Fall 2025

FOR200

CONSERVATION OF CANADA'S FORESTS

CLASSROOM LOCATION:	**BA 1160**
TUTORIAL LOCATIONS:	TUT0101: BA B024; TUT0102: ES 4001; TUT0103: BA 2139 TUT0104: BF 323; TUT0105: UC 163; TUT0106: UC 261
CLASS HOURS	Lecture: Wednesday, 6-8pm. Tutorial: Friday: 10-11am
PROFESSORS:	Adrian Smith
EMAIL:	adrian.smith@mail.utoronto.ca
OFFICE HOURS:	Adrian Smith Wednesdays and By Appointment

COURSE OVERVIEW

The goal of this course is to introduce students to the fundamentals of forest ecology, conservation, and management with an emphasis on Canadian forests and forestry practices. The course is divided into two sections. In the first section, we will explore forest biology and ecology and explore content related to what constitutes a forest and the processes that create and maintain them, including forest management. This section will include topics on tree physiology, ecosystems, the different forest regions of Canada and the trees that comprise them, biodiversity, disturbance, and forest management and wood products.

The course's second part will focus on tools and approaches for forest conservation in Canada. This section will introduce forest conservation across different land ownership and land uses and provide an understanding of essential economic, ecological, and social aspects of forest conservation. We will also discuss policy, sustainable forest management, voluntary and stewardship approaches and tools used to conserve Canada's forests. This section will also examine area-based forest conservation (e.g., parks and protected areas) and forest conservation from the perspective of species, forest patches, and larger management units. Students will also learn about the importance of species and genetic diversity to effective restoration and conservation.

COURSE OBJECTIVES

By the end of this course, students will:

- Be familiar with basic concepts and theories of forest biology and ecology
- Understand current issues in forest conservation
- Understand the different tools and approaches that exist for conservation of Canada's forests
- Understand the challenges for effective forest conservation in the face of global change

EVALUATION

Evaluation	Date	Weight
Weekly quizzes (10 @ 3% ea.)	Weekly	30 %
Mid term exam	October 22	30 %
Final exam	TBD	30 %
Tutorial Participation	Weekly	10 %

COURSE CONTENT AND SCHEDULE

Topic	Date	Details	Readings
1	Sept. 3	Course introduction. Development of forestry in Canada. Principles of conservation	SoCF 2023 Drushka 2003, Ch. 2
2	Sept. 10	Tree identification. Forest regions of Canada. The boreal forest	Drushka 2003, Ch. 1 CCFM-1 document Gauthier *et al*. 2015
3	Sept. 17	Forest ecophysiology and structure. Forest products	Koch *et al.* 2004 Bogdanski, 2014
4	Sept. 24	Forest disturbance: fire, insects, and wind. Natural disturbance emulation	Taylor *et al.* 2020 Tymstra *et al.* 2020
5	Oct. 1	Succession and stand development. Silviculture and harvesting	Baskerville, 1986 Franklin *et al*. 2007 Bauhus *et al.* 2009
6	Oct. 8	**No in-person Class! At home videos** Current events in forest management	The Forest in Crisis (optional) https://www.onf.ca/film/forest_in_crisis/ Charmin Wipes Out a Forest https://www.youtube.com/watch?v=0h4t5xKccLo Forestry for the Future: Capturing Carbon https://www.forestryforthefuture.ca/documentary
October 13th – Thanksgiving (no quiz)			
7	Oct. 15	Forest management and certification	Drushka 2003, Ch. 3, 4 & 5 Nelson *et al*. 2020 Rotherham and Armson, 2016 CCFM-2 document
	Oct. 22	**Midterm exam: 6:15 - 7:45 pm**	
Oct 27-31 Reading week – no class on October 29th ***Note that November 11th is the last day to drop F courses.***			

8	Nov. 5	Urban and peri-urban forest conservation; forest and land use policy and management tools Forest landscape ecology and biodiversity	Konijnendijk *et al*. 2006 CCFM-2 document Y&G: Ch. 7, pp.132-146 Y&G: Ch. 14, pp.313-326
9	Nov. 12	The role of protected areas and parks in forest conservation.	Gray *et al*. 2015. Ch. 2, pp. 9-28 Dearden 2004
10	Nov. 19	Species-based conservation and management: Endangered species; Invasive species in forest systems	Burke *et al*. 2011 Herms 2014
11	Nov. 26	Indigenous and traditional forestry knowledge - *No quiz for this lecture!*	Berkes & Davidson-Hunt, 2006

TEACHING ASSISTANTS

TAs are available to answer questions pertaining to tutorials and grading.

