Faculty of Science and Environmental Studies
BIOL 4113 Spring 2019 – Community Ecology

Online Learning - ***access to a computer and reliable internet is required***

Spring Term: Wednesday 1 May 2019 – Wednesday 12 June 2019

Instructor: Nancy Serediak

Virtual Office Hours: Tuesdays and Thursday 10:00 – 12:00 EDT or phone calls by appointment (emails answered usually within 24 hours)

Weighting: 0.5 FTE credit course

No single course text required for purchase; primary reading and resources include:

- Morin, Peter J. Community Ecology. First or Second Edition.
- Hillborn, Ray and Mangel, Mark. The Ecological Detective.
- D2L/Brightspace site: access through Lakehead University MyCourseLink

I. Rationale:
Community ecology is the study of species interactions in a particular time and place. It is a comprehensive approach to studying the ways in which biological assemblages affect each other as a function of population structure, life strategy, physical environment, and change.

II. Course Aims and Outcomes:

Aims
This course will help students to consider species in the context of their interactions or dependencies with each other and their environment. It will encourage critical thinking about how communities are measured and assessed in a format applicable to communities in general, whether they be large or small, terrestrial or aquatic.

Specific Learning Outcomes:

By the end of this course, students will:

- understand what makes up a community
- appreciate the inter-relatedness of biotic and abiotic community components
- recognize fundamental theoretical process models
- begin to link models to data
- have an appreciation for inherent difficulties in collecting ecological data
- have downloaded and run prepared script using R statistical software
- have a basic understanding of how to design a management plan using available data
- recognize the limitations of management plans
- be an honorary ecological detective

III. Format and Procedures:

A time budget of four hours per week on core material, and up to an additional four hours on required reading and/or assignments is recommended. As well, there will be a requirement for

you to collect, record and submit your own physical data over a five week period. Not all content will be visible at the beginning of the course. As you progress through the material and complete tasks, subsequent sections will unlock, either by date or as earned. There are readings, assignments, quizzes, and a project for this course, but no midterm or final exam. Participation is tracked by the online learning system (D2L), and respectful dialogues is expected in all interactions; for any additional clarity on respectful exchange, please refer to Lakehead University policy in the Academic Calendar available online.

Unlocked core material (lecture material, readings) will be available until 11:30 pm EDT on Wednesday 12 June 2019. Instructions for material that requires submission will only be available for a prescribed time period. The opportunity to attempt finishing all material immediately prior to end of term will be unavailable. However, some material may be finished as soon as prerequisite work has been completed.

To simplify: you can work ahead on some things, but you won't be able to do everything at the last minute before the course ends.

IV. My Assumptions

Since this is a senior undergraduate course, the assumption is that you have taken an introductory ecology course, an evolutionary biology course, and have a general understanding of the scientific method, statistics and what calculus does. However, do not panic - there are no prerequisites specified for this course, and all of this material will be reviewed. A commitment and willingness to learn is all that is truly required. The goal is to have you leave with an understanding of how communities function, expose you to typical theoretical models, and provide you with tools for asking (and hopefully answering) ecological questions regardless of the community of interest, tempered with the understanding that information is often missing.

V. Marks

Quizzes from required readings (5)	20%
Assignments (5)	50%
Final Project (1)	25%
Participation (regular data uploads)	5%

All material will be submitted within the class MyCourseLink site. The reading Q&A's will be in quiz format and everything is assumed to be open book. Each quiz will unlock after the reading assignment has opened (and hopefully been read). There will be a time limit for each quiz, although it is very generous. Once a quiz is started it must be finished in one sitting. A grading rubric will be associated with each assignment to guide effort, as well as for the final project. The final project will require you to have measured a physical metric ten times over five weeks and have regularly uploaded your data. Other community data will be then be provided, and you will analyze the data, interpret your results, and develop a management plan for an assigned community.

You will complete some analyses using R statistical software. The script for running analyses will be provided – do not fear, this is not a coding course! However, R is becoming so prevalent that a gentle exposure to it now will make you less afraid of it in the future. If R gurus exist in the class, seek them out in the site chat room if you are nervous. Instructions for downloading RStudio will be provided, as well as how to copy, paste and execute script. Be bold!

General Course Outline

Date	Topic	Work	Data upload
May 1	Course introduction, general ecology and community structure	Quiz 1	
May 2			
May 3		Data metric selected	End of Week 1
May 6			
May 7	Ecological metrics		
May 8		Quiz 2	
May 9			
May 10		Assignment 1	End of Week 2
May 13			
May 14			
May 15		Quiz 3	
May 16			
May 17		Assignment 2	End of Week 3
May 20		Holiday	
May 21	Ecological applications and management of communities		
May 22		Quiz 4	
May 23			
May 24		Assignment 3	End of Week 4
May 27			
May 28			
May 29		Quiz 5	
May 30			
May 31		Assignment 4	End of Week 5
June 3			
June 4			
June 5		Assignment 5	
June 6			
June 7			End of Week 6
June 10	No new course material this week		
June 11			
June 12		Final project due	Course Complete