DALHOUSIE UNIVERSITY

Faculty of Management Course Syllabus
ENVI 5050.01 (In-Person)
Special Topics: Forest Ecology & Management
Winter 2021

Course Overview
Description
This course surveys principles and practices of sustainable forestry in Canada with emphasis on Nova Scotia. Students will learn the basics of forest ecology including ecological succession and the basics of disturbance, including pests, disease, fire, wind, and climate change. Ecology will be synthesized with an introduction to silviculture (the principles of tree growth and regeneration) to better understand historic practices, current activities, and future trends in managing commercial forests and ensuring the integrity of forest ecosystems. The course will entail a number of field trips within transit-accessible locations in the Halifax Regional Municipality where students will learn principles of tree identification, forest health assessment, urban forestry, and Mi'kmaw perspectives on forests. Students will be expected to cover expenses related to transportation for field sessions. Students will be on assessed on materials including fact sheets, participation and field notebooks, and a large final project on self-selected topics related to the science and policy of forest management.

Course Prerequisites
Enrollment in a Master's program. Upper-year undergraduate students may request admission from the instructor.

Instructor
Dr. Alana Westwood (pronouns: she/her)
Instructor profile: Posted on the course website and www.alanawestwood.com
Office hours: Held on Wednesdays and Thursdays from 10:00-11:30 ADT. Make an appointment: http://calendly.com/alanawestwood/foreco/
Contact:
- Microsoft Teams instant message. Response time <3 hours on working hours (9:00-17:30 M-F).
- Discussion forum on Brightspace: Response time <24 hour working hours
- Brightspace email: Response time <24 working hours
- Regular email (a.westwood@dal.ca): Response time 1-3 business days

Course Delivery

Classroom location: Wednesdays, McCain Arts & Social Sciences Building Room 1130, 11:35-14:25 ADT
Field site location: Wednesdays, various locations (see Course Schedule), 11:35-14:25 ADT

Note: The first two weeks of this course (September 9 and September 19) will be delivered asynchronously online via recorded lectures. Asynchronous lectures and all course readings and materials will be provided online on Brightspace (dal.brightspace.com).

The course will be delivered from September 9 through December 2. **The first in-person class will be held September 23** to allow students time to meet Covid-19-related quarantine requirements and obtain vaccination as necessary.

Course delivery is through a mix of in-person lectures, recorded lectures (first two weeks only), discussion forum posts, videos, readings, podcasts, discussions, outdoor field sessions, and other materials. Discussions will be composed of question and answer sessions with guest speakers, facilitated discussion on required reading material, and opportunities to review assignments and course expectations with the instructor. Group work is optional but encouraged. Students may coordinate group work as they wish, but a messaging channel and virtual document storage space/meeting room can be provided for each group in Microsoft Teams. If necessary due to health restrictions, class may move from in-person to online and synchronous via Microsoft Teams.

Course Objectives/Learning Outcomes
The student will be able to:
- Understand basic principles of forest ecology
- Identify common tree species
- Be familiar with disturbance-based forest management and how it applies in a Canadian and Nova Scotian context
- Understand the ecological, social, political, and economic drivers behind different forest management approaches
- Knowledge of legislation, policies, regulations, and the tenure system, and how these govern forest management practices in Nova Scotia and elsewhere
- Gain a deep understanding of, and ability to communicate about, a pressing issue in sustainable forest management

Course Materials
Required Resources
All students will be required to access a copy of Nova Scotia's Forest Ecosystem Classification (FEC) Guides, which can be found freely online. Hard copies will be available for loan during field sessions.

All students will require a notebook for taking notes in the field for either instructor-led or self-guided field trips. A pocket-sized coil-bound notebook is recommended, with a Rite-In-The-Rain notebook being the best option (available in-store at MEC or online in various places). Fieldwork will be proceeding even in the event of rain or snow, so best to use pencil and be prepared! Hot tip: Use a mechanical pencil and tie it to the coil of your notebook with a string.

