Natural History and Field Biology
BIOL 3013

Instructors: Zoe Panchen (coordinator)
Todd Smith (birds)
Alain Belliveau (plants)
Laura Ferguson (insects)
Glenys Gibson (marine invertebrates)
Trevor Avory (inter-tidal zone)

Teaching Assistant: Benjamin Henger

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Course: 16-30 August, Bon Portage Island

Evaluation	Percentage	Date
Modules	17% each	End of each module
Course project presentation	10%	29 August
Debate participation	5%	21 & 25 August

Part 1: Course Information

Course Description

This course is a practical course on natural history and field biology skills and techniques. The course takes place at the Richardson Field Station in Biology, Bon Portage Island. It includes field work, labs, lectures, discussions and course projects with hands on experience in terrestrial, fresh water, brackish water, intertidal, and marine-pelagic ecosystems. Relationships among the biota and the physical environment will be studied. Students gain practical experience in sampling design and techniques and data analysis.

Prerequisite(s): None

Course Materials & Requirements

- Cell phone apps:
  - iNaturalist (https://www.inaturalist.org/)
  - Merlin with "Canada East" bird pack (https://merlin.allaboutbirds.org/download/)
- Field guides (**optional**, only if you already have them, no need to buy especially for course)
  - Bird field guide
  - Nova Scotia plant field guide
  - Insect field guide
  - Any other field guides you have that you think might be useful!
- Binoculars (**optional**, only if you already have them, no need to buy especially for course)

Course Structure

The course is an intensive 2-week course. The course has five modules covering birds, plants, insects, marine invertebrates and inter-tidal zones. Each module will be a combination of lectures, field work and discussions.

Student Learning Outcomes

1. Gain field identification skills to identify birds, plants, insects and marine invertebrates.
2. Gain experience in and an understanding of different field sampling techniques.
3. Gain experience in how a biology field camp operates.

How to Meet the Learning Outcomes

1. Actively participate in lectures, field work, discussions and group work.
2. Engage in active listening and ask questions!

Part 2: Course Plan

The instructors reserve the right to amend the course plan with reasonable notice, and in consultation with the class.

Date	Activity (L=Lecture, F=Field/lab work, P=Project work time)			Module Leader
	Morning	Afternoon	Evening	
16-Aug		Arrival / Orientation		Zoe
17-Aug	Island walk / History of Bon Portage			Zoe/Lee/Mike
18-Aug	Project Plan discussions		Module 1 (L): Birds	Zoe/Todd
19-Aug	Module 1 (F): Birds	Module 1 (F): Birds	P	Todd
20-Aug	Module 1: (F/L)	P	Module 2 (L): Plants	Todd/Alain
21-Aug	Module 2 (F): Plants	P	Module 2 (L): Debate 1	Alain/Zoe
22-Aug	Module 2: Discussion	P	Module 3 (L): Insects	Alain/Laura
23-Aug	Module 3 (F): Insects	P	Module 3 (L): Insects	Laura
24-Aug	Module 3: Discussion	P	Module 4 (L): Invertebrates	Laura/Glenys
25-Aug	Module 4 (F): Invertebrates	P	Module 4 (L): Debate 2	Glenys
26-Aug	Module 4: Discussion	P	Module 5 (L): Intertidal zones	Glenys/Trevor
27-Aug	Module 5 (F): Inter-tidal zone	P	Module 5 (L): Oceans	Trevor
28-Aug	Module 5: Discussion	P	P	Trevor/Zoe
29-Aug	Presentations / Clean up / Island Banquet			Zoe
30-Aug	Prepare to depart Island at 10am, arriving at Shag Harbour about noon			Zoe

Part 3: Assessment and Grading

Each module is worth 17%. **Instructors will provide grading schemes for each module.**

Course project presentation is 10% based on a project you will complete with a partner over the two weeks. Student pairs come up with their own topics in consultation with Zoe and Benjamin. The goal is to use available resources on the island, not the internet. Suggestions include collection and identification of specimens of a group of species on the island, exploring macroinvertebrates as environmental indicators, plant, insect or bird survey, or intertidal assessment. For the presentations we are looking for creativity and encourage costumes and interpretative dance or musical numbers! (not mandatory….)

Debate participation is worth 5%. We will have two evening debates. They are sure to be filled with bursts of creativity and fun!

Part 4: Course Policies

- You are responsible to get to Shag Harbour in time for the boat to Bon Portage Island. I suggest car-pooling. **Please be at the car park to the west of the Shag Harbour Warf by 1:30pm, Friday 16th August**.

