

Faculty of Science Course Syllabus (DRAFT)
Department of Biology

BIOL 3635.03/MARI 3635.03
Species at Risk Field Course
Summer – May 31 – June 15, 2021

Instructors:

Lead instructor: Dr. Cindy Staicer cindy.staicer@dal.ca 902-494-3533 LSC 7130

Co-instructors: Dr. Sean Haughian (NS Museum of Natural History, Halifax, NS)
Jeffie McNeil (Species at Risk Biologist, Mersey Tobeatic Research Institute, Kempt NS)
Brad Toms (Species at Risk Biologist, Mersey Tobeatic Research Institute, Kempt, NS)

Demonstrators: TBA

Classroom: LSC 240, 9:05-11:55 and 1:05-16:55 (see detailed schedule); other rooms as needed

Field trip: June 5-13, Southwestern Nova Scotia (see detailed schedule; note that activities may need to be rescheduled due to inclement weather and availability of guest lecturers or trip leaders)

Course Description

This course provides practical field experience in the biology of Species at Risk (SAR). Students learn through lectures, presentations, field work, and writing a formal report. On a week-long field trip to Southwestern Nova Scotia, students learn from SAR biologists how to conduct field surveys, document data, and recover SAR.

Course Prerequisites

BIOL 2060.03 (Introductory Ecology) and BIOL 2003 or 2004 (or another introduction to biological diversity), or instructor's approval. BIOL 3605.03 (Conservation Biology) is recommended. Students should have at least two years of university courses (60 credit hours or more).

Further information

This course is skills-based and provides practical experience working with Species at Risk. This course will build on knowledge students have obtained through previous introductory ecology, biodiversity and conservation courses. Students learn about species at risk (SAR), the species assessment process, threats to SAR, and the recovery process. Skills include identification, sampling methods, data collection and management, and preparing formal reports. Lectures will provide background content. The course will include terrestrial, freshwater and marine SAR, with a focus on species in Nova Scotia.

Includes a 7-9 day overnight trip during which students will spend all or part of every day doing field work. In addition to daytime surveys, some very early morning and late evening surveys will be conducted to find certain species. The schedule will vary and may change due to weather conditions. Students may need to walk over uneven terrain, on and off trail, through woods and bogs, and travel by canoe or small boat. Students will stay in tents or bunks at a field station, with washrooms in a separate building. An auxiliary fee (\$543, subject to university approval) is charged to cover costs of field expenses (e.g., meals, accommodations, transportation). This fee is charged on top of the tuition for a half-credit Biology course.

The course provides an opportunity to obtain field and research experience with species at risk. It is excellent preparation for honours students or other students who plan to conduct independent research in their 4th year or for students who are interested in working with Species at Risk in the future.

Field Trips

On the 7-9 day field trip to Southwestern Nova Scotia, we will stay at the Harrison Lewis Field Station near Port Joli, the Mersey Tobeatic Research Institute (MTRI) just south of Kejimikujik National Park and National Historic Site (Keji park), and possibly Stone Bear at Bear River First Nations.

On the field trip, we will prepare meals as a group and accommodate dietary needs. If your diet requires preparing your own meals, you will be accommodated and reimbursed for your food costs. Prior to the field trip students will fill out a foraging questionnaire to indicate what foods they can and prefer to eat. This information will be used to prepare a menu and discussed with the class prior to food purchase.

You are expected to arrive on time and prepared for field trips. You will need to be ready for all weather conditions (hot, cold, or wet weather). The checklist on the last page of the syllabus will help you prepare.

Course Objectives/Learning Outcomes

By the end of the course, students will be able to:

- Use appropriate terminology to discuss Species at Risk and issues around them
- Find and use information on Species at Risk in Nova Scotia and Canada
- Explain the process of designating a species as being At-Risk
- Identify selected Species at Risk in Nova Scotia and associate each with their major threats
- Apply concepts in ecology, biodiversity, and conservation biology to Species at Risk
- Organize and analyze field data using Excel
- Create maps in ArcGIS using georeferenced data and GIS layers
- Interpret results in relation to Species at Risk recovery
- Write a formal scientific report
- Prepare tables and figures according to standard scientific formats
- Use standard field sampling techniques, including:
 - Survey techniques for different Species at Risk
 - Navigation with compass and GPS
 - Documentation of field locations, conditions, activities, and observations in a field notebook

Course Materials

All course materials and announcements will be provided through the BrightSpace course website. Assignments will include explicit instructions and a marking rubric. No texts are required. Assigned and recommended readings will be posted on Brightspace. For resources on writing scientific papers, students should consult the “Online modules for writing scientific research papers”, accessed through Brightspace, and Karin Knisely’s *A Student Handbook for Writing in Biology*, used in Biology core courses.