Name	Email	Section	Location
Nicholas Dewez	nicholas.dewez@mail.utoronto.ca	TUT0101	BA B024
Omid Ghadirian	omid.ghadirian.baharanchi@mail.utoronto.ca	TUT0102	ES 4001
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James Marcucci	james.marcucci@mail.utoronto.ca	TUT0105	UC 163
Esther Tang	ec.tang@mail.utoronto.ca	TUT0106	UC 261

TUTORIALS

Weekly tutorials will be held from **10–11 am**, just prior to the scheduled lecture time. During these tutorials, the course TAs will take up the previous week's quiz and be available to answer specific questions. Presentations and group activities will be facilitated to develop course objectives. Further details can be found below.

TUTORIAL SCHEDULE

#	Date	Topic
1	Sept. 5	Group discussions: SoCF 2023 report - something that you knew, something you didn't know and find interesting, and something that you remain uncertain or curious about. Present one uncertainty from your group to the rest of the class
2	Sept. 12	Week 1 quiz Group discussion: what is forest health? Is it a useful concept? Why or why not? (Gauthier *et al.* 2015)
3	Sept. 19	Week 2 quiz Group discussion: what determines tree height (Koch *et al.* 2004)?

4	Sept. 26	Week 3 quiz Group discussion: Climate change and disturbance. Select one or more forest disturbances and design a simple "model" / flow chart to describe how you expect climate change to affect that disturbance and forest responses; present your “model” to the class
5	Oct. 3	Week 4 quiz Group discussion: What did you learn about how forests grow naturally and under human influence (silviculture) that you found interesting or did not know? Is emulating nature and natural processes the right way to manage forests? Have you ever planted a tree or observed trees being planted? If so please share any observations you had about the life of that tree that you noticed.
	Oct. 10	Week 5 quiz *No tutorial this week!*
6	Oct. 17	**No quiz due to Thanksgiving Holiday!** Group discussion: Conservation of managed forest /crown lands. What are strengths and weakness of the existing approaches, policy, and tools? What are other ways that could be used for effective conservation of managed forests or crown lands?
	Oct. 24	Week 6 quiz! *No tutorial due to mid-term exam.*
	Oct 31	*No tutorial due to fall reading week.*
7	Nov. 7th	Week 7 quiz Group discussion: Forest Landscape Ecology and biodiversity. What is landscape ecology and why is it important to forest conservation? How can forestry be used to better converse biodiversity? How can forests in urban and peri-urban landscapes be conserved? How do we regulate public/collective benefits on private land?
8	Nov. 14	Week 8 quiz Group discussion: What are the strengths and weaknesses of area-based forest conservation? Are protected areas enough to support conservation, and how much? Why is it important (or not) to conserve forests outside of protected areas?
9	Nov. 21	Week 9 Quiz Group discussion: How does Indigenous and traditional knowledge inform forest conservation and management in Canada? What areas exist for further involvement from Indigenous forestry perspectives? What is your understanding to the ‘two-eyed seeing’ concept.
10	Nov. 28	Week 10 Quiz Open discussion and final exam preparation. Come prepared with questions for your TA. This tutorial also serves as the grade adjustment session for missed quizzes with a valid explanation.

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READINGS

We will use a combination of textbook chapters, government documents, and peer-reviewed research articles to provide a well-rounded set of foundational information on forest conservation. Note that reading material may not necessarily be discussed directly in class, but ***elements of the readings may appear on the midterm or final exam.*** Students are responsible for all assigned materials.

