

BIOL 303- Winter Term - 2015

Title

Community and Ecosystem Ecology

Description

An introduction to the major ecological concepts at the community and ecosystem scales. Patterns and mechanisms underlying: community structure; biogeographic patterns; element cycles in terrestrial and aquatic ecosystems. Environmental problems are assessed in terms of ecological principles. Laboratory work includes field studies as well as individual and group projects.

Instructors

Dr. Shelley Arnott	(Course Coordinator & Lecturer)	arnotts@queensu.ca	website
Dr. Paul Grogan	(Lecturer)	groganp@queensu.ca	website
Brenda Schamehorn	(Lab Coordinator)	schamehb@queensu.ca	

Teaching Assistants

A list of the teaching assistants and their contact information will be posted on Moodle.

Lecture Times

Monday	8:30am-9:30am	Humphrey Aud
Tuesday	10:30am-11:30am	Humphrey Aud
Thursday	9:30am-10:30am	Humphrey Aud

Laboratory Times

Labs begin Jan 5th. Some labs will be held outdoors--be prepared for very cold weather (we go, snow or shine!). See door of Bio Sci 2305/ 3311 for room assignment
All labs Monday to Thursday 2:30-5:30pm

Course Material

Textbook The required textbook for BIOL 303 is Ecology: Concepts and Applications, by Manuel C. Molles Jr. and James F. Cahill Jr., 3rd Canadian Edition. Note that although we will be working directly from this Canadian edition, additional readings from other sources will also be assigned from time to time.

Course manual The course manual is posted in sections on the Moodle site. They contain essential information for each lab. Please read the appropriate section BEFORE you come to lab. Check the BIOL 303 Moodle site and print out any additional material posted there.

Assessment

Laboratory: Independent study of current research (Lit Rev & Seminar)	15%
Laboratory: Biodiversity experiment	10%
Laboratory: Old Field Succession Study	15%
Quizzes (during regular lecture time)	10%
Midterm (during regular lecture time, February 12th)	15%
Final exam (scheduled by exams office)	35%

All components of this course will receive numerical percentage marks. The final grade you receive for the course will be derived by converting your numerical course average to a letter grade according to Queen's Official Grade Conversion Scale:

Grade	Numerical Course Average (Range)
A+	90-100
A	85-89
A-	80-84
B+	77-79
B	73-76
B-	70-72
C+	67-69
C	63-66
C-	60-62
D+	57-59
D	53-56
D-	50-52
F	49 and below

Policies

See the course manual for full details.

Attendance You are expected to attend all lectures and labs. This is critical for your success in the course. Lecture slides are designed to support what is being discussed in lecture, but do not have enough written material on them to be useful for teaching on their own. Thus it is essential that you attend lecture and take good notes. If you miss a lecture or lab, it is up to you to catch up from your fellow students and/or ask permission to attend a make-up lab. Outlines of the slides from lecture will be provided on Moodle.

Laboratory Work All assignments and reports should be submitted on the Moodle site. The **penalty for late reports is 5% per day** unless you have a special dispensation (see the "Dispensations" section in the course manual). Extensions will not be given due to work load in this or other courses, so budget your time carefully. Always keep a copy of each report / assignment that you hand in; if the file is lost or corrupted in transfer before it has been marked, it is your responsibility to produce another copy if requested. All reports and assignments must be written individually by each student. You may work on data analyses in groups but if you do, you must report the names of your study group members as a footnote on the title page of your assignment or report. **MAKE SURE** that the text of your report is written individually by you, in your own words. Any assignment that is handed in independently is expected to reflect your own independent efforts. (See the "Plagiarism" section in the course manual).

In-class Quizzes Throughout the term we will give in class quizzes on lecture material. Quiz dates will not be announced in advance and will consist of 5 multiple-choice questions that cover material from the previous week's lectures. Each quiz will be worth 2% of your mark. We will give 6 quizzes and will drop your lowest mark.

Exams The midterm will be held in-class on Thursday February 12th, and the final exam is scheduled by the exam office. Exams are mandatory, and alternative arrangements can only be made for medical or extenuating circumstances following the guidelines on the [Biology website](#).

Academic Integrity Plagiarism is a serious academic offense. All students are expected to be aware of what constitutes plagiarism versus working with fellow students on challenging parts of the course. In a concise form, plagiarism means presenting someone else's work (in whole or in part) as if it were your own. See [the Faculty of Arts & Science website](#) for more information.

Academic integrity is constituted by the five core fundamental values of honesty, trust, fairness, respect and responsibility (see www.academicintegrity.org). These values are central to the building, nurturing and sustaining of an academic community in which all members of the community will thrive. Adherence to the values expressed through academic integrity forms a foundation for the "freedom of inquiry and exchange of ideas" essential to the intellectual life of the University (see the Senate Report on Principles and Priorities <http://www.queensu.ca/secretariat/policies/senateandtrustees/principlespriorities.html>).

Students are responsible for familiarizing themselves with the regulations concerning academic integrity and for ensuring that their assignments conform to the principles of academic integrity. Information on academic integrity is available in the Arts and Science Calendar (see Academic Regulation 1 <http://www.queensu.ca/artsci/academic-calendars/2011-2012-calendar/academic-regulations/regulation-1>), on the Arts and Science website (see <http://www.queensu.ca/artsci/academics/undergraduate/academic-integrity>), and from the instructor of this course. Departures from academic integrity include plagiarism, use of unauthorized materials, facilitation, forgery and falsification, and are antithetical to the development of an academic community at Queen's. Given the seriousness of these matters, actions which contravene the regulation on academic integrity carry sanctions that can range from a warning or the loss of grades on an assignment to the failure of a course to a requirement to withdraw from the university.

Copyright of Course Materials

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Lecture Schedule

Lectures will be a mix of material presentation, case studies, worked problems, and class discussion.

Date	Topic
January 5th	L1: Course introduction—current concepts & big issues (SA)
January 6th	L2: Community & ecosystem ecology—framework (PG)
January 8th	L3: Research tools—from patterns, to experiments, to theory and back (SA)
January 12th	L4: Species abundances and diversity (SA)
Interactions	
January 13th	L5: Niches, habitat heterogeneity and disturbance (PG)
January 15th	L6: Competition (SA)
January 19th	L7: Winter ecology (PG)
January 20th	L8: Succession in terrestrial communities (PG)
January 22nd	L9: Succession in lakes (SA)
January 26th	L10: Predation and omnivory (SA)
January 27th	L11: Stochastic vs deterministic theory (Amanda Tracey)
January 29th	L12: Migration, dispersal, meta-communities (SA)
Communities and Ecosystems	
February 2nd	L13: Community response to environmental change: local and regional processes (SA)
February 3rd	L14: Biodiversity and ecosystem functioning (PG)
February 5th	L15: Biodiversity discussion; Vellend et al. paper (PG)
February 9th	L16: Alternate stable states (SA)
February 10th	Available class time for review
February 12th	Midterm (in class)
February 16th	Reading week, no lecture
February 17th	Reading week, no lecture
February 19th	Reading week, no lecture
February 23rd	L17: Production in terrestrial ecosystems (abiotic & biotic) (PG)

Date	Topic
February 24th	L18: Decomposition in terrestrial ecosystems (PG)
February 26th	no lecture
March 2nd	L19: Production/decomposition in aquatic systems (SA)
March 3rd	L20: Production/decomposition in aquatic systems (SA)
March 5th	L21: Global carbon cycle (SA)
March 9th	No lecture
March 10th	L22: Synthesis topic: The phosphorus problem (PG)
March 12th	L23: Synthesis topic: The phosphorus problem (discussion) (PG)
March 16th	No lecture
March 17th	L24: Nitrogen cycle (PG)
March 19th	L25: Climate change in nitrogen cycling in the Arctic (PG)
March 23rd	No lecture
March 24th	L26: Invasion ecology (SA)
March 26th	L27: Invasion ecology (discussion) (SA)
March 30th	No lecture
March 31st	L28: Synthesis topic: Global change ecology (PG)
April 2nd	L29: Synthesis topic: Global change ecology (discussion) (PG)