receive a zero on the examination and may face charges under *The Code of Student Behaviour.*

Representative Evaluative Material:
Representative evaluative material will be presented in class and posted on *eClass*. This is in compliance with GFC policy available at https://policiesonline.ualberta.ca/PoliciesProcedures/Procedures/Access-to-Evaluative-Course-Material-Procedure.pdf .

Re-grading Policy:
Students may ask for a re-grade of an exam only after at least 24 hours have passed since the exam answer key was made available. Any exams that are re-graded will be subject to a complete re-grade, that is, all questions will be re-marked. Grades may increase, decrease, or remain the same as a result of a re-grade.

Extra Credit:
Any and all requests for extra credit will be denied.

Religious Accommodations:
For an excused absence where the cause is religious belief, a student must contact the instructor(s) within two weeks of the start of Fall or Winter classes (**Deadline: Friday, January 17th by 5:00 pm MST)** to request accommodation for the term (including the final exam, where relevant). Instructors may request adequate documentation to substantiate the student request.

Deferred Term Examination:
A student who cannot write a midterm examination due to incapacitating illness, severe domestic affliction or other compelling reasons can apply for deferral of the weight of the missed term exam to the final exam. To apply, students need to:

1. **Notify the instructor within 48 hours** of the midterm examination by email that they are applying for a deferral.
2. Fill out a declaration from the Faculty of Science (https://www.ualberta.ca/science/-/media/science/research-and-teaching/documents/2013/department-declaration.pdf) and submit either a signed paper copy or a signed scanned copy **to the instructor within one week of the midterm examination**.

In all cases, the instructor and/or TAs may request adequate documentation to substantiate the reason for the absence at their discretion. Deferral of midterm exams is a privilege and not a right; there is no guarantee that a deferral will be granted. Misrepresentation of Facts to gain a deferral is a serious breach of the *Code of Student Behaviour*.

Deferred Final Examination:
A student who cannot write the final examination due to incapacitating illness, severe domestic affliction, or other compelling reasons can apply for a deferred final examination. Students who failed at the start of term to request exam accommodations for religious beliefs are expected to follow the normal deferred final examination process. Such an application must be made **to the student's home Faculty office within two working days of the missed examination** and must be supported by a Statutory Declaration or other appropriate documentation. Deferred examinations are a privilege and not a right; there is no guarantee that a deferred examination will be granted. Misrepresentation of Facts to gain a deferred examination is a serious breach of the *Code of Student Behaviour*.

The deferred examination for this course is scheduled for **Tuesday, May 19th at 10 am, location TBA.** This is the only date and time for the deferred final exam. Students who miss the final exam but are not permitted by the Faculty of Science to take a deferred exam, will receive a 0% for the exam.

STUDENT RESPONSIBILITIES

Academic Integrity:
The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (online at www.governance.ualberta.ca) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

We reserve the right to compare your assignments to those submitted by other students in current and previous terms.

All forms of dishonesty are unacceptable at the University. Any offence will be immediately reported to the Associate Dean of Science who will determine the disciplinary action to be taken. Cheating, plagiarism and misrepresentation of facts are serious offences. Anyone who engages in these practices will receive at minimum a grade of zero for the exam or paper in question and no opportunity will be given to replace the grade or redistribute the weights. As well, in the Faculty of Science the sanction for **cheating** on any examination will include **a disciplinary failing grade** (NO EXCEPTIONS) and senior students should expect a period of suspension or expulsion from the University of Alberta.

Cell Phones:
To respect the time and effort your instructor and peers in this course, please be polite with your cell phone usage (sound off, stored unless required). Do not bring cell phones to exams. Students who bring cell phones to examinations will receive a zero on the examination and may face charges under *The Code of Student Behaviour*.

Recording And/or Distribution Of Course Materials:
Audio or video recording, digital or otherwise, of lectures, labs, seminars or any other teaching environment by students is **permitted only with prior written consent of the instructor or as a part of an approved accommodation plan**. Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the content author(s).

Disclaimer:
Any typographical errors in this Course Outline are subject to change and will be announced in class. The date of the final examination is set by the Registrar and takes precedence over the final examination date reported in this syllabus.

Copyright:

Policy about course outlines can be found in the University Calendar.
http://calendar.ualberta.ca/content.php?catoid=6&navoid=806&hl=%22syllabus%22&returnto=search

Lecture Schedule & Required Readings:
This schedule is subject to change throughout the course. Please check announcements on *eClass* and in lecture to stay updated. Listed readings are intended to supplement, not replace lecture material and activities.

