

Course ID:	Course Title:	Fall 2020
BIO 213	Principles of Ecology	Prerequisite: BIO 133
		Credits: 3

Class Information		Instructor Information		Important Dates	
Delivery	In Class	Instructor:	Matthew Morris, PhD, MSc, BSc, BRE	First day of classes:	Wed, Sept 9
Days:	Tues/Thurs	Email:	Matthew.Morris@ambrose.edu	Last day to add/drop, or change to audit:	Sun, Sept 20
Time:	1:30-2:45 pm	Phone:	403-410-2000 ext 6932	Last day to request revised final exam:	Mon, Nov 2
Room:	A2131	Office:	A2158	Last day to withdraw from course:	Fri, Nov 20
Lab/ Tutorial:	6:30-9:30 pm Tues (L1) or Thurs (L2) (A2151)	Office Hours:	Tuesday/Thursdays 9 – 11 am	Last day to apply for coursework extension:	Mon, Nov 23
Final Exam:	Yes – during final lab period			Last day of classes:	Mon, Dec 14

Course Description

The dynamics and maintenance of biological diversity are examined in terms of ecological processes, conservation of species, habitats, and evolutionary principles. Ecological principles and organism interactions at individual, population, community and ecosystem levels will be explored.

Expected Learning Outcomes

1. Students will be able to relate the science of ecology to the practice of their faith.
2. Students will demonstrate knowledge of principles from different ecological disciplines, including ranges of tolerance, fundamental and realized niches, intraspecific and interspecific interactions, optimal foraging, allocation of energy, exponential and logistic growth, predator-prey dynamics, r and k life histories, competitive exclusion, trophic cascades, succession, carbon and nitrogen cycles, invasive species, and disease prevalence, and apply them to real-world problems.
3. Students will quantify population growth rate and biodiversity metrics.
4. Students will design, analyze, and communicate an ecological experiment.
5. Students will demonstrate proficiency in ecological sampling techniques.

Textbooks

Required: Relyea R, Ricklefs R (2018) Ecology: The Economy of Nature, Eighth Edition. W.H. Freeman and Company: USA.

This textbook comes as an e-book. You are to purchase the SaplingPlus license to access the ebook and online resources and exercises to go along with it. This can be purchased through the Lions' bookstore (hardcopy + SaplingPlus), or at <https://store.macmillanlearning.com/ca/product/Ecology-The-Economy-of-Nature/p/1319282687> (SaplingPlus 6 month or 12 month rental option).

Covid and the syllabus

This syllabus, including the schedule and grading scheme, must be considered tentative. Updated syllabi will be made available as needed – particularly if the university gets closed for the semester and the course and its labs move completely online.

Temporary closures (e.g. the lab must be quarantined for 48 hours, the instructor is self-isolating for two weeks, etc.) could result in less extreme modifications to the syllabus, particularly with regard to lab scheduling. The key this semester will be flexibility.

BIO 213 lectures and labs are currently designated as “in-class”, meaning that students are expected to be physically present for lecture, lab, and exam times. This could change as covid circumstances change. The professor will post over Moodle mail whether a particular lecture/lab or the remainder of the semester will be moving to an online format. Be in constant communication with your professor, and be sure to check both your Ambrose email address and your Moodle course announcements page. The lecture Moodle page will be the primary location for announcements pertaining to lecture or lab changes; the lab Moodle page will only be used to post lab assignments.

Attendance and covid

Students are required to do the AHS self-examination before entering Ambrose. The expectation is that students will attend all in-person classes and labs. Due to AHS guidelines, we are required to take attendance for all in-person arrivals to class or lab in order to report potential exposures if someone tests positive for covid. If you are self-isolating due to suspected or confirmed covid infections, **all lectures will be live over Zoom**. They will not be recorded, so if you are self-isolating be sure to access the Zoom links that will be provided for each lecture on the Moodle course page, and log in during normal class times.

Zoom is more difficult to do for labs as the instructor has to move around the room, but opportunities will be granted to make up missed labs due to self-isolation.

Doctor's notes are **not required**. However, be sure to stay in constant touch with the course and lab instructors regarding absences.