Students will be provided a PDF of *An Independent Review of Forest Practices in Nova Scotia* by Dr. William Lahey (University of King's College) and be expected to read this document in preparation for several class discussions centred on different aspects presented therein.

Students must have access to the university library (libraries.dal.ca) as well as a computer or a functional tablet for word processing, and consistent access to the internet. It is strongly

recommended that students have access to a webcam and microphone, as well as sufficient internet or cellular bandwidth to engage in synchronous video discussions.

Brightspace is our classroom space, where you'll find class announcements, weekly modules, video lectures, course readings, dropbox for submitting assignments, and discussion boards for questions and assigned reflections. Readings may be provided as little as one week prior to the next class discussion so as to address current affairs.

Teams is our conferencing platform. Should Covid-19 require us to revert to an online format, all students will be added to a Teams page for synchronous discussions. Groups may be designated a private channel they can use to organize and conduct meetings.

Learn more about digital tools available to students at this link. If you require support for the course or university technologies you can contact Information Technology Services (ITS) at 1-800-869-3931or support@dal.ca

Required equipment
Students are expected to bring the following to each field trip:
- Sturdy footwear for light fieldwork (e.g. hiking or walking boots which are water-resistant)
- Appropriate clothing (long pants which are resistant to tears, sweaters, hats)
- Raingear
- Sun and insect protection
- Any needed medications or safety items
- A camera (or phone with a camera)
- At least 1L of water
- Snacks
- Pencils

Although a simple **field guide** will be provided on loan during field sessions, it is strongly suggested that you purchase your own field guide to trees of Nova Scotia (Boland's or Peterson's or Farrar's are all good choices). A **compass**, **hand lens,** and **first aid kit** will also be provided on loan, however, you may also wish to purchase your own. All forestry-specific field equipment will be provided on loan.

Optional Resources

Students who wish to underpin the course material with foundational texts will find the following helpful. I particularly recommend them to those considering careers in forest research or forestry.

Hunter, M.L. (ed.) (1999). *Maintaining Biodiversity in Forest Ecosystems*. Cambridge University Press. Available here.
Puettman, K.J., Coates, K.D., and Messier C. (2008). *A Critique of Silviculture: Managing for Complexity.* Island Press. Available here.
Simpson, J. (2015). *Restoring the Acadian Forest: A Guide to Forest Stewardship for Woodlot Owners in Eastern Canada*. Nimbus Publishing. Available here.

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Course Schedule

The course is structured in 12 modules which occur on an approximately weekly basis. The schedule below could be subject to further change, particularly in relation to the scheduling of guest speakers. Planned discussion topics may also be substituted with newsworthy issues without warning. You will be informed ASAP if there are any changes to the schedule via Brightspace announcements.

