BIOC61: *Community Ecology and Environmental Biology*

Fall 2013

Welcome to *Community Ecology*!

As *Homo sapiens*, we are active participants in ecological communities every day. Community ecology is the ecology of interactions, of biodiversity. It is the scale at which we can observe ecology in action! In this course, I hope to share not only the science of community ecology, but also to increase awareness of the communities in which we live and our influence on them. As the convergence among many scales in ecology, community ecology is important to understanding, synthesizing, and applying many universal concepts in ecology.

1) **Define community, and give several examples of local ecological communities in southern Ontario. Describe their key features, importance, and potential threats.**
2) **Describe elements, patterns, and processes that are important in the ecology of communities. Predict how community function might alter with changes in the above.**
3) **Characterize the development, methods and status of community ecology as a science.**
4) **Apply the methods and concepts of community ecology to modern environmental and ecological issues.**

Professor: Dr. Robin Marushia

Contact: rmarushia@utsc.utoronto.ca,

Office Hours: 1 – 2 pm Wed. SY246, and by appt.

TA: Allan Edelsparre, Graduate Student in Biological Sciences.

Contact: a.edelsparre@utoronto.ca

Office Hours: Allan Edelsparre is available by email throughout the term. Office hours only by special appointment.

The Course:

Lecture: Mondays, 3 – 5 pm (NO CLASS THANKSGIVING HOLIDAY, OCT.7, 2013)

The midterm and final exam will be based on lecture material. Lecture material is the material delivered during in-class lecture. Slides posted online may not contain all the material delivered during lecture!

The textbook for this course is strongly suggested. I will be basing much of the Lecture on:

Mittelbach, G. 2012. *Community Ecology*. Sinauer Associates, Inc.; 1st ed.

I also use excerpts from: **Morin, P.G. 2011. *Community Ecology*, 2nd ed.. Wiley Blackwell, Oxford, UK**.

The text is available at the Bookstore. A copy will be under Course Reserves at the UTSC library. *Morin is also available as an e-book if you within the UofT server system – please see BlackBoard for a link!*

Everyone has their own learning style – mine is dependent upon communication. I will be learning as I teach this course, and I welcome your feedback and suggestions! Please communicate with me if you are having trouble, or if I can improve the lecture in specific ways. I do ask, however, that you provide concise, focused suggestions or questions, rather than general complaints or needs. I am open to a limited number of one-on-one appointments outside of office hours.

Tutorial: Wednesdays, 2 – 5 pm (MANDATORY)

The tutorial is **required** for this course. The tutorial is treated not only as a discussion section, but assignments and final project work take place during the tutorial. Marks for this course are distributed among both lecture and tutorial material, so your participation in both is required.

Please note that *you will alternate weeks to attend tutorial for much of the term*! Pay special attention to tutorial scheduling so you know when to come!

BlackBoard and Intranet

We will post most of the resources, links, marks, and other important course materials to BlackBoard. Please check it regularly! An electronic copy of this syllabus is available online. Modifications to this syllabus (lecture topics) will be posted there.

Marking policies:

- Late assignments are docked 10% each day they are late, up to 5 days (including weekends), after which they are not accepted.
- The midterm is held during classtime on Oct. 14, 2013. A make-up exam is allowed only with a UTSC Health Centre doctor's note. In the event of significant illness or other event which prevents you from taking the midterm, you must inform Dr. Marushia within **3 days** and provide the UTSC doctor's note (for illness) or other convincing documentation (TBD) within 1 week. Students with valid reasons for missing the midterm will be given a new make-up exam (NOT the same exam as given to the class) to cover the first portion of the course.
- The final exam is NOT comprehensive, and will test material from the midterm to the end of term. The final exam will be held in the examination period. Anyone absent from the final exam must petition the registrar's office to take a deferred exam.

Classroom Policies:

1) Please refrain from using your cell phone during class.
2) As advanced students, participation and respectful behaviour are expected. Please minimize distractions and give your instructors and fellow students your full attention.
3) Some materials will be provided online as lecture notes – these are intended to facilitate note-taking and enable learning during lectures, not to replace attendance to lecture.

Academic Honesty Policy:

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters (http://www.governingcouncil.utoronto.ca/policies/behaveac.htm) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:

In papers and assignments:

- Using someone else's ideas or words without appropriate acknowledgement.
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts.
- Obtaining or providing unauthorized assistance on any assignment.

