

**University of Guelph
College of Biological Sciences**

Integrative Biology

COURSE OUTLINE

BIOL*3120 Community Ecology

W14L

Course description

- This course will examine the structure and dynamics of communities, and will deal with both theoretical and applied aspects of community ecology. Emphasis is on the modern quantitative view of community ecology and on the development of problem-solving skills.
- Prerequisite(s): BIOL*2060 or BIOL*3110
- Credit value: [0.50]

Teaching team

- Instructor:
 - Karl Cottenie, 2470 SCIE, Ext, 52554 (cottenie@uoguelph.ca)
 - Office hours: by email appointment
- TAs:
 - David Gislason
 - isa Harris
 - Eric Harvey

Course schedule

Scheduled classes: T, Th 08:30 – 09:50 am, ALEX 200

Scheduled tutorials: 103: Th 12:00-12:50 pm, 2314 SCIE – Eric Harvey

104: Fr 9:30-10:20 am, 2314 SCIE – Dabbi Gislason

105: Fr 10:30-11:20 am, 2314 SCIE – Dabbi Gislason

106: Fr 11:30-12:20 pm, 2314 SCIE – Lisa Harris

107: Fr 12:30-13:20 pm, 2314 SCIE – Lisa Harris

Learning goals and rationale

Have you paused to consider the tremendous variation in the numbers of coexisting species of plants and animals, sometimes between areas in as close proximity as an abandoned farm field and adjacent woodlot, or as geographically separated as the arctic and the tropics? A central and elusive question in ecology remains: Why should it be so? Many ecologists have sought to understand why numbers of species vary in time and space, so it is not too surprising to find that many explanations have been advanced. Additionally, interest in this apparently esoteric question

has taken on new importance as society debates the extent and causes of the “biodiversity crisis” and its consequences. This course will explore the study of variation in species diversity and culminate with discussion about the relevance of community ecology to current issues in the conservation and management of “biodiversity”. Students should expect to encounter many theories about spatial and temporal variation in species diversity. Emphasis will be placed on the many and, often, conflicting views about the factors that influence variation in the diversity of species. Students will undertake and report on hands-on research projects to evaluate experimental and observational evidence for selected theories.

The main focal point of the course is 3 research projects. Students will be subdivided in groups of 4, according to the tutorial session they are in. They will work as a group throughout the semester on the 3 research projects. Each research project consists of writing a scientific paper dealing with a current, real, problem in community ecology, following the scientific method. Each research project consists of introducing and discussing the research problem in class, accompanied by active collaboration on it.

To facilitate group interactions, students are recommended to use only the collaboration tools provided by CourseLink. This makes it easy for groups to interact with TAs and instructors. It also ensures that, in the case of questions regarding contributions of individuals to the collaborative process, a record is available about the interactions (or lack thereof) between students in a group. To the extent that non-participation could be considered obstruction and interference to learning by other students, penalties may be in order under University policy with regard to academic misconduct (see below), so it is important to demonstrate active collaboration using the CourseLink collaboration tools.

At the end of this course, the successful student will be able to ...

1. ... illustrate the importance of explicitly defining the studied community for your study.
2. ... distinguish between different types of attributes of a community, and use those as a dependent variable in a community ecology study.
3. ... detect how ecological communities are determined by environmental processes within a site, dispersal between sites, and temporal processes.
4. ... apply basic ecological theory and the scientific method to meaningful and evidence-based conservation.
5. ... summarize a primary research article and extract relevant information for a specific scientific study.
6. ... apply the scientific method to current problems in community ecology by evaluating the weight of evidence for a certain ecological mechanism with statistical analysis of data and communicating this process to a reader with an ecology background.
7. ... function efficiently and effectively within a collaborative learning environment, both with peers and instructors.

