Flora of Nova Scotia (& Laboratory)
BIOL3293 (& BIOL3290L)

Instructor: Alain Belliveau (he/him)

Hear my name

Office: E.C. Smith Herbarium (K.C. Irving Environmental Science Centre).
Office hours: Tuesdays 10:50 a.m. to noon, Wednesdays 9:00 p.m. to noon, Thursdays 9:00 p.m. to noon.
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Lecture: The lectures will take place between 9:30 a.m. and 10:50 a.m. on Tuesdays and Thursdays, in Bio 210 on Tuesdays and in Horton Hall 201 on Thursdays. **Lab:** On Mondays, a lab / field trip will begin at 1 p.m. and end at 3:50 p.m. Lab sessions will be in Bio 210. Field trip locations will vary from week to week, and will usually involve a bus trip to local sites (<1h away), with a central meeting location (TBD) on campus to start and end the trip.

ACADIA BIOLOGY

Evaluation	Percentage	Date
Quizzes	25%	First half of semester
Specimen processing	25%	November 10, 2026
Project – Written summary	8%	November 24, 2026
Project – Oral report	17%	November 24, 2026
Final exam (field)	10%	TBD (Dec 11-20)
Final exam (written)	15%	TBD (Dec 11-20)

Part 1: Course Information

Course Description

A survey of the flowering plants and ferns of the province. Identification by technical keys; important plant families; field recognition of common species; habitat preferences; and collecting methods will be covered. A properly annotated plant collection must be prepared. Lecture and lab / fieldwork. (2.8h lab).

Prerequisite(s): BIOL-1113 and BIOL-1123 with minimum grade C- required or permission of the Department.

Course Materials & Requirements

Textbook: No textbook required. However, online access to the Flora Novae Angliae (gobotany.nativeplanttrust.org) and iNaturalist (iNaturalist.ca) will be used frequently.

Other Requirements: Access to course Teams and MOODLE page, Vaughan Memorial Library's Biology LibGuide, phone/tablet, and laptop.

Course Structure

The lectures will take place between 9:30 a.m. to 10:50 a.m. on Tuesdays and Thursdays. After a 10-minute check-in at the beginning of the class for updates and questions, lecture material will be presented in 60-minute lecture slots followed by 10 minutes for questions and follow-up. Lectures will take place in class and slides will be made available on MOODLE.

On Mondays, a lab / fieldtrip will begin at 1 p.m. and end at 3:50 p.m. Lab locations will vary from week to week, and may be indoors or outdoors. Some labs will involve a bus trip to local sites (<1h away), with a central meeting location (TBD) on campus to start and end the trip.

Student Learning Outcomes

1. Understand the importance of herbaria and biological collections and know the plant collection and preservation process.
2. Understand the ecology of the Wapna'ki / Acadian Forest Region, know the most commonly occurring families and ecosystems in the region, know common plant parts for assisting with species identification, and understand the importance of this region's biodiversity to people and vice versa.
3. Understand how to identify species using guidebooks, manuals, and online resources including citizen science apps like iNaturalist.

How to Meet the Learning Outcomes

1. Attend in-class lectures and labs on a regular basis, take notes, and ask for clarification when something is unclear.
2. Take part in field trips to local ecosystems that showcase the flora of Nova Scotia.
3. Work on your project consistently across the course's time span, always ask questions if you are not certain about something.
4. Study on a regular basis to prepare for the quizzes, rather than cram.
5. Complete an exam at the end of the course.

Part 2: Course Plan

The Course Plan is posted on MOODLE as a calendar in a Word document. The instructor reserves the right to amend the course plan with reasonable notice, and in consultation with the class. All lectures will be available on MOODLE whenever possible.

Part 3: Assessment and Grading

You are required to pass the lab to pass the course. (For Biology courses with labs.)