On tests and exams:

- Using or possessing unauthorized aids.
- Looking at someone else's answers during an exam or test.
- Misrepresenting your identity.

In academic work:

- Falsifying institutional documents or grades.
- Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from Dr. Marushia or from other institutional resources (see http://www.utoronto.ca/academicintegrity/).

AccessAbility Statement

Students with diverse learning styles and needs are welcome in this course! In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the AccessAbility Services Office as soon as possible. I will work with you and AccessAbility Services to ensure you can achieve your learning goals in this course. Enquiries are confidential. The UTSC AccessAbility Services staff (located in SW302) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations (416) 287-7560 or ability@utsc.utoronto.ca.

BIOC61: *Community Ecology and Environmental Biology Schedules*

Lecture Schedule (subject to change – Blackboard postings are the final word)

Week	Date	Subject 1	Subject 2	Subject 3	*all Readings Mittelbach*
1	2-Sep	none - Labour Day			*unless specified otherwise*
2	9-Sep	Intro	Limiting Resources	Adaptations	
3	16-Sep	Defining Communities	Measures of Abundance	Diversity	Morin Ch. 1
4	23-Sep	Interactions	Niche Partitioning	Competition	Ch. 8 and 9
5	30-Sep	Density Dependence	LV Model	R* Model	Ch. 4 and 7
6	7-Oct	NO CLASS			
7	14-Oct	MIDTERM			
8	21-Oct	Antagonistic Relationships	Predation	Predation Models	Ch. 5 and 6
9	28-Oct	Ecological Networks	Food Webs	Top-Down vs. Bottom-Up	Ch. 10 and 11
10	4-Nov	Patchy Environments and Refuges	Metapopulations	Metcommunities	Ch. 12
11	11-Nov	Tradeoffs	Succession	Assembly Theory	Morin Ch. 13 & Ch. 9
12	18-Nov	neutral theory & Null models	phylogenetics	Trait Diversity	Ch. 13, Ch. 15 pp. 324-333
13	25-Nov	Disturbance	Alternative Stable States	Invasion	Ch. 14
14	2-Dec	possible catch-up day	Ecosystem functioning?		

Tutorial Schedule

Week	Date	Activity
1	11-Sep	Goldenrod reading and discussion
2	18-Sep	FIELD TRIP: Goldenrod data collection and analysis
3	25-Sep	
4	2-Oct	Graph Interpretation & Res/Disc assigned. Brief Communication Due.
5	9-Oct	
6	16-Oct	Results/Discussion Peer Review, Jigsaw reading assigned.
7	23-Oct	Jigsaw activity. Results/Disc. Due
8	30-Oct	
9	6-Nov	Final Project Peer Review Day
10	13-Nov	
11	20-Nov	Presentations
12	27-Nov	Presentations? *All Final Projects Due*

Grading Scheme

Midterm 1	20
Final Exam	33
Brief Communication	10
Results/Discussion Assignment	10
Final Project	20
Presentation Feedback	7
	100

Options for Final Project:

1) Presentations: current areas of research in community ecology.
    a. Maximum: ~20 students
    b. Topic suggestions given, although proposals considered.
    c. Synthesis and thesis on a *recent, key topic* in the science of community ecology
    d. Marks consist of a 10-minute presentation to the class and a 3-page concise summary with a list of no less than 20 citations.
    e. Fellow students required to critique presentations (for marks!).
2) Science Editorial: a critique.
    a. No max student number.
    b. Two options given, although proposals considered.
        i. Lawton, J. H. 1999. Are there general laws in ecology? Oikos 84:177–192. And replies.
        ii. *Mark Davis*. *Invasion Biology*. Oxford University Press, 2009. And replies.
    c. 10 – 15 pages, 20 – 40 citations.
3) "Take a Hike!": Assessing local communities
    a. No max students
    b. Options for local communities/areas to visit given, proposals considered
    c. A topical analysis of the major species, patterns, and processes that constitute the community.
    d. Requires at least one visit to the community to document the species and patterns observed via a photo journal.
    e. 8 – 12 page paper summarizing the attributes of the community, important research and findings from the community, and threats or aspects of current human use / future status.