

B. Robinson

COURSE OUTLINE

Calendar Description: A general overview of forestry including: an introduction to trees and other forest plants, forest ecology, and forest land-use planning; the history of forestry, the present status and role of forestry, and future trends in the use of forest resources.

Course Content:**Unit 1: The Forest: Components, Structure and Function**
(14 hours)

Identification of common trees and plants of Alberta forests; silvics of Alberta tree species; ecological classification of forests; ecology of the boreal, sub-alpine and montane forests; wildlife in Alberta forest ecosystems.

Unit 2: Forest Administration and Management in Alberta
(12 hours)

The role of the Lands and Forests Division, Alberta Environmental Protection; forestry legislation in Alberta; timber dispositions; integrated resource planning; annual allowable cut and sustained yield; management planning; annual operating plans; operating ground rules; timber harvesting; reforestation; forest protection.

Unit 3: Economic Activity in Alberta's Forests
(11 hours)

Overview of the Canadian and Alberta forest industries; introduction to pulp mill, saw mill and composite wood product technologies; other forests uses: recreation, watershed, wildlife, grazing, aesthetic, trapping, hunting and fishing.

Unit 4: Issues in Sustainable Forest Management
(8 hours)

Introduction to current issues in sustainable forest management including old growth forests, biological diversity, endangered species, alternatives to clearcutting and herbicide use.

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Course Text:

Kimmins, H. 1992. Balancing act: environmental issues in forestry

Evaluation of Student Competency

Unit 1: Unit test, including practical test of tree and plant identification. (20%)

Unit 2: Unit test on forest administration and management in Alberta. (20%)

Unit 3: Unit test on economic activities in Alberta forests. (20%)

Unit 4: Discussion paper, 10-15 typewritten pages, dealing with one issue in sustainable forest management. The paper must demonstrate background reading on the issue, an understanding of the issue, its application in Alberta forest management and proposed approaches to mitigating the issue. (40%)

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Course Timetable

1995

Fri. Sept. 8	No class
Mon. Sept. 11	Introduction and course overview
Wed. Sept. 13	Introduction to plant identification keys
Fri. Sept. 15	Tree identification: classroom introduction
Mon. Sept. 18	Field exercises in tree and plant identification: scheduled class times may be altered.
Wed. Sept. 20	
Fri. Sept. 22	
Mon. Sept. 25	Silvics of Alberta tree species: conifers
Wed. Sept. 27	Silvics of Alberta tree species: deciduous
Fri. Sept. 29	Ecological classification of forests
Mon. Oct. 2	Ecology of the boreal, sub-alpine and montane ecoregions
Wed. Oct. 4	
Fri. Oct. 6	
Mon. Oct. 9	No class - Thanksgiving
Wed. Oct. 11	Wildlife in Alberta forest ecosystems
Fri. Oct. 13	Unit 1 test
Mon. Oct. 16	Forest administration and legislation in Alberta
Wed. Oct. 18	Timber dispositions in Alberta
Fri. Oct. 20	Integrated resource planning
Mon. Oct. 23	Annual allowable cut and sustained yield
Wed. Oct. 25	Forest management planning
Fri. Oct. 27	Annual operating plans
Mon. Oct. 30	Operating ground rules
Wed. Nov. 1	Timber harvesting methods

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Fri. Nov. 3	Reforestation: responsibility and alternatives
Mon. Nov. 6	Reforestation: establishment and performance surveys
Wed. Nov. 8	Forest protection: insects, disease and fire
Fri. Nov. 10	Unit 2 test
Mon. Nov. 13	Overview of Alberta forest industry
Wed. Nov. 15	Pulp mill tour: one three-hour block will be arranged for a tour of the Weyerhaeuser pulp mill
Fri. Nov. 17	
Mon. Nov. 20	Composite wood products
Wed. Nov. 22	Saw mill tour: one three-hour block will be arranged for a tour of a local saw mill
Fri. Nov. 24	
Mon. Nov. 27	Other wood products
Wed. Nov. 29	Other forest uses
Fri. Dec. 1	Unit 3 test
Mon. Dec. 4	Issues in Sustainable Forest Management
Wed. Dec. 6	
Fri. Dec. 8	Biological diversity
Mon. Dec. 11	Old growth forests
Wed. Dec. 13	Endangered species management
Fri. Dec. 15	Herbicides
Mon. Dec. 18	Two-hour block: course review, final paper assignment; available for problems and questions.

