

TRENT UNIVERSITY  
ENVIRONMENTAL & RESOURCE STUDIES PROGRAM

***COURSE OUTLINE 2010-2011***

**COURSE TITLE:** MANAGEMENT OF FOREST ECOSYSTEMS

**COURSE NUMBER:** ERSC 3200Y

**INSTRUCTOR:** DENIS MCGEE

**TRENT PHONE NUMBER:** N/A

**E-MAIL:** [denismcgee@trentu.ca](mailto:denismcgee@trentu.ca)

**HOME PHONE NUMBER:** 1-705-328-3492 BETWEEN 6 & 10 PM.

**COURSE TIME:** Mondays 11:00-14:50

**COURSE LOCATION:** CC M2

**PROGRAM SECRETARY :** Deb Mills, Office: ESC B202, 705-748-1011, Ext. 7199  
E-MAIL: [dmills@trentu.ca](mailto:dmills@trentu.ca)

**DEMONSTRATOR/TECHNICIAN:** Rob Loney, Office:ESC A204, Ext. 7870  
E-MAIL: [rloney@trentu.ca](mailto:rloney@trentu.ca)

DESCRIPTION

This course offers an appreciation of the problems in managing forest ecosystems. It looks at ecological processes which create and maintain forests and how humans affect this system. Forest practices past, present, coming of age, good and bad, will be discussed and investigated.

The course will be comprised of two main components. The fall semester will concentrate on the biological factors which influence forest growth and survival and provide the principles of modern forestry practices. This component of the course will be supported by the preparation of a research paper dealing with tree species, tolerance, stand establishment, forest succession and ecosystem diversity on a variety of distinct natural areas located on the Symons Campus of Trent University.

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The winter semester will utilize and build upon the foundation material covered in the fall. The students will now have a full tool kit of data, concepts, theories, regulations and legislation, all relating to forestry practices. With this tool kit, the student will now prepare an Annual Forestry Work Schedule / Integrated Forest Resource Management Plan. This document will represent an actual working plan created by all forest products

companies across Ontario/Canada. The plan will include proposed road locations, harvesting areas, volumes to be harvested, AREAS OF CONCERN, and a complete silvicultural plan. This project will document the actual "Forest Management Process" carried out in Ontario, and provide the student with a full appreciation of the complexity and variability of the practice of Managing Forest Ecosystems.

**PREREQUISITES:** ERSC-BIOL 2260H (226H) or ERSC 2210H (221H) or 2240H (220).Or permission of the instructor.

**COURSE FORMAT:** In general, the class will begin with a 2 hour interactive lecture in which the student will be expected to participate and contribute to the presentation. This contribution will be based on assigned reading. At the completion of the lecture, the remaining time will be devoted to labs which support the lecture and/or field exercises and project work.

**COURSE RESOURCES:** Required Text -

Hunter, Jr., Malcolm L. 1990. Wildlife, Forests and Forestry; Principles of Managing Forests for Biological Diversity. Prentice-Hall Inc. New Jersey.

**REFERENCE TEXTS COMMONLY USED:**

Wenger, Karl F. 1984. Forestry Handbook 2nd Edition. Society of American Foresters. John Wiley & Sons. New York.

Fowells, H.A. 1965. Silvics of Forest Trees of the United States. Timber Management Research Forest Service. U.S. Dept. of Agriculture Handbook No. 271. U.S. Gov't Printing Office. Washington, D.C.

Reichle, D.E. 1981. Dynamic Properties of Forest Ecosystems. Cambridge University Press. Cambridge.

Longman, K.A. 1987. Tropical Forest and Its Environment, 2nd Edition. Longman Scientific & Technical. New York.

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Farrar, J.L.1995. Trees in Canada. Fitzhenry & Whiteside Ltd. Markham, Ont.

Barnes, B.V. Spurr, S.H. ,D.R. Zak and S.R. Denton .1997. Forest Ecology, 4th Edition. J. Wiley & Sons, Inc. New York.