Session	Topics	Tasks for the week
Block 1 Sept 8	• Lecture: Introduction to the forest zones & management in Canada & Nova Scotia (online) • Assignment: Introducing Assignment 1 (Tree species fact sheet) • Assignment: Introducing Assignment 3 (Field notebook + reflections)	• Fieldbook: Setting course norms • Fill out pre-fieldwork survey • Fill out calendar poll for optional extra field trip to see forest harvesting in action
Block 2 Sept 15	• Lecture: Primer on botany and plant identification • Lecture: Primer on succession (Dr. Anthony Taylor, UNB) • Guest lecture: Safety in Fieldwork (Dr. Heather Cray, Dalhousie University) • Assignment: Introducing Assignment 2 (Major project)	• Fieldbook: Get to know a tree • Sign up for a tree species for Assignment 1 • Reading: Lahey Report
Block 3 Sept 22	• **FIELD SESSION:** Tree identification and Forest Ecosystem Classification (Point Pleasant Park, meet at the corner of Young Ave and Point Pleasant Drive)	• Fieldbook: Characterising forest types • Reading: Social life of forests
Block 4 Sept 29	• Groupwork: Choosing & meeting Assignment 3 group • Lecture: Primer on disturbance • **FIELD SESSION:** Forest measurement (University Avenue immediately in front of the McCain building, will go together from class)	• Fieldbook: Forest measurement • Reading: Indigenous leadership in forestry • Last day to drop fall courses without a W (Oct 1) • **Assignment 1 due Oct 3**
Block 5 Oct 6	• **FIELD SESSION:** Setting up plots (Sandy Lake Park, meet at parking lot on Smiths Road)	• Fieldbook: Plot establishment • Reading: Insect outbreaks & pesticides
Block 6 Oct 13	• **FIELD SESSION:** Hemlock Ravine Park, meet at parking lot on Kent Street • **PART 1:** Surveying for Hemlock Woolly Adelgid (Colin Gray, Mersey Tobeatic Research Institute) • **PART 2:** Forest Health Assessment	• Fieldbook: Forest health data summaries • Reading: Urban forestry
Block 7 Oct 20	• Guest lecture: The development of Nova Scotia's FEC guide (Peter Neily, NS Department of Lands & Forestry) • Lecture: Forest harvesting • Groupwork: Reverse engineering activity	• Fieldbook: Urban forest choices • Reading: Old-growth controversies • Complete mid-term course review • **Assignment 2a due Oct 22**
Block 8 Oct 27	• Lecture: Silviculture • **FIELD SESSION:** Urban forest walkabout with Dr. Peter Duinker, Dalhousie University (meet on University Ave in front of McCain building)	• Fieldbook: Silvicultural trade-offs • Reading: Lahey report revisited

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Block 9 **Nov 3**	• Lecture: Land tenure & stumpage • Lecture: Wood & wood products • Groupwork: OPEN SLOT for demonstration/protocol testing	• Fieldbook: Wood products at the store • Reading: The lumber industry • **Assignment 2b due Nov 5**
	Fall study break Nov 8-12, no class.	
Block 10 **Nov 17**	• Guest lecture: Community forestry (Mary Jane Roger, Medway Community Forest Co-op) • Groupwork: Activity TBD • Guest lecture: Update and Q&A on the Lahey report (Bill Lahey, UKings)	• Fieldbook: Ecological forestry • Reading: TBD
Block 11 **Nov 24**	• Groupwork: Each group meets with instructor for progress update • Guest panel: Working in forestry in Nova Scotia and the ecological forestry transition (Gillian Weldon-Genge, Nova Scotia Department of Lands & Forestry; Troy Robichaud, Mi'kmakwey Forestry; Jane Barker, Mersey-Tobeatic Research Institute)	• Fieldbook: Reflections on the Lahey report • Reading: TBD
Block 12 **Dec 1**	• Assignment 3d (presentations) • Course celebration	• **Assignment 2c due Dec 1** • **Assignment 2d due Dec 10**

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Course Assessment

Assignment	Grade Proportion	Due date
1. Tree species fact sheet	15	October 3
2. Major project: Addressing a pressing issue in forestry (individual or group)	(65)	
2a. First draft of outline, workplan, and rubric	10	October 22
2b. Peer-review of outline, workplan, and rubric	10	November 5
2c. Presentation	15	December 1
2e. Final project	30	December 10
3. Fieldbook	20	ongoing

All assignments are due at 10:00 PM Atlantic Daylight Time unless stated otherwise on the assignment instructions. All assignments are accompanied by a detailed instruction sheet, verbal instructions, and a marking rubric on Brightspace. Short summaries of the assignments are as follows:

Assignment 1. Tree species fact sheet

Each student will independently choose an economically and/or culturally-important tree and develop a two-page fact sheet detailing the tree's botanical, biological, economic, cultural, and ecological aspects. Each student must choose a different species or cultivar.

