

Concordia University

FIELD ECOLOGY (BIOL 451)

Course Outline

SEMESTER	FALL 2019
DAY / TIME	MONDAY: 11:45-13:00
TUTORIALS	WED/FRI: 8:45 - 10:00
COMPUTER ROOM	LOY CC203
INSTRUCTOR	Jean-Philippe Lessard
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TEACHING ASSISTANT	Javier Ibarra
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COURSE DESCRIPTION

This course is designed to give students practical experience working in field-based community ecology. It involves one week of fieldwork in late summer, followed by weekly meetings early in the fall semester. Students learn about sampling methods, experimental design, taxonomic identification and statistical tools with the aim of estimating and comparing patterns of biological diversity. Students will design and implement their own short study in the field. In the weekly meetings, students will learn some basics about how to write a scientific report. Students reside in a field station during field-based portion of the course. They are expected to cover the cost of room and board, and other necessary fees. The location and cost of the fieldwork may change from year to year. Interested students must contact the instructor to obtain detailed information. **Prerequisite:** BIOL 322 or equivalent, BIOL 353.

REQUIRED TEXT

None.

SUGGESTED READINGS

- Ellison AM, Gotelli NJ. 2013. A Primer of Ecological Statistics. Sinauer, Sunderland, Massachusetts, USA
- Magurran AE. 2003. Measuring Biological Diversity. Wiley-Blackwell, Oxford, UK. (available on Google)

FIELDWORK

The field portion of the course will run the week before the beginning of the fall semester, from Sunday, August 25th to Sunday September 1st, 2019, and will be based at the Forêt Montmorency field station, located north of Québec City, and owned and managed by Université Laval. Generally, the days will be spent working in the field and the evenings will be spent working in the lab on the microscope and your computers.

CLASSROOM

There will be only a few lectures during the semester after we return from the field portion of the course. Lectures will be on Monday (11:45-13:00) of the fall semester in room CC203 on Loyola Campus. You can also take advantage of open hours computer access (tutorials) to practice statistical techniques learned during the lecture. The first two weeks will be focused on learning basic statistics for biodiversity science. There will be brief presentations of theoretical concepts behind ecological statistics followed by application of statistical tools to real data. Students will learn techniques in species richness estimations, rarefaction, species indicator analyses and basic statistical analyses of biodiversity data. You are expected to be familiar with ANOVA and regression techniques. If not, you must revisit material from your undergraduate statistics class (BIOL322). I will also provide some book chapters that can help you. Then there will be three lectures giving you tips on how to write a proper scientific article.

EVALUATION

Independent project outline: 10%

Group project data: 10%

Scientific report outline: 20%

Final report: 60%

Most of the grade will be based on the final report (60%), so make sure you start working on it ahead of time. I highly suggest that you set yourself some deadlines for doing the different parts of the scientific report. The final report will be written and formatted as a scientific paper that could be submitted to a proper scientific journal. It will be based on data, analyses and results obtained from your own individual projects. These individual projects will be designed and implemented in the final days of the field portion of the course.

GRADING SCHEME

A+>90, 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<50

OFFICE HOURS

I do not have fixed office hours. If you need clarifications on the material covered during lectures, I strongly encourage you to come see me immediately after class. You may also schedule an appointment with me via e-mail to discuss your individual project. If you do so, please suggest a specific day and time (even better if you can suggest a few options) and make sure all your teammate are available during those times.

SCHEDULE

DATE	L#	TOPIC	TASK
25 Aug to 1 Sept		Fieldwork at Forêt Montmorency	Submit independent project outline
02-Sept		Labour Day	Get your group project data organized
09-Sept	L1	Describing communities: Diversity Metrics	Submit group project data
16-Sep	L2	Estimating diversity: Species Richness Estimation	Start reading papers and finding references
23-Sep	L3	How to illustrate your results	Write the methods section of your paper
30-Sep	L4	How to write a scientific paper I	Work on analysis of your own data
07-Oct	L5	How to write a scientific paper II	Produce 1-2 graphs with key results
14-Oct		Thanksgiving Day	Write outline of your introduction
21-Oct		NO LECTURE	Submit scientific report outline
28-Oct		NO LECTURE	Keep reading papers and finding references
04-Nov		NO LECTURE	Write the first full draft of your introduction
11-Nov		NO LECTURE	Finalize your result section, including figures
18-Nov		NO LECTURE	Write your discussion
25-Nov		NO LECTURE	Have a friend read and comment on your draft
02-Dec		NO LECTURE	Polish your manuscript
08-Dec		EXAM PERIOD	Submit final report (by midnight)