Wright, H.A. and Bailey, A.W. 1982. Fire Ecology, United States and Southern Canada. J. Wiley and Sons. New York.

Kimmins, J.P.1996. Forest Ecology , 2nd Edition. Prentice Hall, Inc. Toronto.

Kozlowski, T.T. and Ahlgren, C.E. 1974. Fire and Ecosystems. Academic Press. New York.

Larsen, J.A. 1980. The Boreal Ecosystem. Academic Press. New York.

Matthews, J.D. 1989. *Silvicultural Systems*. Clarendon Press. Oxford.

Smith, D.M. 1986. *The Practice of Silviculture*. J. Wiley and Sons, Inc. New York.

Chambers, B.A., Naylor, J.B., Nieppola, J., Merchant, B., and Uhlig, P. 1997. *Field Guide to Forest Ecosystems Of Central Ontario*. Queen's Printer For Ontario. Ontario.

Soper, J.H. and Heimbürger, M.L. 1982. *Shrubs of Ontario*. Royal Ontario Museum Publications. Toronto.

All other resources will be placed on reserve in the Bata Library and/or handed out in class. A record of all material handed out in class will be available on reference under my name and course name in the Bata Library.

Required reading will be assigned on a regular basis and will be handed out with the objectives in advance of the lab session.

### AIMS AND GOALS

The aims or goals of this course are as follows:

1) To gain an understanding of the variety of forest ecosystems which exist, specifically within the Great Lakes St. Lawrence and the Boreal Forest regions;

2) To understand that forestry prescriptions are site specific and should not be generalized;

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3) To be able to identify a variety of tree species which are found in the Great Lakes St. Lawrence and Boreal Forest regions;

4) To understand forest dynamics and succession;

5) To comprehend the Forest Management Planning process;

6) To develop the ability to create an Annual Work Schedule using an Integrated Resource Management and adaptive ecosystem management approach;

7) To gain an informed and balanced perspective of present day forestry practices;

8) To visit forestry applications and practices in the field, in the Great Lakes St. Lawrence Forest region;

9) To gain a working knowledge of regulations and legislation in the province of Ontario, which affect Forest Management;

10) To be able to analyze, evaluate, and question the variety of opinions expressed on forest management;

- 11) To develop interpersonal and project management skills via group projects;
- 12) To sharpen communication skills, both oral and written, via report writing and oral presentations.

OBJECTIVES FOR THE  
MANAGEMENT OF FOREST ECOSYSTEMS COURSE

Objectives are statements which identify what the student has learned rather than what a teacher has taught. You will be expected to do a considerable amount of learning in this course. Objectives will be stated at the beginning of each lecture, lab, or field exercise. They will be presented in the following manner: “At the end of this lecture/lab/field exercise, the student will be able to: e.g. 1) Determine the fishery reserve required for cold water species based on shore line slope. e.g. 2) Determine the rotation age of a forest stand based on CAI and MAI.”

As you can see, the objectives are specific and measurable, and will form the basis of all testing and project marking.

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COURSE EVALUATION

<u>ITEM</u>	<u>VALUE</u>	<u>DUE DATE</u>
<b><u>Fall Term</u></b>		
Symons Campus Forest Succession Diversity Sample Plot Project		
Field data	5%	Nov. 1 <sup>st</sup> , 2010
Data Presentation	10%	Nov. 15 <sup>th</sup> , 2010
Final report	25%	Nov. 29 <sup>th</sup> , 2010
Total	40%	
<b><u>Winter Term</u></b>		
Annual Work Schedule Integrated Forest Resource Management Plan:		
Report and plan maps	30%	March 28th, 2011
Oral Presentation	10%	April 4th, 2011
Winter Term Test	20%	April 2011(TBA)
TOTAL	100%	

COURSE POLICIES

Project Submissions

All projects must be presented in a typed format complete with title page, abstract, table of contents, list of figures and tables, footnotes, appendices (if applicable) and a bibliography.

