

**Faculty of Science Course Syllabus****Department of Biology**

BIOL2601.03

Flora of Nova Scotia

**Summer 2017****Instructor:** Alana Westwood[a.westwood@dal.ca](mailto:a.westwood@dal.ca)**Demonstrator:** Ingrid Plache[\[REDACTED\]@gmail.com](mailto:[REDACTED]@gmail.com)**Lectures:** 9:05-11:55 LSC C338**Laboratories:** 13:05-14:55 LSC 4009**Field trips:** Afternoon: July 4. Full day: July 7, 11, 13, 15 (Sat), 17. Detailed schedule on pg. 5**Course Description**

Introduction to the biodiversity of flowering plants found in Nova Scotia. A wide range of plant communities are visited on several day-long field trips. A focus on plant identification is supplemented with lessons in plant ecology, floral biology, pollination mechanisms, natural history, and human uses (e.g., edible, poisonous, medicinal).

**Course Prerequisites**

One year of completed university studies.

**Overview**

The goal of the course is to provide you with the knowledge and skills that you need to be able to identify plants in the field, as well as to understand the fundamental composition and basic ecology of plant communities and ecosystems in Nova Scotia. Nova Scotia is one of the most ecologically diverse provinces in Canada. There are a range of plant communities adapted to a variety of environments, from the hostile coastal barrens to the Acadian forest interior. Via hands-on experience, we will determine the composition of these ecological communities, and learn to identify the plants within them. We will catalog herbarium-quality specimens, and collectively contribute to a field guide for plants of Nova Scotia. We will also explore the economic, edible and medicinal uses of the plants we find, learn some foraging basics, and maybe make some rope!

**Course Objectives/Learning Outcomes**

The student will be able to:

- Identify plants into their major groupings and be familiar with many common plants in Nova Scotia.
- Collect, identify, press, and mount herbarium-quality specimens
- Be knowledgeable about the edible and medicinal uses of common plants
- Understand the basics of ecological succession and disturbance, and how these processes operate in Nova Scotia
- Classify forest ecosystems according to the provincial classification, and use these classifications to locate species and understand ecological relationships

## Course Materials

### Required Resource Books:

**1)** *The Flora of Nova Scotia*. A.E. Roland & E.C. Smith, 1969, Nova Scotia Museum/Nova Scotian Institute of Science; available for \$35 from Reference and Research Services Rm 3621, Killam Library cash or cheque only. This resource has been put online by Dalhousie Library. Go to [dalspace.library.dal.ca/](http://dalspace.library.dal.ca/) and search on Flora of Nova Scotia Part I and Part II. However, you will **absolutely** need a hard copy for this course.

**2)** *Forest Ecosystem Classification Guide to Nova Scotia*. Available online (no need to print, copies will be loaned to students for the duration of the course).

Part I: Vegetation Types, <http://novascotia.ca/natr/forestry/veg-types/pdf/vegtypes.pdf>

Part II: Soil Types, <http://www.novascotia.ca/natr/library/forestry/reports/Soil-Types.pdf>

Part III: Ecosites, <http://www.novascotia.ca/natr/library/forestry/reports/Ecosites.pdf>

### Suggested Resource Books (limited copies will be stocked at the Dal bookstore):

**1)** *Journeys Through Eastern Old-Growth Forests*. J. Simpson, 2014, Nimbus Publishing; new and used copies available from various booksellers through Amazon, and at the Dal bookstore.

**2)** *How to Identify Plants*. H. D. Harrington, 1957, Swallow Press; new and used copies available from various booksellers through Amazon, and at the Dal bookstore.

### Required Equipment for Labs:

- Hand lens 10 x power (available at bookstore or checked out from instructors)
- Plant press (checked out from Dal Biology from instructors during class)
- Ring binder for plant collection
- White glue for mounting plants. Sheets for mounting plants and labels for sheets are provided

*Note that items checked out must be returned, cleaned out and ready for their next use (i.e. in the same condition you got it) on the last day of class unless prior arrangements have been made.* Students will be fined for lost or damaged items.