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UNIT OUTLINES

UNIT 1: THE FOREST: COMPONENTS, STRUCTURE AND FUNCTION

1.1 Introduction and Course Overview

Competencies: The students will understand the structure of the course, the timetable, the topics and the evaluation procedures for the course. The students will understand the nature of the forestry profession, the career choices and the working conditions.

Time: 1 hour

Activities: Students and instructor introductions; lecture.

Resources: Course outline

1.2 Introduction to Plant Identification Keys

Competencies: The students will understand and be able to use dichotomous plant identification keys and other plant identification tools. Students will be familiar with the terminology used in these keys.

Time: 1 hour

Activities: Lecture.

Resources: Guide to the Common Native Trees and Shrubs of Alberta; Native Trees of Canada; Alberta Tree and Plant Identification Guide; Forest Flora; Wild Plants of the Canadian Prairies; Flora and Fauna of Alberta; plant materials.

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1.3 Tree Identification: Classroom Introduction

Competencies: The students will be familiar with the distinguishing characteristics of native Alberta tree species. The students will be introduced to the use of a map and compass for direction finding.

Time: 1 hour

Activities: Lecture and practical exercise using plant materials in classroom.

Resources: Native Trees of Alberta (poster); Guide to the Common Native Trees and Shrubs of Alberta; Native Trees of Canada; Alberta Tree and Plant Identification Guide; Forest Flora; Wild Plants of the Canadian Prairies; Flora and Fauna of Alberta. ; plant materials.

1.4 Field Exercises in Tree and Plant Identification

Competencies: The students will gain experience in identifying native trees and plants in the field.

Time: 3 hours. Regular class times may be altered to allow for longer blocks of time in the field.

Activities: Field identification of native trees and plants. The students will use map and compass to traverse an area while identifying trees and plants.

Resources: Native Trees of Alberta (poster); Guide to the Common Native Trees and Shrubs of Alberta; Native Trees of Canada; Alberta Tree and Plant Identification Guide; Forest Flora; Wild Plants of the Canadian Prairies; Flora and Fauna of Alberta; maps; compasses.

1.5 Silvics of Alberta Tree Species

Competencies: The students will be familiar with the silvics of the native Alberta tree species including site preferences, reproduction and life histories.

Time: 2 hours

Activities: Lecture

Resources: Native Trees of Canada; Silvics of Forest Trees of the United States; Ecology, Management, and Use of Aspen and Balsam Poplar in the Prairie Provinces; Aspen - Ecology and Management in the Western United States.

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1.6 Ecological Classification of Forests

Competencies: The students will be familiar with the concepts of ecological classification and different approaches to ecological classification in Alberta. The students will be familiar with the forested ecoregions of Alberta.

Time: 1 hour

Activities: Lecture

Resources: Ecoregions and Ecodistricts of Alberta; Field Guide to Forest Ecosystems of West-Central Alberta.

1.7 Ecology of the Boreal, Sub-alpine and Montane Ecoregions

Competencies: The students will have a basic understanding of the ecology of the forested ecoregions of Alberta including structure, function, succession, diversity and nutrient cycling.

Time: 3 hours

Activities: Lecture, movie.

Resources: Balancing Act, Chapters 1-4; Forest Ecosystems; Wildlife, Forests and Forestry; Boreal Forest (movie); various journal articles.

1.8 Wildlife in Alberta Forest Ecosystems

Competencies: The students will be familiar with the main feature species of Alberta forests, and the function of wildlife in forest ecology.