Texts

Young, R.A. & Giese, R.L. 2003. Introduction to Forest Ecosystem Science and Management. 3rd Edition, Wiley & Sons. [*referred to above as* ***Y&G***]

Drushka, K. 2003. Canada's Forests: A History. Forest History Society. McGill-Queen's University Press.

Other readings

Baskerville, Gordon. "Understanding forest management." *The Forestry Chronicle* 62.4 (1986): 339-347.

Bauhus, Jürgen, Klaus Puettmann, and Christian Messier. "Silviculture for old-growth attributes." *Forest Ecology and Management* 258.4 (2009): 525-537.

Berkes, F. and Davidson-Hunt, I.J. 2006, Biodiversity, traditional management systems, and cultural landscapes: examples from the boreal forest of Canada. International Social Science Journal, 58: 35-47

Bogdanski, Bryan EC. "The rise and fall of the Canadian pulp and paper sector." *The Forestry Chronicle* 90.6 (2014): 785-793.

Burke D, Elliott K, Falk K, Piraino T. 2011. A land manager's guide to conserving habitat for forest birds in southern Ontario. Ontario Ministry of Natural Resources, Science and Information Resources Division; Trent University, Manotick, ON, [Peterborough, Ont.].

Canadian Council of Forest Ministers (CCFM). Fact Sheet. Always changing: Canada's Boreal Forest [*referred to above as* **CCFM-1**]

Canadian Council of Forest Ministers (CCFM). Fact Sheet. Forest Certification [*referred to above as* **CCFM-2**]

Dearden, P. 2004. Parks and protected areas. In B. Mitchell (Ed.), Resource and environmental management in Canada: Addressing conflict and uncertainty. pp. 314-341. Oxford University Press.

Franklin, J.F., R.J. Mitchell, B.J. Palik. 2007. Natural Disturbance and Stand Development Principles for Ecological Forestry. USDA Forest Service, Newtown Square, PA.

Gauthier, S., Bernier, P., Kuuluvainen, T., Shvidenko, A.Z., & Schepaschenko, D.G. 2015. Boreal Forest health and global change. *Science*, *349*(6250), 819-822.

Gray PA, Paleczny D, Beechey TJ, King B, Wester M, Davidson RJ, et al. 2009. Ontario's Natural Heritage Areas: Their Description and Relationship to the IUCN Protected Areas Classification System: Queen's Printer for Ontario.

Herms, D.A., & McCullough, D.G. 2014. Emerald ash borer invasion of North America: history,

biology, ecology, impacts, and management. *Annual review of entomology*, *59*, 13-30.

Koch, G.W., Sillett, S.C., Jennings, G.M., & Davis, S.D. 2004. The limits to tree height. *Nature*, *428*(6985), 851-854.

Konijnendijk, C.C., R.M. Ricard, A. Kenney, and T.B. Randrup. 2006. Defining urban forestry – A comparative perspective of North America and Europe. Urban Forestry & Urban Greening 4:93-103.

Nelson, Harry, and Hugh Scorah. "How should we sustain future forests under extreme risk?." *Canadian Journal of Forest Research* 51.10 (2021): 1493-1500.

NRC (Natural Resources Canada). 2015. Canada's Regulatory Framework for Forest Management.

Rotherham, Tony, and K. A. Armson. "The evolution of forest management in Canada: management paradigms and forest tenure systems." *The forestry chronicle* 92.4 (2016): 388-393.

Taylor, Anthony R., et al. "A review of natural disturbances to inform implementation of ecological forestry in Nova Scotia, Canada." *Environmental Reviews* 28.4 (2020): 387-414.

The State of Canada's Forests: Annual Report 2023. Canadian Forest Service, Ottawa, Ontario. [*referred to above as* **SoCF**]

Tymstra, Cordy, et al. "Wildfire management in Canada: Review, challenges and opportunities." *Progress in Disaster Science* 5 (2020): 100045.

COURSE MODULES ON *QUERCUS*

Course materials will be posted on *Quercus* as a series of weekly course modules. Readings will be posted at least a week in advance. Copies of the lecture slides will most often be made available prior to each lecture.