### Course Assessment

Assignment	Grade	Due date
<b>Plant Collection</b>	40%	July 20
<b>Field Guide Wiki</b>	25%	July 23
<b>Lab/Lecture Exam</b>	25%	July 19
<b>Field Notebook</b>	5%	July 20
<b>Plant Presentation</b>	5%	July 19/20
<b>Participation/Scavenger Hunt</b>	+1%	July 20

*Each assignment will be accompanied by a sheet detailing specific expectations and marking standards.*

**Plant Collection:** You will each assemble, describe and mount a collection of botanical specimens (40% of your grade) containing a minimum of 25 “herbarium-quality” specimens of different species from as many different plant families as possible. The more families that are represented in a collection, together with the best descriptions (determination/location labels) and care and attention to specimen preparation and mounting, the higher the potential grade. Considering that there are more than 1600 sp. to choose from, a collection of 25+ species should be a “walk in the park”.

Your collection should contain at least 2 Pteridophytes (ferns and their allies), 2 Gymnosperms (conifers and their relatives, with no more than 10 tree species total), and the rest of your collection should be approximately representative of the province’s angiosperm flora (*i.e.* 25% monocots and 75% dicots, including grasses, shrubs, etc.). Inclusion of known rare, threatened or endangered species will result in severe grade reduction—if in doubt about a species’ status, ASK! Further instructions and information will be presented on the first class day, and refined throughout the duration of the course.

**Field Guide Wiki:** There is no published field guide for plants of Nova Scotia, therefore, we will collectively crowd-source our own! Each student will choose two plants and produce an identification sheet for our field guide according to a provided template. You will be responsible for providing identifying characteristics, information on range and distribution, FEC associations, and other uses/interesting facts. Field photos and/or drawings will be an asset.

**Plant Presentation:** You will give a 8 minute presentation (5 minutes of presentation, 3 minutes for questions) to the class on one of your selected field guide wiki plants. Original photos and a mounted specimen to pass around will be helpful.

**Field Notebook:** When in the field, is essential to document everything you see that may be relevant to collected data. Employers keep copies of field notes, thus it is important to develop skills of taking complete, accurate, and legible notes. During each of our field trips, you will note the plants you observe as well as their ecological context and the FEC classification of the area. Your detailed, readable field notebook is due at the end of the course.

**Exam:** You will be responsible for identifying specimens in a lab setting, as well as answering questions about their biology and ecology. Although identification materials will be provided to use during the exam (keys, Flora of NS book), it is up to you to understand how to use them, answer questions with appropriate terminology. The exam will also include definitions and short answers from lecture material.

**Scavenger Hunt (Bonus):** Prior to each field trip, students will be given the name of a rare, unusual, or unique plant that grows in the field trip location. No identifying information will be given except the Latin name. Students must locate the plant species in the field and show the instructor (but NOT collect the species). Plants for each trip are worth +0.5%, for a total of 2% across four field trips.

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

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

## Course Policies

**1. Attendance is mandatory.** You are expected to attend all lectures, labs, and field trips. Attendance will be taken and unnecessary, unplanned absences will be considered toward your grade. If there will be a problem that prevents you from attending, notify the instructor or TA *before* the absence.

**2. Participation.** You are expected to participate and cooperate in all class activities. Bonus marks may be awarded to students who regularly contribute meaningful questions/dialogue in class.

**3. Preparation for Field Trips.** Please be fully prepared and ready for all field trips. You are responsible for your own lunches/water, appropriate clothing, and needed and required equipment as per the included lists. Transportation is provided for all field trips except Point Pleasant Park. Field trips will continue independent of weather.

**4. Safety.** You must adhere to all safety guidelines. When out of sight of instructors, you must stay in groups of 2 or more and inform instructors of where you will be going and when you will be back. Alcoholic beverages are not permitted on field trips.

**5. Brightspace.** We will use the online learning system to post class information and links. Lecture slides will be posted on [dal.brightspace.com](http://dal.brightspace.com), as well as your Field Guide Wiki assignment.

**6. Late assignments.** A deduction of 10% will be taken off for each day an assignment is late.

### Course Schedule

The Lecture/Lab schedule below could be subject to further change. You will be informed ASAP if there are any changes. Note the **dates of the field trips—field trips will occur, rain or shine, on the days indicated.**