Assignment 2. Major project: Addressing a pressing issue in forestry

This assignment may be completed individually or in groups of up to 4 students. Students will complete a synthetic assignment which is broken into four parts. There is considerable flexibility in the topic and execution of this project. Approaches (e.g. report, webpage, art piece, presentation, protocol, map/model) will vary depending on the type of project chosen. Example projects might include:

- Analysing historical archives to produce a publicly available GIS database of culturally important trees in Halifax
- Conducting a systematic literature review on viable economic uses for slash piles
- Working with a local public school to deliver outdoor, age-appropriate instruction on tree identification and urban forests
- Creating an art installation of high-quality printed photographs of different types of forest management in Nova Scotia including exhibit labels explaining the photographs and their context
- Engaging in comprehensive surveys for invasive species such as Hemlock Woolly Adelgid and documenting findings through a technical report and GIS database

Students will be given the opportunity to work with external professionals on a pre-selected topic or choose their own (if proposing your own project, let the instructor know within the first two weeks of class).. The final project will include a number of interim deliverables supporting students in the development of their topic, outline, and project plan. Given that each project may

be quite different, students will also have the opportunity to have input in developing the rubric by which the final submission will be graded. You will also present your final project to the class.

If you are interested in developing the assignment into a published report/galleried piece/web-hosted wiki/peer-reviewed publication or whatever might be appropriate for wider distribution, you will have the ongoing support of the instructor to so after the course has ended.

Assignment 3. Fieldbook

Each week, students will be asked to respond to a prompt in the Brightspace discussion forum relating to that week's readings field session or readings. For the weeks that correspond with field sessions, the answer to the prompt will involve uploading a photo from the relevant portion(s) of the field book. To gain full marks, students must provide a direct response to the prompt as well as reply to the posts of one or more students for **nine** of a possible **eleven** weeks. Quality of contribution will not be marked—simply a yes/no record of participation will be taken.

Grading

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale. Note that for students in a **graduate program**, **a minimum grade of B- is required** to pass the course. In other words, a final term grade of under 70% will be assigned an F for all graduate students. Receiving a final grade of F in a graduate program means different things in different programs. In the MREM, a single F results in automatic dismissal from the program with the right to appeal to re-enter the program.

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

1. Safety is your responsibility. There are inherent dangers involved in any on-site field instruction or self-directed field trips. Students will receive a lecture on field safety and instructions on appropriate clothing and protective equipment. **Students who do not view this lecture will not be permitted to join field trips.**

2. Attendance and participation are your responsibility. You are expected to attend all synchronous sessions and review all course content, including pre-recorded lectures. Come prepared to engage in discussion with other students and guests. You will regularly be split into subgroups to discuss with other students, and should be prepared by having reviewed lectures and readings for the week.

3. Collegiality. You are expected to treat all classmates and your instructor with collegiality and to treat each person as an equal, independent of any factors relating to their identity.

4. Brightspace. Keeping up to date with the announcements, learning materials, and discussions posted on Brightspace, as well as submitting your assignments through the Brightspace dropbox, is your responsibility.

5. Late assignments. A deduction of 10% will be taken off for each day an assignment is late. Arrangements to hand in assignments late due to extenuating circumstances must be made with the instructor at least 48 hours before the assignment is due. All assignments are due at 10:00 PM ADT unless otherwise stated on the assignment instructions. To improve time management skills, visit Studying for Success for a self-assessment, free workshops, and personal coaching.

6. Your wellness and inclusion is priority. This course has been designed to the best of the instructor's ability with principles of universal design, which supports accessible education as a default. Access should be proactive and inclusive, with the course designed for all. If the course materials do not meet your access needs, in addition to contacting Accessibility Services, please contact the instructor to discuss alternate arrangements or redesigning course elements. Any conversations with the instructor about accessibility are confidential and are strictly for facilitating learning needs or accommodations.

University policies and services

Accessibility

Though this course has been designed with universal principles, students still may face barriers to success 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 at this link. Students who require accommodation for classroom participation or the writing of tests and exams should make their request to the **Student Accessibility Centre** prior to or at the outset of the regular academic year. Find more information and the **Request for Accommodation** form online.