COURSE EVALUATION

Weekly quizzes (30%)

Each week, students will complete a short online quiz pertaining to the previous week's material, including both lecture materials, and assigned readings. Quizzes will be made available on Monday mornings at 10 am and will be time limited (15 minutes). Quizzes will no longer be available as of 11:59 that same night. Answers to the quizzes will be posted Tuesday morning after the quiz window has closed. We recommend that you review your notes and the readings prior to logging in to *Quercus* and starting the quiz. Although you will have your study materials available to you during the quiz, without adequate preparation you may not have sufficient time to complete all questions; it takes time to look things up. Please also note that each student's quiz will be a different subset of a larger question bank such that it is unlikely any two students' quizzes will be alike. Each quiz is worth **3%** of your final grade and will include a mixture of multiple choice and true or false questions.

There will be no opportunity to re-take missed quizzes. If a quiz is missed for a valid and credible reason, the grade for that quiz will be redistributed to the remaining quizzes.

QUIZ SCHEDULE

#	Date	Topic
1	Sept. 8	Week 1 content.
2	Sept. 15	Week 2 content.
3	Sept. 22	Week 3 content.
4	Sept. 29	Week 4 content.
5	Oct. 6	Week 5 content.
	Oct. 13	No quiz due to Thanksgiving Holiday
6	Oct. 20	Week 6 content.
	Oct. 27	No quiz due to fall reading week.
7	Nov. 3	Week 7 content.
8	Nov 10	Week 8 content.
9	Nov. 17	Week 9 content.
10	Nov. 24	Week 10 content.

*No week 11 content quiz!

Exams

Both the midterm (30%) and final (30%) exams will include a combination of multiple choice, true and false. The final may include short and long answer style questions. Students can consult past exams found in the repository of past exams (https://exams-library-utoronto-ca.myaccess.library.utoronto.ca). Note that past exam content varies from year to year as this course has had multiple instructors.

Makeup exams can be scheduled if an examination was missed for a valid and credible reason (verification document/s will be required). Ideally, the instructor will be notified that the student is unable to attend the exam prior to the examination start time. Makeup exams will be different from those given during the regularly scheduled examination. In the case of final exams, the makeup exam will be scheduled for January of the following year.

Tutorial Participation (10%)

Tutorial participation is compulsory. Participation will be evaluated by the teaching assistants using a combination of attendance and active engagement in group discussions. Tutorials are designed to provide an opportunity for students to discuss the ideas presented in lecture with other students as moderated by the teaching assistant.

LATE POLICY

Late assignments will be penalized **10%** of the maximum grade each late day. After seven days, the grade for the assignment will be set to 0.

If you become ill and it affects your ability to do your academic work, or to meet a course deadline, consult me right away. Normally, I will ask you for documentation in support of your specific medical circumstances. This documentation can be an Absence Declaration (via ACORN) or the University's Verification of Student Illness or Injury (VOI) form. The VOI indicates the impact and severity of the illness, while protecting your privacy about the details of the nature of the illness. You can submit a different form (like a letter from a doctor), as long as it is an original document, and it contains the same information as the VOI. For more information on the VOI, please see *http://www.illnessverification.utoronto.ca*. For information on Absence Declaration Tool for A&S students, please see *https://www.artsci.utoronto.ca/absence*. If you get a concussion, break your hand, or suffer some other acute injury, you should register with Accessibility Services as soon as possible.

Grade Adjustments

All requests for adjustment to quiz grade (including missed quizzes) will be heard and evaluated in person by your TA during your tutorial on November 28th. All requests must be accompanied by a valid and credible reason as well as appropriate documentation as required (i.e. official UofT absence declaration). Requests will not be considered outside of this dedicated session.

QUERCUS WEBSITE AND INSTRUCTOR COMMUNICATION

Quercus: FOR200 will use *Quercus* for its course website. To access the FOR200 website, go to the U of T *Quercus* login page (https://q.utoronto.ca/) and login using your UTORid and password. Once you have logged in, look for the My Courses tab, where you will find the link to the FOR200 course site (along with the link to all your other *Quercus*-based courses).