Item	Details	Value
Quizzes	Five quizzes on course material, each including **10 multiple choice questions** (0.5% each). Each quiz will occur during a randomly selected lecture date and take ~20 minutes. Quiz topics will cover the latest lectures and field visits / labs (e.g., since last quiz). Late submissions will experience a 5% loss (of total assignment value) for each weekday late, for up to 20 days.	25%
Project **Due: Nov 24, 2026 @ 9:30am SHARP**	**Written summary,** maximum 1 page (single line spacing, Calibri font size 11) per person, plus one page just for references (minimum 5, use APA or similar, format consistently)[i]. One appendix is permitted. Mimic scientific report provided in MOODLE. Worth 8%, see Marking Scheme for Written Report below. Late submissions will experience a 5% loss (of total assignment value) for each weekday late, for up to 20 days. **Oral presentation** of results. 4-6 minutes long per person, no more no less. Worth 17%, see Marking Scheme for Oral Presentation below. Late submissions will experience a 5% loss (of total assignment value) for each weekday late, for up to 20 days.	25%
Specimen processing	**25 vascular plant species processed**, with specimen data included as a label for each specimen. Each collection must	25%

assignment **Nov 10 physical specimens [5%] due at 4pm, data spreadsheet [15%] due at 11:59pm**	include a description of specimen traits that are key to species identification, location coordinates, location uncertainty distance, specimen processor name, and if available: habitat description, approximate number of individuals of that species at the collection site, associated species. Use the data spreadsheet provided by the instructor. Instructor will assist with label printing. Each specimen is worth 1% of the total mark. Deduction of 0.25% per error[ii]. Make sure that the description of specimen traits provides enough information for an average botanist to know which species you collected. Late submissions will experience a 5% loss (of total assignment value) for each weekday late, for up to 20 days.	
Field test	**Identification of 10 vascular plant species** based on photos and/or specimens provided by the instructor on the day of the test, 1% each. Open-book; however, there will be a time limit. The student will briefly list the reasons for which a species is unique (e.g., list plant features that you see). 1% for providing as much information as possible within the context of the materials provided during this course, and a deduction of 0.25% for incorrect or missing information based on the content/teachings provided during this course.	10%
Written test	Test on course material, including **6 multiple choice questions** (1% each), **2 short answer questions** (1.5% each), **2 long answer questions** (3% each). Scoring will be based on instructor's best answer within the context of the materials provided during this course, with advice from guest lecturers if needed.	15%

Part 4: Course Policies

Students are expected to attend all class sessions as listed above. Make-up tests for either absence, or poor performance, will not be provided as an option. In the event that you have a valid excuse for missing the test, please consult the instructor as soon as possible. A missed test without a valid excuse from the registrar will result in a mark of zero. University policies on missing classes, etc. can be found here: https://registrar.acadiau.ca/RecordsandOtherRequests.html

Studies have shown, that students who take notes by hand (rather than typing on a computer) perform significantly better in their ability to retain information. While you are permitted to use laptops or tablets to take notes in lecture, please limit their use to classroom material only. Using them for other purposes (i.e., social media) will negatively impact your ability to learn, and it is distracting to myself and others. If your use of electronic devices becomes a distraction to myself or others, you will either be asked to put your device away or to leave the classroom.

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.

For more information, please email accessible.learning@acadiau.ca

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.

Currently there is no explicit or overarching policy regarding the use of AI tools at Acadia University. The use of generative text AI tools is strictly prohibited in this course. Students are expected to submit work that entirely reflects their own ideas, original engagement with readings and research, and is communicated in their own words. This policy is designed to promote your learning and intellectual development and to help you reach course learning outcomes. [iii]

Human Rights

In this course, we are committed to fostering an inclusive and equitable learning environment where the principles of human rights and social justice are paramount. We recognize and respect the diverse backgrounds, identities, and experiences of all students. Our collective goal is to create a space where every individual feels valued, heard, and supported.

All students are encouraged to contribute to and uphold an atmosphere of mutual respect and empathy. Discrimination, harassment, or any form of intolerance will not be tolerated. If you have any concerns or

require accommodations to ensure your full participation in this course, please do not hesitate to reach out. Together, let's work towards understanding and advancing human rights and equity, both within and beyond the classroom.