Time: 1 hour

Activities: Lecture

Resources: Flora and Fauna of Alberta

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1.9 Unit 1 Test

Competencies: To evaluate the students' knowledge of the Unit 1 materials.

Time: 1 hour

Activities: Written short answer test and practical identification of tree and plant materials.

UNIT 2: FOREST ADMINISTRATION AND MANAGEMENT IN ALBERTA

2.1 Forest Administration and Legislation In Alberta

Competencies: The students will be familiar with the structure and role of the Lands and Forests Division of Alberta Environmental Protection. The students will be familiar with the primary Alberta legislation regulating forest management.

Time: 1 hour

Activities: Guest lecturer from Alberta Lands and Forests.

Resources: Our Dynamic Forests, Chapter 2; Forest Management in Alberta; Alberta forestry legislation.

2.2 Timber Dispositions in Alberta

Competencies: The students will understand the nature of timber dispositions in Alberta including forest management agreements, quotas, licences, commercial timber permits and local timber permits.

Time: 1 hour

Activities: Lecture

Resources: Our Dynamic Forests, Chapter 2; Forest Management in Alberta.

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2.3 Integrated Resource Planning

Competencies: The students will have an understanding of the process of integrated resource planning in Alberta including the gathering of public input, balancing public desires and land allocation.

Time: 1 hour

Activities: Lecture

Resources: Balancing Act, Chapter 16; Our Dynamic Forests, Chapter 2; Forest Management in Alberta.

2.4 Annual Allowable Cut and Sustained Yield

Competencies: The students will be familiar with the concept of sustained timber yield and some of the techniques used to assess forest productivity and calculate annual allowable cut.

Time: 1 hour

Activities: Lecture

Resources: Balancing Act, Chapter 5

2.5 Forest Management Planning

Competencies: The students will be familiar with the considerations in forest management planning and the content of forest management plans in Alberta.

Time: 1 hour

Activities: Lecture

Resources: Sample forest management plan

2.6 Annual Operating Plans

Competencies: The students will be familiar with the process of preparing annual operating plans, the contents of the plans and the approval process in Alberta.

Time: 1 hour

Activities: Lecture

Resources: Sample annual operating plan

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2.7 Operating Ground Rules

Competencies: The students will be familiar with the process of developing Operating Ground Rules and the contents of generic Operating Ground Rules.

Time: 1 hour

Activities: Lecture

Resources: Alberta Timber Harvest Planning and Operating Ground Rules

2.8 Timber Harvesting Methods

Competencies: The students will be familiar with the principles and practice of alternate clearcutting in Alberta. The students will be familiar with alternatives to clearcutting.

Time: 1 hour

Activities: Lecture

Resources: Balancing Act, Chapter 6; Our Dynamic Forests, Chapter 3.

2.9 Reforestation

Competencies: The students will be familiar with the practice of reforestation in Alberta including responsibility, pre-harvest evaluation, site treatment alternatives, establishment survey and performance survey.

Time: 2 hours

Activities: Guest industry lecturer, possibly with field tour.

Resources: Balancing Act, Chapter 5; Our Dynamic Forests, Chapter 3; Alberta Regeneration Survey Manual

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2.10 Forest Protection

Competencies: The students will be familiar with the monitoring and protection of Alberta forests from fire, insects and disease.

Time: 1 hour

Activities: Guest lecturer from Alberta Lands and Forests

Resources:

2.11 Unit 2 Test

Competencies: To evaluate the students' knowledge of the Unit 2 materials.

Time: 1 hour

Activities: Written short answer test.

UNIT 3: ECONOMIC ACTIVITY IN ALBERTA'S FORESTS

3.1 Overview of Alberta Forest Industry

Competencies: The students will be familiar with the size, scope and nature of the forest industry in Alberta, and its position in world markets.