Communication: All important course information, including links to the recorded course lectures, will be disseminated via *Quercus*. Other communication will be by email as appropriate. U of T students are required to have a valid U of T email address, and to check *Quercus* regularly for course updates. Students are responsible for ensuring that their U of T email address is valid.

PREPAREDNESS AT U OF T

Students are advised to register for UTAlert, the University's alert system, at http://alert.utoronto.ca/. UTAlert sends important messages to registrants via text, email, and phone.

ACCESSIBILITY NEEDS

The University provides academic accommodation for students with disabilities in accordance with the terms of the Ontario Human Rights Code. This occurs through a collaborative process that acknowledges a collective obligation to develop an accessible learning environment that both meets the needs of students and preserves the essential academic requirements of the University's courses and programs.

If you are a student who identifies with one or more of the broad categories below, we encourage you to register with Accessibility Services: https://studentlife.utoronto.ca/department/accessibility-services/.

- Attention Deficit Hyperactivity Disorder (ADHD)
- Autism Spectrum Disorder
- Brain Injury and Concussion
- Chronic Health
- Deaf and Hard of Hearing
- Learning Disability
- Mental Health
- Mobility and Functional
- Low Vision / Legally Blind
- Temporary Injuries

For any questions or assistance, please see the staff in the Office of the Registrar and Student Services.

ENGLISH LANGUAGE AND WRITING SUPPORT

The University of Toronto expects its students to write well, and it provides resources to help. Please consult the University of Toronto writing site: https://writing.utoronto.ca/ for advice and answers to your questions about writing. Please pay special attention to "Advice on Writing: Academic Writing."

The Writing Centre at the John H. Daniels Faculty of Architecture, Landscape, and Design (https://www.daniels.utoronto.ca/students/student-services) is a resource for Daniels students seeking assistance with academic writing through tutorials and individual consultations.

Academic writing carries with it certain expectations about properly citing, quoting, and referencing source material. Your research must be conveyed in a language commonly shared by others in the discipline. The style guidelines preferred by the Daniels Faculty are put forth in the Chicago Manual of Style and can be found here:
http://www.chicagomanualofstyle.org/16/contents.html
https://owl.purdue.edu/owl/research_and_citation/chicago_manual_17th_edition/chicago_style_introduction.html

ACADEMIC INTEGRITY

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters (www.governingcouncil.utoronto.ca/policies/behaveac.htm) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. The Code of Behavior on Academic Matters states: "*It shall be an offence for a student knowingly […] to represent as one's own any idea or expression of an idea or work of another in any academic examination or term test or in connection with any other form of academic work, i.e., to commit plagiarism.*"

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The Code also states: "*Wherever in the Code an offence is described as depending on 'knowing,' the offence shall likewise be deemed to have been committed if the person ought reasonably to have known*."

Potential offences include, but are not limited to:
In papers and assignments:

1. Using someone else's ideas or words without appropriate acknowledgement.
2. Submitting your own work in more than one course without the permission of the instructor.
3. Making up sources or facts.
4. Obtaining or providing unauthorized assistance on any assignment, **including the use of generative AI (e.g., ChatGPT).**

On tests and exams:

1. Using or possessing unauthorized aids.
2. Looking at someone else's answers during an exam or test.
3. Misrepresenting your identity.

In academic work:

1. Falsifying institutional documents or grades.
2. Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from other institutional resources. For information about academic integrity at the University of Toronto, please see https://www.academicintegrity.utoronto.ca/.

Normally, students will be required to submit their course essays to a plagiarism detection tool (e.g., Ouriginal) for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the tool's reference database, where they will be used solely for the purpose of detecting plagiarism.

For accepted methods of standard documentation formats, including electronic citation of internet sources please see the U of T writing website at: http://www.writing.utoronto.ca/advice/using-sources/documentation.

Please also refer to "Reading and Using Sources: How Not to Plagiarize" on the University of Toronto writing site (http://www.writing.utoronto.ca/).