Week	Date	Topic	Readings (4th ed.)	Lab
	Diversity and Evolution			
1	6-Jan	Why study Ecology? Entrance survey (*eClass)*		No Lab; Academic Integrity Quiz and Mini-Lessons Open in eClass
	8-Jan	What is an Ecosystem? How do scientists ask (and try to answer) questions?	Ch. 1	
	10-Jan	How do environments vary, and how does this influence organisms?	Ch. 2.1	
2	13-Jan	What is a biome, and what are some examples of Canadian biomes?	Ch. 2.2-2.4; 3.2-3.3	Interspecific Competition Game
	15-Jan	What is a niche?	Ch. 9.3	
	17-Jan	How do organisms adapt and evolve?	Ch. 4	
	The Ecology of Individuals			
3	20-Jan	How do organisms deal with resource constraints?: Temperature	Ch. 5	Scientific Method in the River Valley (Outside!)
	22-Jan	How do organisms deal with resource constraints?: Water	Ch. 6	
	24-Jan	How do organisms acquire energy? Autotrophs	Ch. 7	
4	27-Jan	How do organisms acquire energy? Heterotrophs	Ch. 7	
	29-Jan	How does organism behavior influence fitness?	Ch. 8.1-8.2	
	31-Jan	How do organisms find/select a mate?	Ch. 8.3	
	The Ecology of Populations			
5	3-Feb	How do tradeoffs shape species life histories?	Ch. 9.1-9.2	Collecting Ecological Data
	5-Feb	What is a population?	Ch. 10	
	7-Feb	How are populations structured?	Ch. 10	
6	10-Feb	Midterm 1, All material from January 6-February 5		Disease Ecology
	12-Feb	How do we model populations?: Part 2	Ch. 12	
	14-Feb	How does disease influence population dynamics?	Ch. 15.2	
7	February 17-21	Reading Week- No Class		No Lab
	The Ecology of Interactions Among Species			
8	24-Feb	How do we model populations?: Part 2	Ch. 12	Effects of Stress on Plant Growth (Setup)
	26-Feb	How does interspecific competition influence population dynamics?	Ch. 13.1, 13.2, 13.4	
	28-Feb	How do we model interspecific competition?	Ch. 13.3	
9	2-Mar	How do we model predator-prey interactions?	Ch 14.4	Soil Respiration and the Carbon Cycle (Setup)
	4-Mar	How do organisms avoid predation?	Ch. 14.1, 14.2, 14.4	
	6-Mar	What is an ecological community?	Ch. 16.1, 16.2	
Week	Date	Topic	Readings (4th ed.)	Lab

	The Ecology of Communities and Ecosystems			
10	9-Mar	Midterm 2, All material February 5 – March 4		Soil Respiration and the Carbon Cycle (Harvest)
	11-Mar	How are ecological communities assembled?	Ch 17.1, 17.3	
	13-Mar	CLASS CANCELLED		
11	16-Mar	CLASS CANCELLED		No Lab
	18-Mar	How is primary production different in terrestrial and aquatic ecosystems?	Ch. 19.1, 19.2, 19.3	
	20-Mar	How does energy flow through ecosystems?	Ch. 19.4, 19.5	
12	23-Mar	How do nutrients cycle through ecosystems? Part 1	Ch. 20.1, 20.2	Effects of Stress on Plant Growth (Harvest)
	25-Mar	How do nutrients cycle through ecosystems? Part 2	Ch. 20.3, 20.4	
	27-Mar	How do ecological communities respond to disturbance?	Ch. 18.1, 18.2	
13	30-Mar	How do ecological communities naturally change over time?	Ch. 18.3, 18.4, 18.5	Effects of Stress on Plant Growth (Presentations)
	1-Apr	How does landscape structure influence organisms?	Ch. 21.1, 21.2	
	3-Apr	What is macroecology?	Ch. 22.1, 22.2	
14	6-Apr	How do humans benefit from biodiversity and healthy ecosystems? Part 1 (Exit Survey *eClass*)	Ch 23.2	No Lab
	8-Apr	How do humans benefit from biodiversity and healthy ecosystems? Part 2 (USRI)		
	10-Apr	Good Friday- no class		
	April 20 @ 9:00am	Unofficial final examination date, please check BearTracks to confirm. Exam will be based on all course material, from January 6- April 8.		