



Course Information

Discipline:	Natural Science	
Course Title	Course Code Number	Credit Value
Fundamentals of Ecology	<i>Institution Specific</i>	3
Prerequisites		
Introductory Biology		

Contact Information

Course Instructor	Contact Details	Office Location	Office Hours
David Moulton	E-mail: david.moulton@ubc.ca Please put course code and # in subject line Typical response time within 24 hours (during the work week)	Forestry Building FSC 3604	Mon & Wed 1:00 pm – 2:00 pm Tues & Thurs 11:00 am – 12:00 pm Also by appointment (in-person or online via Canvas drop-in meeting link, whichever you prefer) Note: please try to schedule appointments as far in advance as possible

Course Overview:

An introduction to the factors determining the distribution and abundance of organisms, including interactions among organisms and between organisms and physical aspects of habitat. There is a hierarchy to these interactions, and we will study how they affect individuals, populations, communities, ecosystems, and biospheres. A range of spatial scales will also be considered, from individual ecological niches to large scale macroecology. Within species, we will examine behavior, life history strategies, and fundamentals of population dynamics including growth. Between species, we will consider interactions (e.g. predation), trophic relationships, and biodiversity. Tying these levels together will be coverage of evolutionary adaptation and associated tradeoffs, including coevolution. We will also consider aspects of the professional world of ecology including skills required for experimental design, analysis, and

interpretation. In addition, we will examine the benefits of ecosystems to humans and current attempts to manage threats to ecosystems, especially those occurring due to global change.

Course Goals:

- Identify and interpret ecological processes at population, community, and ecosystem levels
- Examine how organisms interact with the abiotic and biotic environment
- Compare the structure and function of different types of ecosystems
- Evaluate methods for studying and measuring species interactions
- Relate ecological concepts to conservation and management issues

Schedule of Topics:

	Modules	Session Learning Outcome(s): By the end of this module, learners will be able to ...	Assignments/projects
1	Introduction to Ecology	<ul style="list-style-type: none"> • Define ecology • Classify ecological scales: individual, population, community, ecosystem, biome 	Entry survey on interests
2	Experimental Design and Data Literacy	<ul style="list-style-type: none"> • Summarize the scientific method • Identify features of an effective experimental design testing a question • Interpret scientific figures 	Journal article analysis (due module 4)
3	Habitat and Life Strategies	<ul style="list-style-type: none"> • Define ecological niche • Distinguish between life history strategies and discuss situations that give rise to them 	
4	Populations and Metapopulations	<ul style="list-style-type: none"> • Explain population growth and factors that influence it • Give examples of metapopulation dynamics 	Population growth assignment (due module 5)
5	Interspecific Interactions in Communities	<ul style="list-style-type: none"> • List interactions between organisms and describe their effects • Assess how these interactions affect niches 	Quiz 1
6	Evolution and	<ul style="list-style-type: none"> • Describe how ecological 	5 minute presentation on a

	Coevolution	<p>processes shape evolution of organism form and function through natural selection</p> <ul style="list-style-type: none"> • Give examples of adaptations and evaluate tradeoffs • Give examples of coevolutionary relationships 	coevolutionary relationship
7	Trophic Ecology	<ul style="list-style-type: none"> • Explain bottom-up and top-down processes • Describe examples of trophic cascades 	
8	Behavioral Ecology	<ul style="list-style-type: none"> • Differentiate between drivers of behavior • Evaluate tradeoffs involved in animal behavior 	<p>Mid-term Exam</p> <p>Observational journal from home surroundings (due module 10)</p>
9	Biodiversity	<ul style="list-style-type: none"> • List benefits of and threats to biodiversity • Calculate biodiversity using common methods 	
10	Macroecology	<ul style="list-style-type: none"> • Describe ecological processes occurring at large spatial scales 	
11	Applied Ecology: Conservation and Management	<ul style="list-style-type: none"> • Evaluate management practices being used to address conservation issues • Devise a conservation strategy addressing a particular issue 	<p>Quiz 2</p> <p>Conservation Strategy (due module 13)</p>
12	Ecology and Global Change	<ul style="list-style-type: none"> • Examine ecological impacts from land use, harvest, chemical change, climate change, and invasive species 	
13	Ecosystem Services	<ul style="list-style-type: none"> • Identify a variety of benefits provided to human society by ecosystem services • Estimate the cultural and economic value of ecosystem services 	<p>Final Exam</p> <p>Course Reflection</p>

Evaluation:

Assignments: 60%

Journal Article Analysis (10%)

Population Growth Worksheet (10%)

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Presentation (10%)

Observational Journal (10%)

Conservation Strategy (10%)

Course Reflection (10%)

Quizzes: 10% (2 @ 5% each)

Exams: 30% (2 @ 15% each)

Additional Notes:

- **Reading Material to Support Lessons**

Effort will be made to assemble resources from Open Educational Resources (OER) and other content that is free to access and provide (as opposed to a textbook) in order to reduce cost burden.

- **Late Submission Policy**

Life can be unpredictable and we may not always reach our goals in a timely manner. Getting an early start on assignments is recommended and helps tremendously for turning in quality products on time. If circumstances arise that hamper timely submission, please let me know and we can discuss an extension (see next section 'your well-being').

In general, I prefer a higher quality product turned in a bit late than one that is done hastily to beat the deadline. I don't dock a certain number of points per day but will consider adding a late penalty if I have to reach out to ask about the status of your assignment. If I have to inquire twice or more, a late penalty will be added.

- **Your well-being**

Please know that your mental and physical well-being are important to me! If you are dealing with circumstances that affect your ability to engage in the course, please contact me so that we can develop an accommodation strategy. I am available as a listener, or you may also work with someone in student services who will help determine adequate accommodations without revealing sensitive information to me.

Counseling services: (provide institution specific information)

Health services: (provide institution specific information)

- **Inclusive learning and disability accommodation statement**

Diverse learning styles and student needs are all welcome in this course. If you have considerations that may need accommodations, please let me and/or the Accessibility Center know as soon as possible so that your needs can be met expeditiously.

Accessibility Center: (provide institution specific information)

- **Academic honesty policy**

Institution specific

- **Electronic device policy**

The use of laptops or tablets for note-taking purposes is permitted and encouraged. Doing anything on your laptops and/or tablets that is not related to class is discouraged, as is the use of your phone. These distractions are counterproductive to your learning and are inconsiderate to other students. If distractions are occurring, we will chat about how to improve focus in class.

- **Course experience surveys**

I value your feedback! There will be two opportunities to provide anonymous feedback. The first will take place around Week 7 and will provide an opportunity for you to give feedback on the course so far which will help me to make adjustments going forward. Additionally, towards the end of term the departmental course experience survey will be administered providing an opportunity for feedback on your learning experience throughout the term. Your feedback is vital for improving the course and its teaching and learning atmosphere during the present and future and is much appreciated! I will provide more detailed information as the surveys get closer but please keep this important activity in mind during the course.