Course Day	Date	Morning	Afternoon
1	Tues, Jul 4	1. Course introduction 2. What is botany (language, floras, manuals, field guides, nomenclature) 3. Botanical systematics 4. Introduction to Forest Ecosystem Classification 5. Assignment of field guide wiki and presentation 6. Orientation to afternoon field trip	<b>Field trip to Point Pleasant Park, Flora of Nova Scotia in an urban setting (walk, take bus or drive to park on your own)</b>
2	Wed, Jul 5	1. How to identify plants? Basics of plant morphology (roots, shoots, leaves, inflorescences, fruiting) 2. Rare species and species at risk <b>3. Campus collecting field trip</b>	Introduction to field records and plant collection, assignment of plant collection and field notebook. Tools of plant ID: using a dissecting microscope, hand lens, keys and glossaries Plant groups, identification demo, keying exercises recognizing native trees
3	Thurs, Jul 6	1. Non-seed plants: classification, recognition, and characteristics of lycopodiophyta, pteridophyta 2. Primer on ecological succession and adaptation 3. Field trip safety; orientation to field trip 2 <b>4. Guest Speaker: Peter Neily, Disturbance in Nova Scotia's forests</b>	Flower forms and terminology Floral diagrams and notation Plant collection identification and preparation time
4	Fri, Jul 7	<b>Field Trip 2, Duncan's Cove: Bog and coastal barrens</b>	
5	Mon, Jul 10	1. Seed plants: classification, recognition, and characteristics of coniferophyta, anthophyta (eudicots) 2. Recap of disturbance and succession 3. Orientation to field trip 3 4. Introduction to debate #1 <b>5. Guest speaker: David Patriquin, Oak Drumlins of the Chebucto Peninsula</b>	Ferns and their relatives Coniferous shrubs Family Ericaceae Plant collection identification and preparation time
6	Tues, Jul 11	<b>Field Trip 3, Windsor Basin and Smiley's Provincial Park: Gypsophilous vegetation; deciduous forests</b>	



7	Wed, Jul 12	1. Classification, recognition, and characteristics of antophyta cont'd (eudicots and monocots) 2. Orientation to field trip 4 3. Debate #1 <b>4 Guest speaker: Benna Keoghoe, Herbalism and foraging</b>	Eudicots, focus on asteraceae Plant collection identification and preparation time	
8	Thurs, Jul 13	<b>Field Trip 4, Conrad Beach: Shores; salt marsh; sand dunes</b>		
9	Fri, Jul 14	1. Changing ecosystems, human impact, and climate change 2. Orientation to field trips 5 and 6 3. Introduction to debate #2 <b>4. Guest Speaker: Laura Achenbach, Life after SEASIDE – fieldwork in the real world</b>	Grasses, sedges, and rushes Plant collection identification and preparation time, emphasis on monocots Collection preparation time	
10	Sat, Jul 15	<b>Field Trip 5, Long Lake, William's Lake, and Piggy Mountain: ACPF and jack pine barrens</b>		
12	Mon Jul 17	<b>Field Trip 6, Kentville Ravine &amp; Acadia University: EC Smith Herbarium, Harriet Irving Botanical Garden</b>		
11	Tues Jul 18	1. Any unfinished lecture portion 2. Debate #2 3. Exam review 4. Collaborative working and individual feedback for field guide wiki	Collection preparation time	
13	Wed, Jul 19	1. Plant presentations (1/2) 2. Exam review time	Lab exam	
14	Thurs, Jul 20	1. Plant presentations (2/2) 2. Concluding discussions and course review 3. Collection preparation time	Final collection preparation time, hand in by 4:55 PM	

### What to bring on field trips

- Small day/backpack,
- Lunch/snacks/water (enough to last a full day in the field, potentially under hot sun)
- Rain gear, long pants, long-sleeved shirt
- Sun hat and sunscreen
- Insect repellent and/or bug hat
- Hiking boots or sturdy walking shoes
- A field notebook (provided) plus pencils/pens
- A clipboard or fold-flat binder will be useful
- Plant collecting equipment including bags for collecting plants, trowel, and pruner
- Camera/binoculars/any other equipment you deem necessary for a day in the field

## ACCOMMODATION POLICY FOR STUDENTS

Students may request accommodation as a result of barriers related to disability, religious obligation, or any characteristic protected under Canadian Human Rights legislation. The full text of Dalhousie's Student Accommodation Policy can be accessed here: [http://www.dal.ca/dept/university\\_secretariat/policies/academic/student-accommodation-policy-wef-sep--1--2014.html](http://www.dal.ca/dept/university_secretariat/policies/academic/student-accommodation-policy-wef-sep--1--2014.html)

Students who require accommodation for classroom participation or the writing of tests and exams should make their request to the **Advising and Access Services Centre (AASC)** prior to or at the outset of the regular academic year. More information and the ***Request for Accommodation*** form are available at [www.dal.ca/access](http://www.dal.ca/access).