Students will need to use Microsoft Word and Excel for classwork. Microsoft Office can be downloaded for free for use on personal computers by Dalhousie Students. If you do not have a personal computer on which you can install these programs, you will need to do your work in the Dalhousie computer labs. It will be useful to have your own laptop or tablet on the field trip.

Course Assessment

Students will be assessed primarily by their work and the report they produce. There will be one test, based on coursework in the first week. Students will also give a presentations on marine Species at Risk, choosing their species on the first day of class.

Although all students will collect data together, and share in entering, compiling, and analysing their data, students will be individually assessed on their ability to contribute to field activities, to collect and manage data, and to interpret data as well as relate their findings to the literature. Students will need to put their work into this larger context and make recommendations for future work on the SAR that were studied.

In the last few days of the course, each student will individually prepare a formal scientific research paper. If submitted early, feedback on a draft will be provided so that students can improve their final draft.

Marks in the course will be based on the following (see Brightspace for instructions and rubrics):

Assessment	% of final mark
<i>Student presentations</i>	
<i>PowerPoint presentation on a marine SAR</i>	<i>10</i>
<i>Test</i>	
<i>Test on lectures and presentations, before leaving on field trip</i>	<i>20</i>
<i>Field work</i>	
<i>Assessment of field work will include data sheets, teamwork and contribution to field data collection, and field notebook. Data sheets are due at the end of each field day. Field notebook is due at end of field trip. Submission is by scanning and uploading to Brightspace.</i>	<i>20</i>
<i>Data assignments</i>	
<i>Students will compile data collected as a class and work with the data with instructor assistance. Assignments include data entry, compilation, management and analysis in Excel and mapping data using ArcGIS.</i>	<i>25</i>
<i>Written assignment</i>	
<i>Formal Scientific Report (text, tables and figures)</i>	<i>25</i>

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale

A+ (90-100)	B+ (77-79)	C+ (65-69)	D (50-54)
A (85-89)	B (73-76)	C (60-64)	F (<50)
A- (80-84)	B- (70-72)	C- (55-59)	

Course Policies

As this course is very field-intensive, and because data collection and entry will be shared among classmates, full attendance and participation, as essential components of this course, are required. Full participation includes, but is not limited to, participating in all scheduled course activities in the classroom and field, chores in the field (e.g., preparing and cleaning up after meals), and being prepared for all field trips, with appropriate personal gear. Late assignments and missed coursework will be addressed case by case at the discretion of the instructor.

Plagiarism detection software will be used on papers submitted to Brightspace.

NOTE: Alcohol and legal recreational drugs, as well as illegal drugs, are NOT permitted on field trips.

Class Schedule

Please note that due to the nature of this course the schedule may change to accommodate inclement weather and the availability of guest lecturers or field co-leaders. Surveys will be conducted at various times of day, from early morning, dusk, and evening, as appropriate for each species. The class will be split into smaller groups for certain activities, with different groups conducting different surveys on a given day. Weather may not allow field work each day, or for just part of the day, so the schedule must be flexible.