Acadia's Human Rights and Equity Office is responsible for the management and implementation of Acadia's Policy Against Harassment and Discrimination. This Policy is underpinned by a commitment to deconstructing the problematic structures of systemic racism and discrimination within the University Community. Acadia upholds a commitment to fostering a culture within the University Community that is welcoming and reflective of the diverse individuals that comprise this community and to fostering cultural safety, anti-oppression and anti-racism within the University Community, making it our goal to achieve a culture where our diversity is our strength.

For more information, please contact the Human Rights and Equity Office at equity@acadiau.ca

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	The course project requires the use of information from the literature. Also general use of species identification manuals which require the specific understanding of many new terms.	2
Historical concepts and contributions by important figures	Explain foundational concepts in biology, Two-eyed Seeing, and ethical implications of scientific discoveries	Two-eyed Seeing will be shared with us from a First Nations speaker, and ethical implications of human interactions with flora will be discussed.	2
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	Taxonomy and ecosystems are discussed in depth during most lectures and labs, and focus on the Acadian Forest Region.	3
Genetics and evolution	Understand the chemical basis of heredity, genetics and genomics; integrate concepts across disciplines to understand evolution	Evolution and genetics are discussed on occasion to help with the understanding of the relatedness and adaptations of species.	1
Human and environmental health	Understand form and function in health and disease within a One Health framework, integrating human and environmental health	Native medicinal species will be briefly discussed, along with the overarching theme of how environmental health impacts human health.	1
Lab and field skills			
Experimental design	Gain experience in applying the scientific method	The scientific method will be applied to the course project, and to the handling and conservation of collection specimens.	2
Safety	Work safely and productively in lab and field settings	Safety, especially in the field, will be discussed during the first field trip, as per the E.C. Smith Herbarium's safety protocol.	1

Lab skills	Gain experience with basic and advanced lab techniques and understand their application in research, health science and industry	Handling and testing specimens before and after pressing and conserving specimens.	1
Field skills	Gain experience in basic and advanced field skills and understand their application in ecology, conservation biology and environmental change	Many field trips to learn about species and ecosystems in the Acadian Forest Region, and to practice appropriate data and specimen processing techniques.	2
Data acquisition, analysis and interpretations	Collect data, present results both qualitatively and quantitatively, and interpret outcomes in light of the literature	Data collection for every specimen, and analysis of each specimen for identification and contribution to the E.C. Smith Herbarium.	1
Statistical analysis	Use R and or other programs to analyze biological data	Possible use during course project, depending on topic.	1
Professional skills			
Ethical practices	Demonstrate ethical conduct, apply principles of academic integrity, and understand the principles of EDI in science	Professionalism during the entire course, and academic integrity required for the course project research and delivery, review of EDI in science.	1
Collaboration and group work	Work effectively in groups within and across disciplines	Course projects include group work. Field trips include working as one large group to ensure safe and productive site visits.	1
Critical thinking	Analyze and evaluate information to make science-based decisions	Identification of species and ecosystems requires clear, critical thinking and understanding if data is publishable or not.	1
Computer proficiency	Use common and discipline- specific software	Use of Microsoft Word and PowerPoint.	1
Scientific communication	Communicate science effectively to both scientific and general audiences	Communication key during course project collaborative work and presentation delivery.	1

[i] Perfection with reference formatting is not necessary. Use a pre-determined format. Be consistent. Make sure the instructor can find the source of the reference easily and quickly.
[ii] Types of errors include but are not limited to misidentified specimens, poorly mounted, incorrect data, specimen traits not descriptive enough, etc.
[iii] **NOTE**: The Writing Centre offers free help to students wanting to improve their writing skills. You can sign up online today:

- To book a one-to-one appointment with a trained writing tutor, click here:

  writingcentre.acadiau.ca/writing-tutorials.html.
- To see which helpful presentations and workshops you'll want to attend this year, click here:

  writingcentre.acadiau.ca/workshops-and-presentations.html

ADDITIONALLY: I offer to review each student's written summary once during the semester, and to offer comments and feedback on improvements. In this case, AI = Alain Intelligence!