## ACADEMIC INTEGRITY

Academic integrity, with its embodied values, is seen as a foundation of Dalhousie University. It is the responsibility of all students to be familiar with behaviours and practices associated with academic integrity. Instructors are required to forward any suspected cases of plagiarism or other forms of academic cheating to the Academic Integrity Officer for their Faculty.

The Academic Integrity website (<http://academicintegrity.dal.ca>) provides students and faculty with information on plagiarism and other forms of academic dishonesty, and has resources to help students succeed honestly. The full text of Dalhousie's ***Policy on Intellectual Honesty*** and ***Faculty Discipline Procedures*** is available here:

[http://www.dal.ca/dept/university\\_secretariat/academic-integrity/academic-policies.html](http://www.dal.ca/dept/university_secretariat/academic-integrity/academic-policies.html)

## STUDENT CODE OF CONDUCT

Dalhousie University has a student code of conduct, and it is expected that students will adhere to the code during their participation in lectures and other activities associated with this course. In general:

“The University treats students as adults free to organize their own personal lives, behaviour and associations subject only to the law, and to University regulations that are necessary to protect

- the integrity and proper functioning of the academic and non – academic programs and activities of the University or its faculties, schools or departments;
- the peaceful and safe enjoyment of University facilities by other members of the University and the public;
- the freedom of members of the University to participate reasonably in the programs of the University and in activities on the University's premises;
- the property of the University or its members.”

The full text of the code can be found here:

[http://www.dal.ca/dept/university\\_secretariat/policies/student-life/code-of-student-conduct.html](http://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html)

## SERVICES AVAILABLE TO STUDENTS

The following campus services are available to help students develop skills in library research, scientific writing, and effective study habits. The services are available to all Dalhousie students and, unless noted otherwise, are free.

Service	Support Provided	Location	Contact
<b>General Academic Advising</b>	Help with <ul style="list-style-type: none"> <li>- understanding degree requirements and academic regulations</li> <li>- choosing your major</li> <li>- achieving your educational or career goals</li> <li>- dealing with academic or other difficulties</li> </ul>	<b>Killam Library Ground floor</b> Rm G28 <i>Bissett Centre for Academic Success</i>	In person: Killam Library Rm G28 By appointment: <ul style="list-style-type: none"> <li>- e-mail: <a href="mailto:advising@dal.ca">advising@dal.ca</a></li> <li>- Phone: (902) 494-3077</li> <li>- Book online through MyDal</li> </ul>
<b>Dalhousie Libraries</b>	Help to find books and articles for assignments  Help with citing sources in the text of your paper and preparation of bibliography	<b>Killam Library Ground floor</b>  Librarian offices	In person: Service Point (Ground floor)  By appointment: Identify your subject librarian (URL below) and contact by email or phone to arrange a time:  <a href="http://dal.beta.libguides.com/sb.php?subject_id=34328">http://dal.beta.libguides.com/sb.php?subject_id=34328</a>
<b>Studying for Success (SFS)</b>	Help to develop essential study skills through small group workshops or one-on-one coaching sessions  Match to a tutor for help in course-specific content (for a reasonable fee)	<b>Killam Library 3<sup>rd</sup> floor</b>  Coordinator Rm 3104  Study Coaches Rm 3103	To make an appointment: <ul style="list-style-type: none"> <li>- Visit main office (Killam Library main floor, Rm G28)</li> <li>- Call (902) 494-3077</li> <li>- email Coordinator at: <a href="mailto:sfs@dal.ca">sfs@dal.ca</a> or</li> <li>- Simply drop in to see us during posted office hours</li> </ul> <b>All information can be found on our website: <a href="http://www.dal.ca/sfs">www.dal.ca/sfs</a></b>
<b>Writing Centre</b>	Meet with coach/tutor to discuss writing assignments (e.g., lab report, research paper, thesis, poster) <ul style="list-style-type: none"> <li>- Learn to integrate source material into your own work appropriately</li> <li>- Learn about disciplinary writing from a peer or staff member in your field</li> </ul>	<b>Killam Library Ground floor</b>  Learning Commons & Rm G25	To make an appointment: <ul style="list-style-type: none"> <li>- Visit the Centre (Rm G25) and book an appointment</li> <li>- Call (902) 494-1963</li> <li>- email <a href="mailto:writingcentre@dal.ca">writingcentre@dal.ca</a></li> <li>- Book online through MyDal</li> </ul> We are open six days a week <b>See our website: <a href="http://writingcentre.dal.ca">writingcentre.dal.ca</a></b>