- There is to be no alcohol or recreational drugs brought to the island or consumed/used by anyone associated with the course while on the island. Anyone found with or using them will be asked to leave the island.
- The sleeping arrangements are bunk beds in 3 shared cabins near the jetty. I will leave it to you to sort out who sleeps where. If you have any concerns about these arrangements, please contact me.
- We will be cooking our meals in the cookhouse at the south (lighthouse) end of the island. Meal times are:
    - Breakfast 0715-0800
    - Lunch 1200-1300
    - Supper 1800-1900
- Water on the island is limited, use pit toilets only.
- There are water filters for drinking water on the cookhouse kitchen tap and the drinking water tap at the sink in the main cabin.
- Showers are a privilege. On days that you are privileged to shower, bring the necessary accoutrements to the cookhouse. Wet wipes are a great alternative on none shower days.
- Be respectful of other researchers on the island. For example, birders often get up at 3am for work, they have an early bedtime and would appreciate quiet. Quiet hours are 11pm-6am.
- Field course safety:
    - Please wear a life jacket any time you are on boats and keep your hands inside when approaching docks. Help unload and load boats before wandering anywhere.
    - When out on the island, always go with someone else, tell the instructor(s) and TA where you are going, what you plan to do and when you will be back.
    - Be aware of your environment:
        - There are stinging nettles all over the island.
        - Lumber and other debris that washes up on shore often have nails pointing up or sharp edges.
        - Rocks on the beach can quickly turn an ankle or cause a fall or head injury.
        - At low tide the wet rocks often have seaweed or algae which is a slipping hazard.
        - There is a floating bog in the middle of the island
    - Be conservative in your actions, this is a remote island where it will take many hours to reach a hospital and is dependant on weather and boat availability e.g. running rather than walking is more likely to result in a sprained ankle.
    - Kerosene lamps give off carbon monoxide; keep cabin ventilated if using & don't use more than is necessary. Halogen lamps, flashlights or headtorches are better.
    - Avoid using wood stoves unless necessary. Don't burn treated wood (i.e., green arsenic-based compounds or creosote) in the fire pit.

Part 5: University Policies

University policies are available in the Acadia University Academic Calendar or through the Registrar's website: https://registrar.acadiau.ca/welcometotheregistrarsoffice.html

Equity, Diversity and Inclusion

Acadia University is committed to becoming a culturally safe and anti-oppressive community. This can only be achieved where there are simultaneous efforts to eliminate all forms of discrimination and harassment from our campus community, including the elimination of all discrimination, harassment and violence based on one's identity, including but not limited to, gender, race, class, ethnicity, sexual orientation, disability, gender identity, gender expression, and Indigeneity. The policy against harassment and discrimination, and resources for students who believe they may have experienced, or witnessed, discrimination or harassment, are available here: https://www2.acadiau.ca/student-life/equity-judicial/equity.html

Last Drop Day

Last day to drop a course and receive a "W". Please check the Acadia University calendar dates, which are available here: https://registrar.acadiau.ca/AcademicCalendars.html

Inform Your Instructor of Accommodations

Acadia University is dedicated to improving access to campus life for all students with disabilities. While we attempt to ensure that all courses are accessible, we recognize that there are barriers that need to be addressed on an individual basis. Students who require accommodations to complete coursework or otherwise fully participate in class should contact Accessible Learning Services directly as soon as possible. https://www2.acadiau.ca/student-life/accessiblelearning.html

The Use of Animals in Teaching and Research

The use of animals in teaching and research at Acadia University is done in accordance with guidelines on the care and use of animals published by the Canadian Council on Animal Care (CCAC). For more information on the CCAC, please visit their website at http://www.ccac.ca

Commitment to Integrity

It is standard practice in Biology to check exams and assignments for cheating and plagiarism. Cheating in the class and/or lab, including plagiarism, will not be tolerated. Please read the appropriate sections of the current Acadia University Academic Calendar: https://registrar.acadiau.ca/AcademicCalendars.html

Information on copy-write and course content from Acadia University is available through the Vaughan Memorial Library: http://libguides.acadiau.ca/c.php?g=433650&p=5027078

The spoken and written course content (including the syllabus, handouts, lectures, presentations, labs, assignments, quizzes, tests, and exams) are the intellectual property of the instructor and may only be copied for personal use. Sharing these materials or uploading them where they may be accessed by others is a violation of copyright. If you wish to make audio, video, or photographic recordings in class, you must first obtain the consent of the instructor and of any other persons (e.g., guest speakers, other students) who may be captured in such recordings. In the case of personal use by students with disabilities, the instructor's consent shall not be unreasonably withheld.

Part 6: Program Learning Outcomes

Foundations of knowledge		**Course specific examples**	**Proficiency** 1-Introduction 2-Reinforcement 3-Proficient
Scientific method, inquiry and hypothesis testing	Find, understand and apply information from the literature; understand how to use the scientific method to examine problems from different perspectives		
Historical concepts and contributions by important figures	Explain foundational concepts in biology, Two-eyed Seeing, and ethical implications of scientific discoveries		
Biodiversity and ecology	Understand the genetic, taxonomic and ecosystem levels of biodiversity; focus on SW Nova including the Acadian Forest and Bay of Fundy ecosystems		
Genetics and evolution	Understand the chemical basis of heredity, genetics and genomics; integrate concepts across disciplines to understand evolution		
Human and environmental health	Understand form and function in health and disease within a One Health framework, integrating human and environmental health		

Lab and field skills			
Experimental design	Gain experience in applying the scientific method		
Safety	Work safely and productively in lab and field settings		
Lab skills	Gain experience with basic and advanced lab techniques and understand their application in research, health science and industry		
Field skills	Gain experience in basic and advanced field skills and understand their application in ecology, conservation biology and environmental change		
Data acquisition, analysis and interpretations	Collect data, present results both qualitatively and quantitatively, and interpret outcomes in light of the literature		
Statistical analysis	Use R and or other programs to analyze biological data		
Professional skills			
Ethical practices	Demonstrate ethical conduct, apply principles of academic integrity, and understand the principles of EDI in science		
Collaboration and group work	Work effectively in groups within and across disciplines		
Critical thinking	Analyze and evaluate information to make science-based decisions		
Computer proficiency	Use common and discipline- specific software		
Scientific communication	Communicate science effectively to both scientific and general audiences		