## Due Dates

All projects and assignments have been assigned adequate periods of time in which to meet the objectives and complete the task. Thus, all projects are due on the date and time prescribed. All late assignments will be downgraded 5% per day, including weekends. Exceptions to the above may be granted due to certain documented situations beyond the student's control. If this is the case, the student should contact the instructor promptly upon return to the University to discuss alternate arrangements

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## Evaluation Results

Results will only be distributed to the relevant student. Those students who are not available to retrieve evaluations in class are required to retrieve their results during the instructor's office hours.

## Academic Integrity

Academic dishonesty, which includes plagiarism and cheating, is an extremely serious academic offence and carries penalties varying from a 0 grade on an assignment to expulsion from the University. Definitions, penalties, and procedures for dealing with plagiarism and cheating are set out in Trent University's Academic Integrity Policy. You have a responsibility to educate yourself – unfamiliarity with the policy is not an excuse. You are strongly encouraged to visit Trent's Academic Integrity website to learn more: [www.trentu.ca/academicintegrity](http://www.trentu.ca/academicintegrity)

## Access to Instruction

It is Trent University's intent to create an inclusive learning environment. If a student has a disability and/or health consideration and feels that he/she may need accommodations to succeed in this course, the student should contact the Disability Services Office (BL Suite 109, 748-1281, [disabilityservices@trentu.ca](mailto:disabilityservices@trentu.ca)) as soon as possible. Complete text can be found under Access to Instruction in the Academic Calendar.

## Clickers (Personal Response Systems)

As clicker records are used in this course to compute a portion of course grades, the use of a clicker other than your own is an academic offence. In lecture or tutorial, possession of more than one clicker, or that of another student, may be interpreted as intent to commit an academic offence.

COURSE CONTENT

<u>DATE</u>	<u>ACTIVITY</u>
	<i>Fall Semester</i>
September 13, 2010	Course introduction; instructor introduction; assessing the student's perception of forest management in Canada; introduction to the Forest Succession/Diversity project; project group formation; assignment of areas; use of forest measurement equipment in the field; demonstration and field practical.
September 20, 2010	Forest Ecosystem classification, succession; species tolerance; On site FEC practical
September 27, 2010.	Forest succession; species tolerance; principles of forest ecology.
October 4 , 2010	Fire Ecology
October 11 , 2010	Thanksgiving Holiday
October 18, 2010	Silvicultural Principles 1.0
October 25, 2010	Reading Week
November 1, 2010	Field Data Collection Completion
November 8, 2010	Silvicultural Principles 2.
November 17, 2010	Annual Allowable Cut; sustained yield and rotation age.
November 22, 2010	Old growth forest ecosystems; status, perceptions, future
November 29, 2010	Silvicultural Systems (project work period).

December 6, 2010	Introduction to the Integrated Forest Resource Management Planning Project;
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*Winter Semester*

January 10, 2011	Environmental Assessment under the Forest Management planning process; Bubba's Lake case study; allocation of harvest areas, seasonal harvesting progression
January 17, 2011	Road location; forest access.
January 24, 2011	Forest Use #1 - harvesting method/equipment and their site effects.
January 31, 2011 February 7, 2011	Forest Use #2 - management of forests for wildlife Forest Use #3 - management of forests for fish.
February 14, 2011	Work period , D. McGee At Loon Lake Field Camp
February 21, 2011	Reading Week
February 28 2011	Forest Use #4 - management of forests for recreation/tourism
March 7, 2011	Native Canadian's perceptions of the forest.
March 14, 2011	Legislation affecting forest management.
March 21, 2011	Integrated Forest Resource Management Plan workshop.
March 28, 2011	Annual Work Schedule/Integrated Forest Resource Management workshop; Planning Project due today.
April 4, 2011	Planning group presentations
TBA	Winter Term Test