Course ResourcesL

Students are expected to be familiar with material from assigned readings from primary scientific literature as appropriate to each project. Lecture notes and required reading material will all be posted online before class, and form the material for weekly personal self-study assignments (6 in total, the grades from the lowest 2 self-study assignments will be dropped in the final calculations). These self-study assignments are scheduled for Monday. Lectures (especially those on Thursday) will be used to discuss these assignments, problem areas, how the material relates to the assignments, etc.

There is no laboratory for this course. There are weekly tutorials at scheduled times and places (see above). Tutorials will consist of “drop-in” workshops designed to allow for student consultations with teaching assistants as required for the purpose of executing three multi-investigator/author research projects over the course of the semesters. The students can also use the end of the time-slot to come together with their group members to discuss their research project in person.

Course ContentL

	TopicsL
1.L	What is community ecology?L A.L What is a community?L B.L Introduction to metacommunity theoryL
2.L	Research Project 1: Neutral metacommunity theoryL A.L Island biogeographyL B.L Modern neutral modelsL C.L Simulation model in RL
3.L	Research Project 2: Species sorting theoryL A.L Graphical niche modelL B.L Species sorting with limiting, efficient, and high dispersalL C.L Classic community patterns in a metacommunity contextL
4.L	Research Project 3: Temporal metacommunity dynamicsL A.L Metacommunities through timeL B.L Diversity - stability debatel C.L Meta-analysisL

Methods of Assessment

Insert list of the forms of assessment, weighting and relevant dates (see below). Indicate how these assessments align to course content and learning outcomes.

Form of Assessment	Weight of Assessment	Due Date	Course Content /Activity	Learning Outcome Addressed
Self-study assessments	16% (4 best out of 6), individual	see calendar	lectures, independent readings, tutorial exercises	2, 4, 5
Research Project 1	10%, group grade, weighted by individual contribution	see calendar	non-lecture, grading rubric	1, 3, 5, 6, 7
Writing self-evaluation 1	6%, group grade, weighted by individual contribution	see calendar	comparison of collaborative project with exemplars, for getting additional feedback	7
Research Project 2	28%, group grade, weighted by individual contribution	see calendar	non-lecture, grading rubric	3, 5, 6, 7
Writing self-evaluation 2	6%, group grade, weighted by individual contribution	see calendar	comparison of collaborative project with exemplars, for getting additional feedback	7
Final Research Project	34%, group grade, weighted by individual contribution	see calendar	non-lecture, grading rubric	3, 5, 6, 7

Important DatesL

See attached calendar.

Course and University PoliciesL

When You Cannot Meet a Course RequirementL

When you find yourself unable to meet an in-course requirement because of illness or compassionateL reasons, please advise the course instructor (or designated person, such as a teaching assistant) inL writing, with your name, id#, and e-mail contact, and be prepared to provide supporting documentation.L See the undergraduate calendar for information on regulations and procedures for AcademicL Consideration: <http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>L

Late/missed individual work

Self-study assessments (SSAs) are term work. None will be accepted late or rescheduled; students will receive a grade of zero. Students can receive zeros for up to two missed SSAs without affecting the final grade, as these will constitute the lowest 2 of 6 grades for SSAs and are deleted (see Methods of Assessment). Otherwise, zeros will be deleted from the record when a request for academic consideration from an appropriate counsellor (Program Counsellor or otherwise), on the basis of legitimate compassionate or medical grounds, is received by the instructors. Students' final grades will then be prorated on the basis of completed work, if the completed work comprises at least 66% of the final grade. Otherwise, a grade of INC will be submitted and the case(s) referred to the Academic Review Sub-Committee.

Late/missed group work and contributions to group work

There are 4 ways that late/missed group work may be handled, depending on whether the late/missed work is term work or the final assignment and whether individuals are judged to have participated sufficiently, or behaved as 'free riders'.

