School of Science

RRMT 235

Forest Ecology and Management

Term: Fall 2022

Number of Credits: 3

Course Outline

INSTRUCTOR: Stephen Biggin-Pound
E-MAIL: sbigginpound@yukonu.ca **PHONE:** (867) 668-8796
OFFICE LOCATION: A2105 **OFFICE HOURS:** Mondays and Wednesdays 10-11am

TIME/DATES: Mon/Wed. 9:00 – 10:30 A2601 (Lecture); Fri. 1:00 – 4:00 A2805 (Lab)
DATES: September 6 to December 7, 2022

COURSE DESCRIPTION

This course provides an introduction to forest ecology and the multi-nationally accepted principles and practices of Sustainable Forest Management (SFM). Concepts in ecology, such as energy and nutrient flows, disturbance and succession, ecosystem classification, and climate change impacts will be explored to better understand the foundations of management actions and outcomes. SFM will be introduced and explored, including the management practices required to ensure the ecologically sustainable use of all forest resources. A range of timber and non-timber forest values are explored, highlighting the interdisciplinary nature of forest management. Course participants will also gain an appreciation for the wonders of wood, and its potential to replace unsustainable, non-renewable resource use.

The lab component of the course will focus on hands-on, practical aspects of ecology and management, such as soils, tree and plant species identification, wood growth and structure, forest disturbances, and ecosystem classification. Forest management field methods, such as measurement methods and tools, sampling protocols, and mapping, will be introduced and applied to a practical cumulative assignment. Most of the labs will occur outside in the forest environment.

COURSE REQUIREMENTS

Prerequisites: RRMT 125, GEOG 250, or permission of the instructor

Cross-listed Courses: RENR 322 for Fall 2022

EQUIVALENCY OR TRANSFERABILITY

Receiving institutions determine course transferability. Find further information at:
https://www.yukonu.ca/admissions/transfer-credit

University of Northern British Columbia (UNBC): FSTY 2XX (3)

LEARNING OUTCOMES

Upon successful completion of the course, students will be able to:

- Describe the characteristics and ecology of boreal forests.
- Describe the role of natural disturbance (fire, insects, disease etc.) in shaping boreal forests.
- Explain how forested and other ecosystems are classified.
- Describe forest management policy and legislation in the Yukon.
- Describe what is meant by ecosystem-based approach to managing for biological diversity and other non-timber values.
- Understand the principles of forest planning and management.
- Describe the various silvicultural systems, reforestation, and stand tending practices used in operational forestry and evaluate their appropriateness for boreal forests and for different objectives.

COURSE FORMAT

Weekly breakdown of instructional hours

Lecture: two 1.5 hr classroom-based lectures per week (3hrs total)

Laboratory: one 3 hr outdoors-based lab per week (3 hrs total)

Delivery format

Lectures and laboratory sessions for the Fall 2022 offering of this course will be delivered in a face-to-face format.

Lectures will include a mix of presented material, group discussions, and in-class activities.

Labs will be primarily hands-on activities in an outdoor setting.

EVALUATION

Assignment 1	20%
Assignment 2	20%
Lecture Quizzes	20 %
Lab Quizzes/Practical Exam	20 %
Final Exam	20%
Total	100%

Assignments

Assignment 1: Presentation and Report **20%**

Students have the opportunity to select a topic of their own particular interest from within the wide field of Forest Ecology and Management to focus on for self-directed learning. The topic chosen must be approved by the instructor. A written report of 5-10 pages is required. Students will prepare a brief presentation to share their learning with the rest of the class and promote their own learning.

Grading will be broken down as follows:

1) Topic choice and proposal (5%)
2) Final report (7%)
3) Presentation in class (8%)

Assignment 2: Site Plan or Field Research Project **20%**

Students will apply their learning of forest management planning and operations to prepare a Site Plan for a small hypothetical harvest block within a timber harvest area. A local forested area with easy access will be selected for this assignment. The site plan must be presented in the standard format in use in the Yukon, with a short, written report and a detailed site map. Students will be required to review relevant legislation, regulations, and Forest Management Plans, and to conduct all necessary field work to gather site and stand data and survey data required for mapping. Field work will be conducted in groups, but the Site Plan must be submitted individually.

Alternatively, students may choose to pursue a research project involving the collection and analysis of field data using standard forestry field equipment. The research project option must be chosen in consultation with the instructor.

Lecture Quizzes **20%**

A series of 2 to 4 short quizzes, each covering the content of one section of the course.

Lab Assessments **20%**

The lab component of the course focuses on practical knowledge and field skills. Assessments will focus on interpretations of field guides and manuals and on the application of standard field skills.

Lab Quizzes 10%

There will be 1 or 2 lab written quizzes covering field-related concepts and the interpretation of field guides and manuals, one mid-term and one final.

Lab Practical 10%

There will be a final lab practical exam to assess the application of critical field skills in a field-based setting. The lab practical will take place as the last lab session of the course.

Final Exam **20%**

There is a written final exam to assess learning. It will consist of a variety of short- and long-answer questions and will include practical applications such as diagram and map questions. See the School of Science final exam schedule for date and location.

COURSE WITHDRAWAL INFORMATION

Refer to the YukonU website for important dates.

TEXTBOOKS & LEARNING MATERIALS

No textbook required. Readings, resources, and lecture material will be provided on Moodle.

ACADEMIC INTEGRITY

Students are expected to contribute toward a positive and supportive environment and are required to conduct themselves in a responsible manner. Academic misconduct includes all forms of academic dishonesty such as cheating, plagiarism, fabrication, fraud, deceit, using the work of others without their permission, aiding other students in committing academic offences, misrepresenting academic assignments prepared by others as one's own, or any other forms of academic dishonesty including falsification of any information on any Yukon University document.

Please refer to Academic Regulations & Procedures for further details about academic standing and student rights and responsibilities.

ACADEMIC ACCOMMODATION

Reasonable accommodations are available for students requiring an academic accommodation to fully participate in this class. These accommodations are available for students with a documented disability, chronic condition or any other grounds specified in section 8.0 of the Yukon University Academic Regulations (available on the Yukon University website). It is the student's responsibility to seek these accommodations by contacting the Learning Assistance Centre (LAC): LearningAssistanceCentre@yukonu.ca.

TOPIC OUTLINE

Week	Lecture Topics	Lab Topics
Forest Ecology		
1	Global Forest Biomes and Canadian Forests	Wood and Tree ID
2	Forest Ecology and the Boreal Forest	Soils
3	Soils and Ecosystem Classification	Ecosystem Classification
4	Disturbance Ecology and Climate Change; Assignment 1 Presentations	*STAT Holiday – no lab*
Forest Management		
5	Intro to Forestry in Canada and the Yukon; Assignment 1 Presentations	Inventory: EMR Library site visit
6	Sustainable Forest Management	Inventory ground truthing and mapping
7	Forest Management Legislation and Forest Resources Management Planning	Forest Management Branch site visit
8	Timber Harvest Planning (THP) and Site Planning (SP)	GPS and mapping methods
Forest Operations		
9	Inventory and Timber Cruising	Timber Cruising
10	Silviculture Systems	*STAT Holiday – no Lab*
11	Harvest Systems	Block Layout and Traverse
Forests Disturbance Management		
12	Fire Ecology and Management	Wildland Fire site visit
13	Forest Health	Silviculture Surveys
Last Week of Classes		
14	Site Plan completion and Review	Lab Practical Exam