Course Schedule

Code: RQ = Reading Quiz due, CV = Concept Video assignment due, SH = Sapling Homework due

Week	Topic	Readings (chapters or sections)	Sapling due dates (by 11:59 pm Saturdays)
Sept 10	What is ecology?	Chapter 1	Ch 1 - Sept 12 (RQ, CV)
Sept 15	Physiology I: Temperature	2.1, 2.4 and 3.4	Ch 2 – Sept 19 (RQ, CV) Ch 3 - Sept 19 (RQ, CV)
Sept 17	Physiology II: Salinity	2.2	
Sept 22	Physiology III: Variable environments	Chapter 4 – all but 4.5	Ch 4 - Sept 26 (RQ)
Sept 24	The niche		
Sept 29	Behaviour I: Battle of the sexes	Chapter 9	Ch 9 - Oct 3 (RQ, CV)
Oct 1	Behaviour II: Mating systems		
Oct 6	Allocation of energy	4.5, Chapter 8	Ch 8 - Oct 10 (RQ, CV)
Oct 8	Populations I: Characteristics	Chapter 11, 13.4	Ch 11 - Oct 10 (SH, CV) Ch 13 – Oct 10 (CV)
Oct 13	Populations II: Intraspecific interactions Homework 1 due	Chapter 10	Ch 10 - Oct 17 (RQ, CV)
Oct 15	Populations III: Life tables	12.3	
Oct 20	Populations IV: Growth Midterm I during lab, up to and including intraspecific interactions	12.1, 12.2, 13.1, 13.2 Ignore geometric growth models	Ch 12 - Oct 27 (SH, CV)
Oct 22	Communities I: Interactions Midterm I during lab, up to and including intraspecific interactions	1.4, Chapter 17, Optional: Chapter 15	Ch 17 – Oct 31 (CV)
Oct 27	Communities II: Growth with competitors	Chapter 16	Ch 16 – Oct 31 (SH, CV)
Oct 29	Communities III: Growth with predators Homework 2 due	Chapter 14	Ch 14 – Oct 31 (SH, CV)
Nov 3	Communities IV: Food webs and networks	18.4	
Nov 5	Communities V: Community structure	Chapter 18 (except 18.4)	Ch 18 – Nov 7 (RQ, CV)
Nov 10	Reading break		
Nov 12	Reading break		
Nov 17	Ecosystem ecology I: Liebig's Law of the Minimum Homework 3 due	3.2, Chapter 6, Chapter 20	Ch 6 – Nov 21 (CV) Ch 20 – Nov 21 (SH, CV)

Nov 19	Ecosystem ecology II: Liebig's Law of the Minimum	3.1, Chapter 21 Optional: Chapter 5	No questions
Nov 24	Ecosystem ecology III: Succession	Chapter 19	Ch 19 – Nov 28 (SH, CV)
Nov 26	Ecosystem ecology IV: Ecosystem functions and services		
Dec 1	Ecosystem ecology V: Island biogeography	22.1-22.3	No questions
Dec 3	Ecosystem ecology VI: Conservation	22.4, 22.5, Chapter 23	Ch 23 – Dec 5 (CV)
Dec 8	Special topic: Medical ecology Note: midterm II in lab, from life tables to conservation	Lecture recorded and posted	
Dec 10	Special topic: Medical ecology Note: midterm II in lab, from life tables to invasive species		
Dec 14	Homework 4 due		

Lab schedule

Labs run once a week for 3 hours. There are two lab sections – you must attend the lab section you registered for.

Section 1 – Tuesdays, 6:30-9:30 pm, A2151

Section 2 – Thursdays, 6:30-9:30 pm, A2151

Week	Topic	Due
Sept 15/17	Introduction and biodiversity	End of class
Sept 22/24	Experimental design	End of class
Sept 29/ Oct 1	Describing a population	Prelab due beginning Assignment due Oct 6/8
Oct 6/8	Quadrat sampling	Prelab due beginning Assignment due Oct 13/15
Oct 13/15	Mark and recapture	Oct 20/22
Oct 20/22	Midterm 1	
Oct 27/29	Biodiversity I (Coins)	Nov 3/5
Nov 3/5	Biodiversity II (Sorting)	
Nov 10/12	Reading break	
Nov 17/19	Biodiversity III (Analysis)	Nov 24/26
Nov 24/26	Completion of experiment	Dec 1/3
Dec 1/3	Conservation ecology	End of class
Dec 8/10	Midterm 2	

Requirements:

Mark distribution:

Homework assignments: 10% (4 assignments throughout semester, 2.5% each)

Homework 1 (Physiology, behaviour, and populations: → Due Oct 13

Homework 2 (Population interaction, life tables, and growth) → Due Oct 29

Homework 3 (Population growth with competitors/predators, community structure) → Due Nov 17

Homework 4 (Medical ecology) → Due Dec 14

Midterm I (Oct 20/22): 20%

Midterm II (Dec 8/10): 20%

Lab: 40%

Scavenger hunt: 1%

Experimental design: 2%

Describing a population: 3%

Prelab: 1%

Quadrat sampling: 4%

Prelab: 1%

Mark and recapture: 4%

Coin biodiversity: 5%

Insect biodiversity: 8%

Research paper: 8%

Conservation ecology: 3%

SaplingPlus: 10%

Sapling assignments

The purchase of your textbook comes with a SaplingPlus account. You should have access to a variety of chapter-specific resources. Sapling provides assignments in one of three format:

- Reading quizzes, which directly test your knowledge of the chapter contents. These are usually between 15-25 questions
- Homework, which requires more application of the chapter content, usually 7-10 questions
- Concept videos and assessment, which involve 3-8 minute video with three accompanying questions

For some chapter readings you will be requested to do one or two of these exercises.

Collectively, these exercises sum to 10% of your overall grade.

They will be made available starting the Sunday prior to the appropriate lecture, and end by 11:59 pm the Saturday after the lecture. Consult the lecture schedule above.

- They can be completed any time within that week-long space.
- If you did not attempt the assignment by the deadlines shown above, you get 0% on that assignment = 0 marks
- If you attempted only a portion of the questions on that assignment, you get 0% on that assignment = 0 marks

- If you successfully completed the assignment but gave up on 30% or more of the questions, you get 50% = 0.5 marks.
- If you successfully complete >70% of the questions, you get 100% on that particular assignment = 1 mark. The number of attempts you take to successfully complete a question will not be factored into your grade.
- Each reading quiz, Sapling homework, or concept video will be graded with equal weight, irrespective of the number of questions involved.
- You will be given grace on **three exercises** – that is, getting a 0 on three assignments will not be counted against you.

Other assignments

Homework assignments separate from Sapling will occur throughout the semester. They will be **due the beginning of class or at a specified time**. See the schedule above. These are intended to give you practice with equations and concepts leading up to the midterm.

Midterms will be completed during lab sessions over the full three hours. If you are with accessibility it is your responsibility to communicate with the instructor and the accessibility office about midterm accommodations. If covid strikes, midterms will be moved to Moodle.

Lab content is fair game for midterms.

Grade Summary:

The available letters for course grades are as follows:

Grad	Percent	Grade Point Value	Description
A+	96-100	4.00	Outstanding
A	92-96	4.00	Excellent - superior performance, showing comprehensive understanding of subject matter.
A-	88-92	3.70	
B+	83-88	3.30	
B	78-83	3.00	Good-clearly above average performance with knowledge of subject matter generally complete.
B-	73-78	2.70	
C+	68-73	2.30	
C	64-68	2.00	Satisfactory – basic understanding of the subject matter. Grade point average below 2.00 is not sufficient for promotion.
C-	60-64	1.70	Minimum grade required if needed as a prerequisite course
D+	55-60	1.30	

D	50-55	1.00	Minimal pass – marginal performance; generally insufficient preparation for subsequent courses in the same subject.
F	<50	0	Fail – unsatisfactory performance or failure to meet course requirements.

Because of the nature of the Alpha 4.00 system, there can be no uniform University-wide conversion scale. The relationship between raw scores (e.g. percentages) and the resultant letter grade will depend on the nature of the course and the instructor’s assessment of the level of each class, compared to similar classes taught previously.

Please note that final grades will be available on student registration system. Printed grade sheets are not mailed out.

Late assignment policies

Homework or lab assignments cannot be submitted late without cause and approval from the professor. Homework assigned during lecture is **due at the start of lecture** for which it is due; anything after the start of lecture will be considered late. Lab assignments **are due at the beginning of lab**; anything after the start of the lab will be considered late. The penalty for late homework or lab assignments are as follows:

- 5%/day for late assignments that have been communicated to the professor ahead of time.
- 10%/day for late assignments if the professor has to track you down to find out what is going on.
- 0% on any assignments passed in one week after the due date, unless otherwise stated by the instructor. *These assignments will still be “graded” so that you can have feedback before the exam, even if your official grade is 0.*

If your name is not on the assignment, it will not be graded and you will receive a grade of 0 for failing to submit an assignment.

Missed midterms or final exams, without cause, cannot be made up. The only acceptable reason for missing an exam is illness, for which a doctor’s note will be required, or death of an immediate family member. Give yourself plenty of time to get to school on exam days. Traffic or weather is no reason for missing an exam.

Plagiarism policy

Some lab assignments will be submitted as a single copy per lab group. It is expected that all members of the group contribute equally to the assignment. This is a good opportunity to help your fellow students understand concepts they may be struggling with. Please ensure all members of the group are named on such assignments. **Group members whose names are not on the submitted assignment will receive a grade of zero.**

All other assignments will be submitted as one original piece of work per person. If you submit an assignment with only your name on it, it is assumed that you are the sole contributor of the work.

See below for Ambrose’s statement defining plagiarism and outlining its consequences. In brief, it is your responsibility as a citizen of Ambrose to be aware of the policies of Ambrose and abide by them. Ignorance is no excuse. Plagiarism will not be tolerated.

Examples of plagiarism include, but are not limited, to:

1. Copying an assignment from someone else and submitting it as your own work.
2. Working with a friend and writing down identical answers, whether you understand the content or not, and submitting the assignments separately.
3. Quoting directly from a source without supplying quotation marks or a citation.
4. Quoting directly from a source without supplying quotation marks, even if it is referenced.
5. Copying nearly word-for-word from a source, changing only the occasional word, without providing quotation marks, even if it is referenced.
6. Submitting an assignment in which >30% of the content is properly quoted; that is, at least 70% of the words in an assignment need to be your own. A general rule of thumb: for every line quoted, there should be three lines of your own material explaining that quote.
7. Submitting the same or similar assignment for more than one class, or more than one iteration of the same class.
8. Not citing illustrations used in a paper.

Penalties for plagiarism

- For a first offense in any one of my classes, a zero on the assignment with no chance of rewriting it, and a note in your academic file.
- For a second offense in any one of my classes, a zero in the class, and recommendation for a note on your transcript.
- For a third offense in any one of my classes, a zero in the class and a recommendation for expulsion from the university.

Note that Ambrose has an appeals process in place if you feel that allegations of plagiarism are unfounded; these are for final marks only, and not for individual assignments.

Note that my record of a student's past plagiarism does not reset with each semester.

Classroom Etiquette:

It is expected that students will take an active role in the learning process. This includes: (a) regular class and lab attendance, (b) reading course material in advance of class or labs, and (c) engaging in discussions during class or labs.

In respect to the professor and to your fellow students, we ask that you:

- a) Turn your phone off during class and that you don't use it for texting during lecture or lab;
- b) Not have conversations with the people beside you during lecture – it is very distracting to the people around you;
- c) Use your laptops for lecture material and assignments only – that you are not using the internet or Facebook during class time;
- d) Arrive to lecture and lab on time;
- e) Don't listen to music in class or lab.

These will help to maximize the learning experience for you and your fellow students (and will keep your professor in a good mood).

Mental Health Support

All of us need a support system. We encourage students to build mental health supports and to reach out when help is needed.

On Campus:

- Counselling Services: ambrose.edu/counselling
- Peer Supportive Listening: One-to-one support in Student Life office. Hours posted at ambrose.edu/wellness.
- For immediate crisis support, there are staff on campus who are trained in Suicide Intervention and Mental Health First Aid. See ambrose.edu/crisissupport for a list of staff members.

Off Campus:

- Distress Centre - 403-266-4357
- Sheldon Chumir Health Care Centre - 403-955-6200
- Emergency - 911

Sexual Violence Support

All staff, faculty, and Residence student leaders have received *Sexual Violence Response to Disclosure* training. We will support you and help you find the resources you need. There is a website with on and off campus supports – ambrose.edu/sexual-violence-response-and-awareness.

Off Campus:

- Clinic: Sheldon Chumir Health Centre - 403-955-6200
- Calgary Communities Against Sexual Abuse - 403-237-5888

Ambrose University Academic Policies:

Communication

All students have received an Ambrose e-mail account upon registration. It is the student's responsibility to check this account regularly as the Ambrose email system will be the professor's instrument for notifying students of important matters (cancelled class sessions, extensions, requested appointments, etc.) between class sessions. If students do not wish to use their Ambrose accounts, they will need to forward all messages from the Ambrose account to another personal account.

Registration

During the **Registration Revision Period** students may enter a course without permission, change the designation of any class from credit to audit and /or voluntary withdraw from a course without financial or academic penalty or record. Courses should be added or dropped on the student portal by the deadline date; please consult the List of Important Dates. After that date, the original status remains and the student is responsible for related fees.

Students intending to withdraw from a course after the Registration Revision Period must apply to the Office of the Registrar by submitting a "Request to Withdraw from a Course" form or by sending an email to the Registrar's Office by the **Withdrawal Deadline**; please consult the List of Important Dates on the my.ambrose.edu website. Students will not receive a tuition refund for courses from which they withdraw after the Registration Revision period. A grade of "W" will appear on their transcript.

Students wishing to withdraw from a course, but who fail to do so by the applicable date, will receive the grade earned in accordance with the course syllabus. A student obliged to withdraw from a course after the Withdrawal Deadline because of health or other reasons may apply to the Registrar for special consideration.

Exam Scheduling

Students, who find a conflict in their exam schedule must submit a Revised Examination Request form to the Registrar's Office by the deadline date; please consult the List of Important Dates. Requests will be considered for the following reasons only: 1) the scheduled final examination slot conflicts with another exam; 2) the student has three final exams within three consecutive exam time blocks; 3) the scheduled final exam slot conflicts with an exam at another institution; 4) extenuating circumstances. Travel is not considered a valid excuse for re-scheduling or missing a final exam.

Electronic Etiquette

Students are expected to treat their instructor, guest speakers, and fellow students with respect. It is disruptive to the learning goals of a course or seminar and disrespectful to fellow students and the instructor to use electronics for purposes unrelated to the course during a class session. Turn off all cell phones and other electronic devices during class. Laptops should be used for class-related purposes only. Do not use iPods, MP3 players, or headphones. Do not text, read, or send personal emails, go on Facebook or other social networks, search the internet, or play computer games during class. Some professors will not allow the use of any electronic devices in class. The professor has the right to disallow the student to use a

laptop in future lectures and/or to ask a student to withdraw from the session if s/he does not comply with this policy. Repeat offenders will be directed to the Dean. If you are expecting communication due to an emergency, please speak with the professor before the class begins.

Academic Policies

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. Personal information (information about an individual that may be used to identify that individual) may be required as part of taking this class. Any information collected will only be used and disclosed for the purpose for which the collection was intended. For further information contact the Privacy Compliance Officer at privacy@ambrose.edu.

Extensions

Although extensions to coursework in the semester are at the discretion of the instructor, students may not turn in coursework for evaluation after the last day of the scheduled final examination period unless they have received permission for a course Extension from the Registrar's Office. Requests for course extensions or alternative examination time must be submitted to the Registrar's Office by the deadline date; please consult the List of Important Dates. Course extensions are only granted for serious issues that arise "due to circumstances beyond the student's control."

Appeal of Grade

An appeal for change of grade on any course work must be made to the course instructor within one week of receiving notification of the grade. An appeal for change of final grade must be submitted to the Registrar's Office in writing and providing the basis for appeal within 30 days of receiving notification of the final grade, providing the basis for appeal. A review fee of \$50.00 must accompany the appeal. If the appeal is sustained, the fee will be refunded.

Academic Integrity

We are committed to fostering personal integrity and will not overlook breaches of integrity such as plagiarism and cheating. Academic dishonesty is taken seriously at Ambrose University as it undermines our academic standards and affects the integrity of each member of our learning community. Any attempt to obtain credit for academic work through fraudulent, deceptive, or dishonest means is academic dishonesty. Plagiarism involves presenting someone else's ideas, words, or work as one's own. Plagiarism is fraud and theft, but plagiarism can also occur by accident when a student fails or forgets to acknowledge to another person's ideas or words. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from the university. Students are expected to be familiar with the policies in the current Academic Calendar that deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean and become part of the student's permanent record.

Mental Health Support

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Off Campus:

- Clinic: Sheldon Chumir Health Centre - 403-955-6200
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Note: Students are strongly advised to retain this syllabus for their records.