

Concordia University

FIELD ECOLOGY (BIOL 451)

Course Outline

SEMESTER	FALL 2015
DAY / TIME	Monday / 11:45-13:00
ROOM	CJ 1.129 LOY
INSTRUCTOR	Jean-Philippe (JP) Lessard
OFFICE	LOY – SP437.09
TEL	(514) 848 2424 ext. 5184
EMAIL	jp.lessard@concordia.ca

COURSE DESCRIPTION

This course is designed to give students practical experience working in field-based community ecology. It involves one week of field-work in late summer, followed by weekly meetings during 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 about and perform ecological statistics. They will also present their results orally and write a 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 30th to Sunday September 6th, 2015, 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 and on your computers.

CLASSROOM

We will meet every Monday (11:45-13:00) of the fall semester in room CJ 1.129 on Loyola Campus. Some of the lectures will be in a computer lab (room TBA). The first few 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 analyze data collected in the field using the software PRIMER-E. Species will learn techniques in species richness estimations, rarefaction, species indicator analyses, ordinations and permutation tests.

EVALUATION

Lab assignments: 20%

Oral presentation: 30%

Final report: 50%

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. If you do so, please suggest a specific day and time (even better if you can suggest a few options).

TENTATIVE SCHEDULE (subject to change during the semester – some topics might not be covered and others might be expanded)

DATE	L#	TOPIC
30 Aug to 6 Sept		Fieldwork at Forêt Montmorency
07-Sep		Labour Day
14-Sep	L1	Describing communities: Diversity Metrics
21-Sep	L2	Estimating diversity: Species Richness Estimation, Rarefaction
28-Sep	L3	Diversity along environmental gradients: Regression Analyses
05-Oct	L4	Diversity between habitats: ANOVA
12-Oct		Thanksgiving Day
19-Oct	L5	Classifying communities: Ordination
26-Oct	L6	Permutation tests: ANOSIM, PERMANOVA
02-Nov	L7	How to give a good 12 mins talk
09-Nov	L8	Oral presentations
16-Nov	L9	Oral presentations
23-Nov	L10	Oral presentations
30-Nov	L11	Oral presentations
07-Dec	L12	How to write a scientific article