Time: 1 hour

Activities: Lecture

Resources: Our Dynamic Forests, Chapter 4; Directory of Primary Wood-Using Industries in Alberta; Directory of Secondary Wood-Using Industries in Alberta.

3.2 Pulp Mill Tour

Competencies: The students will be familiar with the operation of a bleached kraft pulp mill.

Time: 3 hours. Normal class times will be rescheduled for this tour.

Activities: Tour of Weyerhaeuser Canada Ltd. pulp mill.

Resources: Our Dynamic Forests, Chapter 5.

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3.3 Composite Wood Products

Competencies: The students will be familiar with the technology to produce composite wood products.

Time: 1 hour

Activities: Guest lecturer from Ainsworth Lumber Co. Ltd.

Resources:

3.4 Saw Mill Tour

Competencies: The students will be familiar with the operation of a modern saw mill.

Time: 3 hours. Normal class times will be rescheduled for this tour.

Activities: Tour of Weyerhaeuser Canada Ltd. or Canfor saw mill.

Resources:

3.5 Other Wood Products

Competencies: The students will be familiar with the technologies to produce other wood products in Alberta including CTMP pulp, newsprint; plywood, shakes and other products.

Time: 1 hour

Activities: Lecture

Resources: Directory of Primary Wood-Using Industries in Alberta; Directory of Secondary Wood-Using Industries in Alberta.

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3.6 Other Forest Uses

Competencies: The students will be familiar with the nature and scope of other economic activities occurring in Alberta's forests including recreation, watershed values, wildlife, grazing, aesthetic values, trapping, hunting and fishing.

Time: 1 hour

Activities: Lecture

Resources: Our Dynamic Forests, Chapter 5; The Forest Land Use Workshop

3.7 Unit 3 Test

Competencies: To evaluate the students' knowledge of the Unit 3 materials.

Time: 1 hour

Activities: Written short answer test.

UNIT 4: ISSUES IN SUSTAINABLE FOREST MANAGEMENT

4.1 Introduction to Issues in Sustainable Forest Management

Competencies: The students will be familiar with the range of issues related to sustainable forest management in western Canada.

Time: 2 hours

Activities: Videos dealing with issues.

Resources: A New Leaf - Real Sustainability for the Boreal Forest (video); Boreal Forest Issues (video); Balancing Act, Chapter 11; Our Dynamic Forests, Chapter 7.

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4.2 Biological Diversity

Competencies: The students will be familiar with the concepts of biological diversity as applied to Alberta forests including species, genetic, alpha and beta diversity.

Time: 1 hour

Activities: Lecture

Resources: Balancing Act, Chapter 10; various journal articles.

4.3 Old Growth Forests

Competencies: The students will be familiar with definitions of old growth, the issues around old growth management and alternatives for managing for old growth.

Time: 1 hour

Activities: Lecture

Resources: Balancing Act, Chapter 9; various journal articles.

4.4 Endangered Species Management

Competencies: The students will be familiar with the role of habitat management in the management of endangered and featured species. Particular reference will be made to spotted owls in the northwestern United States and woodland caribou in Alberta.

Time: 1 hour

Activities: Lecture and video

Resources: The Owl and the Timberman (video)

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4.5 Herbicides

Competencies: The students will be familiar with the role of herbicides in forest management and the issues surrounding herbicide use.

Time: 1 hour

Activities: Lecture

Resources: Balancing Act, Chapter 8

4.6 Course Review and Final Discussion Paper

Competencies: The students will have an opportunity to review any topics related to the course. The discussion paper will evaluate the students' understanding of sustainable forest management issues.

Time: 2 hours

Activities: The students may raise any questions related to the course content. The students will prepare a discussion paper on a topic related to the sustainable management of forests. The discussion papers should demonstrate that the student has done background reading on the topic, that the student understands the issue and its application to forest management in Alberta, and that the student demonstrates a knowledge of the course content in suggesting approaches to dealing with the issue. The paper should be typewritten, double-spaced, 10-15 pages in length.

Resources: