

BIOL 208A Principles of Ecology

3 Credits, 3 hours lecture and 3 hours lab per week

Biology 208 deals with the principles of ecology including the interactions between organisms and their environment resulting in the formation of communities, ecosystems and biomes. Biology 208 is a core course in the department of biology and is required for animal biology, bioinformatics, cell biotechnology, environmental biology, evolutionary biology, microbiology, molecular genetics, physiology, and plant biology.

Must have completed BIOL 108 – An Introduction to Biodiversity

Instructor

Dr. David Smith
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Office Hours

Monday, Tuesday, Wednesday and Thursday 12:00 PM – 12:50 PM
Friday 11:00 AM – 11:50 AM

Hours of Instruction

Lecture: Monday, Thursday 3:30 PM – 4:50 PM
Laboratory: Tuesday 9:00 AM – 11:50 AM

Required Resources

Molles, M.C. and J.C. Cahill 2017. Ecology: Concepts and Applications, Fourth Canadian Edition
McGraw Hill Ryerson, Toronto. 9780071093323 • 007109332X

Full outdoor apparel for fall and winter weather including suitable footwear**Course Outcomes**

Upon successful completion of this course, students will be able to:

- Demonstrate familiarity with the fundamental principles of how ecological systems are structured and how they function at organismal-, population- and community-levels of biological organization
- Identify the major biotic and abiotic selective forces that contribute to differential survivorship, and to assess how organisms respond to these challenges on a short term and long term basis, and how these responses contribute to the structure and function of ecological systems
- Explain the mechanisms of organic evolution in an ecological context
- Successfully participate in the range of activities used by ecologists, including the collection of data from laboratory and field studies, the use and interpretation of relevant scientific literature, and the understanding and analysis of qualitative and quantitative information
- Demonstrate the development of ecological literacy in topical local, regional, and global issues

Evaluation

Assignments - 25% due one week after each lab

Written report and oral presentation - 15% due week of November 20

Midterm Exam - 25% week of October 16

Final Exam - 35%

Total 100%

A grade of C- is required for progression or transfer.

Grading System

Descriptor	Alpha Grade	4.0 Scale	Percent	Rubric for Letter Grades
Excellent	A+	4.0	> 92.9	Work shows in-depth and critical analysis, well developed ideas, creativity, excellent writing, clarity and proper format.
	A	4.0	85 – 92.9	
	A-	3.7	80 – 84.9	
Good	B+	3.3	77 – 79.9	Work is generally of high quality, well developed, well written, has clarity, and uses proper format.
	B	3.0	74 – 76.9	
	B-	2.7	70 – 73.9	
Satisfactory Progression	C+	2.3	67 – 69.9	Work has some developed ideas but needs more attention to clarity, style and formatting.
	C	2.0	64 – 66.9	
	C-	1.7	60 – 63.9	
Poor Minimum Pass	D+	1.3	55 – 59.9	Work is completed in a general way with minimal support, or is poorly written or did not use proper format.
	D	1.0	50 – 54.9	
Failure	F	0.0	< 50	Responses fail to demonstrate appropriate understanding or are fundamentally incomplete.

Proposed Schedule of Topics***Week of: Fall 2017 semester, Lecture and Laboratory Topics***

September 4	Introduction – no lab
September 11	Sampling methods – Field Lab 1 (Sampling a plant community)
September 18	Population ecology – Chapter 10, 11, Field Lab 2 (Competition and niche partitioning within a spruce forest and sedge fen)
September 25	Community ecology – Chapter 12, Field Lab 3 (Terrestrial plant community assessment)
October 2	Ecosystems – Chapter 16, 17, 18, Field Lab 4 (Microcommunities)
October 9	Case study: terrestrial boreal and subarctic ecosystems – Lab 5, (Microcommunities continued)
October 16	Anthropogenic effects – Chapter 23, (Field Lab 6, Soil ecology)
October 23	Temperature and water relations – Chapter 5, 6, 15. Field Lab (Lab 7, Species richness and diversity within a black spruce bog)
October 30	Herbivory and mutualism – Chapter 14, Chapter 22, Lab 8 (Age distribution and survivorship)
November 6	Productivity and Succession – Chapters 18 and 19, Lab 9 (Natural selection)
November 13	Biodiversity and conservation – Chapter 23, No Lab – Holiday
November 20	Aquatic ecosystems – Chapter 21, Lab 10 (Population growth)
November 27	Allocation and life history patterns – Chapter 7, Lab review
December 4	Mineral cycles – Chapter 20, Term project oral presentations and written report due
December 11	Exam week

Please Note:

Date and time allotted to each topic is subject to change.

Performance Requirements**Student Responsibilities**

It is your responsibility as a student to contact the Office of the Registrar to complete the forms for Withdrawal or Change of Registration, and any other forms. Please refer to the list of important dates as noted in the Academic Schedule in the Keyano College credit calendar.

More specific details are found in the Student Rights and Student Code of Conduct section of the Keyano College credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Student Code of Conduct Policies.

Laboratory Safety

In the science laboratories, safety is important.

Students must complete the *WHMIS for Students* online training course on Moodle before entering the science laboratories.

Students must comply with the mandatory laboratory safety rules for this course as provided in the laboratory manual. Failure to do so will result in progressive discipline such as a verbal warning, refused entry into the laboratory, or suspension from the College.

Student Attendance

Class attendance is useful for two reasons. First, class attendance maximizes a students' learning experience. Second, attending class is a good way to keep informed of matters relating to the administration of the course (e.g., the timing of assignments and exams). Ultimately, you are responsible for your own learning and performance in this course.

It is the responsibility of each student to be prepared for all classes. Students who miss classes are responsible for the material covered in those classes and for ensuring that they are prepared for the next class, including the completion of any assignments and / or notes that may be due.

Academic Misconduct

Students are considered to be responsible adults and should adhere to principles of intellectual integrity. Intellectual dishonesty may take many forms, such as:

- Plagiarism or the submission of another person's work as one's own
- The use of unauthorized aids in assignments or examinations (cheating)
- Collusion or the unauthorized collaboration with others in preparing work
- The deliberate misrepresentation of qualifications
- The willful distortion of results or data
- Substitution in an examination by another person
- Handing in the same unchanged work as submitted for another assignment
- Breach of confidentiality.

The consequences for academic misconduct range from a verbal reprimand to expulsion from the College. More specific descriptions and details are found in the Student Rights and Student Code of Conduct section of the Keyano College credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Student Code of Conduct Policies.

In order to ensure your understanding of the concept of plagiarism, you must successfully complete the online tutorial found on ilearn.keyano.ca. Then print the certificate, sign it, and show it to each of your instructors. Your course work will not be graded until you show this signed certificate.

Specialized Supports**Counselling and Accessibility Services**

Counselling Services provides a wide range of specialized counselling services to prospective and registered students, including personal, career and academic counselling.

SKILL Centre

The SKILL Centre is a learning space in the Clearwater Campus at Keyano College where students can gather to share ideas, collaborate on projects and get new perspectives on learning from our tutorial staff.

The SKILL Centre, through a variety of delivery methods, provides assistance in skill development to Keyano students. Assistance is provided by instructors, staff and student tutors. Individuals wishing to improve their mathematics, writing, grammar, study, or other skills, can take advantage of this unique service.

Authorization

This course outline has been reviewed and approved by the Program Chair.

Dr. David Smith, Instructor

Louis Dingley, Chair

Date Authorized

Dr. Vincella Thompson, Dean

Date Authorized

Signed copies to be delivered to:

Instructor

Registrar's Office