Student health and wellness

Your health and wellness is a priority. Students in Halifax should be aware of the in-person Student Health and Wellness Centre where you can see doctors, nurses, psychiatrists, counsellors, and other health professionals. Counselling is provided free of charge to Dalhousie students.

Completing a full courseload involves a great deal of screen time on computers and other devices, which may be stressful for some students' physical and mental well-being. Free text-to-speech/speech-to-text software, Read and Write Gold, is available through Dalhousie's software library. Students may wish to consider using this or similar software to convert long readings to audio or to write first drafts of papers by dictation.

The Student Accessibility Centre also has a Lending Library which includes technology resources that may ease eyestrain, improve audio quality, improve seated ergonomics, or make it possible to work effectively in unavoidably noisy study spaces. Examples include tablets, noise-cancelling headphones, a portable text-to-speech pen, recording devices, and more.

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. Any paper submitted by a student at Dalhousie University may be checked for originality to confirm that the student has not plagiarized from other sources. Plagiarism is considered a very serious academic offence that may lead to loss of credit, suspension or expulsion from the University, or even the revocation of a degree. See the full text of Dalhousie's **Policy on Intellectual Honesty** and **Faculty Discipline Procedures**. You should be familiar with the Faculty of Management Professor and Student Contract on Academic Integrity, and it is your responsibility to ask questions if there is anything you do not understand.

Dalhousie offers many ways to learn about academic writing and presentations so that all members of the University community may acknowledge the intellectual property of others. Knowing how to find, evaluate, select, synthesize and cite information for use in assignments is called being "information literate." Information literacy is taught by Dalhousie University Librarians in classes and through online tutorials.

Do not plagiarize any materials for or from this course. For further guidance on what constitutes plagiarism, how to avoid it, and proper methods for attributing sources, see these resources. If you suspect cheating by colleagues or lapses in standards by a professor, you may use the confidential email: managementintegrity@dal.ca which is read only by the Assistant Academic Integrity Officer.

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."

Other services available to students
The following campus services are available to help students develop skills in library research, scientific writing, and effective study habits, as well as to connect with other students to support both coursework and campus life. The services are available to all Dalhousie students and, unless noted otherwise, are **free**.

Academic advising – Support for understanding degree requirements and academic regulations. Academic advising can support you through academic or other difficulties and ensure you meet your educational or career goals.

Black student advising centre – Provides support for Black students including scholarship and bursary information as well as a directory of Black student societies and groups and related events. Also provides a physical space for Black students to study and network.

Dalhousie's libraries – Beyond simply being a place to do online or in-person research, librarians advice on search methods, support you with finding materials to complete assignments, and help you reference your work correctly. You can also book a computer, study room, or space for group work in the library.

Dalhousie Student Union societies – Peer support and team-building is an essential part of the university experience. With over 250 active societies, students can meet others with mutual interests or identities. Student societies can be of particular importance for those who may face identity-related barriers to the university experience.

Indigenous student centre – Provides support for Indigenous students including regular smudging, scholarship and bursary information, and orientations and other events. Also provides a physical space for Indigenous students to study and network. The Elders in Residence program provides students with access to First Nations Elders for guidance, counsel and support. Visit the office in the Indigenous Student Centre, 1321 Edward Street, or email elders@dal.ca.

International student centre – Provides support for international students including one-on-one mentorship and guidance for university life Canada. Also provides information for domestic students wishing to study abroad.

South House – A full-time gender justice centre which provides support to those of marginalized sexual and/or gender identities, including LGBTQ2S+ identities and beyond. Offers space for relaxation or studying, a community computer, and a vast library. Regularly offers workshops and educational events relating to gender justice and sexual and gender diversity.

Writing Centre – Provides free coaching/tutoring to support any assignment with a written component, ranging from a graduate thesis to a poster to an annotated bibliography and anything in-between. Students will be paired with a tutor from the same discipline who can assist with discipline-specific writing conventions and referencing. The Writing Centre also provides free workshops and comprehensive resource guides.