(1) Term work missed by the group as whole. No late submissions will be accepted. If, in extreme and unlikely circumstances, an entire group is late to submit an assignment, all students in the group will receive a grade of zero. Zeros will be deleted from the records of all students for whom a request for academic consideration for medical or compassionate reasons from an appropriate counsellor (Program Counsellor or otherwise), is received by the instructors. Students' final grades will then be prorated on the basis of completed work, if the completed work comprises at least 66% of the final grade. Otherwise, a grade of INC will be submitted and the case(s) referred to the Academic Review Sub-Committee.

(2) Term work missed by individual group members. Where, to the satisfaction of the instructors, based on peer evaluations and/or other evidence, it is clear that a student participated insufficiently in term group work, the student will be considered to have missed that work. No late submissions will be accepted. The student will receive a grade of zero. Zeros will

be deleted from the record when a request for academic consideration from an appropriate counsellor (Program Counsellor or otherwise), on the basis of legitimate compassionate or medical grounds, is received by the instructors. The student's final grade will then be prorated on the basis of completed work, if the completed work comprises at least 66% of the final grade. Otherwise, a grade of INC will be submitted and the case(s) referred to the Academic Review Sub-Committee. To the extent that non-participation could be considered obstruction and interference to learning by other students in the group, penalties may be in order under University policy with regard to academic misconduct (see below).

(3) Final assignment missed by the group as a whole. No late submissions will be accepted. Consistent with University policy, this will result automatically in a final grade of INC for each student in the group and referred to the Academic Review Sub-Committee.

(4) Final assignment missed by individual group members. Where, to the satisfaction of the instructors, based on peer evaluations and/or other evidence, it is clear that a student participated insufficiently in the final assignment, the student will be considered to have missed final work in the course. Consistent with University policy, that student will automatically receive a grade of INC, regardless of the grade received by the rest of the group, and the case referred to the Academic Review Sub-Committee. If the Sub-Committee receives documentation to warrant it, the instructors will recommend a grade prorated on the basis of completed term work, if the completed term work comprises at least 66% of the final grade. If the Sub-Committee awards a deferred condition or privilege, the deferred condition or privilege will be to complete the final assignment without the assistance of the group. To the extent that non-participation could be considered obstruction and interference to learning by other students in the group, penalties may be in order under University policy with regard to academic misconduct (see below).

Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Centre for Students with Disabilities as soon as possible.

For more information, contact CSD at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website: <http://www.csd.uoguelph.ca/csd/>

Academic Misconduct

In addition to the general policies outlined below, there are two important differences between the two major graded components of the course. The self-study assessments are individual grades, and while performed online outside of class, students are not allowed to collaborate in answering them. We will look for patterns in answers, within and across different assessments. On the other hand, students within a group should collaborate within their group to efficiently and effectively produce the desired

written text. Different groups can exchange ideas, but the collaborative project should be the result of discussions, research, and writing within each group. In addition, since the project is a scientific study, the students should be aware of the plagiarism standards. If in doubt, consult the library resource and ask course instructors. Finally, while we have set up a system of peer evaluation for the collaborative projects, non-participation could be considered obstruction and interference to learning by other students in the group, and penalties may be in order under University policy with regard to academic misconduct.

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community—faculty, staff, and students—to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:
<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

E-mail Communication

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

In addition, we will use Courselink to distribute information during this course, so all students are required to check the Courselink regularly.

Drop Date

The last date to drop one-semester courses, without academic penalty, is the 40th class day. To confirm the actual date please see the schedule of dates in the Undergraduate Calendar. For regulations and procedures for Dropping Courses, see the Undergraduate Calendar:

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

Copies of out-of-class assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Campus Resources

The Academic Calendar is the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs:
<http://www.uoguelph.ca/registrar/calendars/index.cfm?index>

If you are concerned about any aspect of your academic program:

- make an appointment with a program counsellor in your degree program.
<http://www.bsc.uoguelph.ca/index.shtml> or <https://www.uoguelph.ca/uaic/programcounsellors>

If you are struggling to succeed academically:

- There are numerous academic resources offered by the Learning Commons including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills. You can also set up individualized appointments with a learning specialist. <http://www.learningcommons.uoguelph.ca/>

If you are struggling with personal or health issues:

- Counselling services offers individualized appointments to help students work through personal struggles that may be impacting their academic performance.
<https://www.uoguelph.ca/counselling/>
- Student Health Services is located on campus and is available to provide medical attention.
<https://www.uoguelph.ca/studenthealthservices/clinic>
- For support related to stress and anxiety, besides Health Services and Counselling Services, Kathy Somers runs training workshops and one-on-one sessions related to stress management and high performance situations. <http://www.uoguelph.ca/~ksomers/>

If you have a documented disability or think you may have a disability:

- The Centre for Students with Disabilities (CSD) can provide services and support for students with a documented learning or physical disability. They can also provide information about how to be tested for a learning disability. For more information, including how to register with the centre please see: <https://www.uoguelph.ca/csd/>

Sun	Mon	Tue	Wed	Thu	Fri	Sat
5	6	7	8	9	10	11
	BIOL3120 Class @ ALEX 200	BIOL3120 Class @ ALEX 200		BIOL3120 Class @ ALEX 200	Research Project 1 available	
12	13	14	15	16	17	18
		BIOL3120 Class @ ALEX 200		Tutorial 1 BIOL3120 Class @ ALEX 200		
19	20	21	22	23	24	25
	Self Study Assessment 1	BIOL3120 Class @ ALEX 200		Tutorial 2 BIOL3120 Class @ ALEX 200		
26	27	28	29	30	31	1
		BIOL3120 Class @ ALEX 200		Tutorial 3 BIOL3120 Class @ ALEX 200		

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	28	29	30	31	1
		BIOL3120 Class @ ALEX 200		Tutorial 3 BIOL3120 Class @ ALEX 200		
2	3	4	5	6	7	8
	Self Study Assessment 2	BIOL3120 Class @ ALEX 200		Tutorial 4 BIOL3120 Class @ ALEX 200	Research Project 1 Due Research Project 2 available	
9	10	11	12	13	14	15
		BIOL3120 Class @ ALEX 200		Tutorial 5 BIOL3120 Class @ ALEX 200	Research Project 1 returned	
16	17	18	19	20	21	22
	Winter Break					
23	24	25	26	27	28	1
	Self Study Assessment 3	BIOL3120 Class @ ALEX 200		Tutorial 6 BIOL3120 Class @ ALEX 200	Writing evaluation/peer	

Sun	Mon	Tue	Wed	Thu	Fri	Sat
23	24 Self Study Assessment 3	25 BIOL3120 Class @ ALEX 200	26	27 Tutorial 6 BIOL3120 Class @ ALEX 200 Writing evaluation/peer	28	1
2	3 Self study assessment 4	4 BIOL3120 Class @ ALEX 200	5	6 Tutorial 7 BIOL3120 Class @ ALEX 200	7	8
9	10	11 BIOL3120 Class @ ALEX 200	12	13 Tutorial 8 BIOL3120 Class @ ALEX 200 Final Research Project available Research Project 2 due	14	15
16	17 Self-study assessment 5	18 BIOL3120 Class @ ALEX 200	19	20 Tutorial 9 BIOL3120 Class @ ALEX 200 Research Project 2 returned	21	22
23	24	25 BIOL3120 Class @ ALEX 200	26	27 Tutorial 10 BIOL3120 Class @ ALEX 200 Writing evaluation/peer	28	29
30	31 Self Study Assessment 6	1 BIOL3120 Class @ ALEX 200	2	3 Tutorial 11 BIOL3120 Class @ ALEX 200	4	5

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	1	2	3	4	5
	Self Study Assessment 6	BIOL3120 Class @ ALEX 200		Tutorial 11 BIOL3120 Class @ ALEX 200		
6	7	8	9	10	11	12
	Final Research Project and peer					