Detailed tentative schedule

Date	Day	Location	Activities	Details and assignment due
May 31	Mon	Dal	Lectures: AM PM	Course organization: Instructors, syllabus, assignments, field trip, forms, resources Species at Risk and the Biodiversity Crisis The Assessment Process for Species at Risk in Canada; SAR Lichens and Mosses in Atlantic Canada (Dr. Haughian)
June 1	Tues	Dal	Lectures: AM PM	The Assessment Process for Species at Risk in Nova Scotia Terrestrial SAR (plants, birds, herps, mammals; includes guest lectures) Time to prepare Marine species profiles
June 2	Wed	Dal	Lectures Symposium	Marine SAR (guest lectures) in AM Student presentations on other Marine SAR in PM
June 3	Thurs	Dal	Free: AM Test: PM	Free time to study for test Test on all course material to date
June 4	Fri	Dal	Lab	SAR Lichen and Moss Identification (Dr. Sean Haughian)
		HLC	Field trip	Drive to Harrison Lewis Centre (HLC) in PM
June 5	Sat	HLC	Field work	SAR surveys: Lichens (Dr. Sean Haughian), Piping Plovers
June 6	Sun	HLC/MTRI	Field work	SAR surveys: Barn Swallows; Leave HLC, drive to MTRI; SAR surveys en route: Coastal Plain Flora (Brad Toms)
June 7	Mon	MTRI	Field work	SAR surveys: birds, bats, turtles, snakes, monarchs*
June 8	Tues	MTRI	Field work	SAR surveys: birds, bats, turtles, snakes, monarchs*
June 9	Wed	MTRI	Field work	SAR surveys: birds, bats, turtles, snakes, monarchs*
June 10	Thurs	MTRI	Field work	SAR surveys: birds, bats, turtles, snakes, monarchs*
June 11	Fri	MTRI/CARP	Field work	SAR surveys: Wood Turtles (Clean Annapolis River Project)
June 12	Sat	MTRI/Bear River	Field work	Indigenous work on SAR recovery (e.g., Black Ash, Moose) Return to Halifax
June 13	Sun			Day off
June 14	Mon	Dal	Workshop	Data analysis with instructor help
June 15	Tues	Dal	Workshop	Work on report with instructor help
Final draft of report is due on Brightspace at 23:59				

- * at MTRI, class will be split into smaller groups for field surveys lead by Dr. Jeffie McNeil, Brad Toms, Dr. Cindy Staicer, and possibly others; if weather does not permit field work on a given day, lectures may replace a planned activity, and the schedule will be shifted; students should expect a fluid schedule on the field trip

University Policies and Statements

This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate

Academic Integrity

At Dalhousie University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these values in all of the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity.

Information: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Advising and Access Services Centre is Dalhousie's centre of expertise for student accessibility and accommodation. The advising team works with students who request accommodation as a result of a disability, religious obligation, or any barrier related to any other characteristic protected under Human Rights legislation (Canada and Nova Scotia).

Information: https://www.dal.ca/campus_life/academic-support/accessibility.html

Student Code of Conduct

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner—perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution.

Code: https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

Diversity and Inclusion – Culture of Respect

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness.

Statement: <http://www.dal.ca/cultureofrespect.html>

Recognition of Mi'kmaq Territory

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel and support. Visit or e-mail the Indigenous Student Centre (1321 Edward St) (elders@dal.ca).

Information: https://www.dal.ca/campus_life/communities/indigenous.html

Important Dates in the Academic Year (including add/drop dates)

https://www.dal.ca/academics/important_dates.html

University Grading Practices

https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html

Missed or Late Academic Requirements due to Student Absence (policy)

https://www.dal.ca/dept/university_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.html

Student Resources and Support

Advising

General Advising https://www.dal.ca/campus_life/academic-support/advising.html

Science Program Advisors: <https://www.dal.ca/faculty/science/current-students/academic-advising.html>

Indigenous Student Centre: https://www.dal.ca/campus_life/communities/indigenous.html

Black Students Advising Centre: https://www.dal.ca/campus_life/communities/black-student-advising.html

International Centre: https://www.dal.ca/campus_life/international-centre/current-students.html

Academic supports

Library: <https://libraries.dal.ca/>

Writing Centre: https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html

Studying for Success: https://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html

Copyright Office: <https://libraries.dal.ca/services/copyright-office.html>

Fair Dealing Guidelines <https://libraries.dal.ca/services/copyright-office/fair-dealing.html>

Other supports and services

Student Health & Wellness Centre: https://www.dal.ca/campus_life/health-and-wellness/services-support/student-health-and-wellness.html

Student Advocacy: <https://dsu.ca/dsas>

Ombudsperson: https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html

Safety

Biosafety: <https://www.dal.ca/dept/safety/programs-services/biosafety.html>

Chemical Safety: <https://www.dal.ca/dept/safety/programs-services/chemical-safety.html>

Radiation Safety: <https://www.dal.ca/dept/safety/programs-services/radiation-safety.html>

Scent-Free Program: <https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html>