

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: ENVIRONMENTAL STUDIES I

CODE NO.: FOR 123-3 SEMESTER: 2

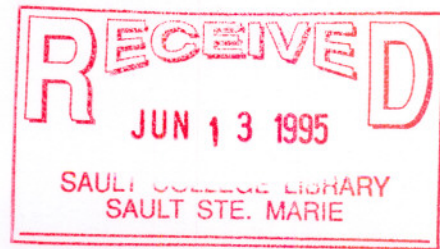
PROGRAM: FORESTRY TECHNICIAN, RENEWABLE RESOURCE TECHNICIAN,
PARKS & OUTDOOR RECREATION TECHNICIAN,
FISH & WILDLIFE TECHNICIAN

DATE: JUNE 1995 PREVIOUS OUTLINE DATED: DECEMBER 1993

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APPROVED: R Cook / sp
DEAN

June 8, 1995
DATE



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TOTAL CREDIT HOURS: 48

PREREQUISITE(S):

I. PHILOSOPHY/GOALS:

This is a study of the environment from the biological point of view. It will include the identification and the ecological relationships of forest flora (including mosses, lichens, ferns, and aquatic plants) and fauna (including fish, waterfowl, birds, and mammals) of Ontario. Natural history and cultural importance of selected species will be discussed.

II. STUDENT PERFORMANCE OBJECTIVES:

Upon successful completion of this course, the student will:

1. Identify ground flora including common lichens, mosses, club mosses, horsetails, ferns and aquatic plants and state their significance and typical habitats.
2. Identify common fauna of Ontario including aquatic invertebrates, fish, waterfowl, birds and mammals.
3. Briefly state the ecological values and habitats of the above species.

III. TOPICS TO BE COVERED:

1. Club mosses, Lichens and Horsetails
2. Mosses and Liverworts
3. Ferns
4. Aquatic Plants
5. Aquatic Invertebrates
6. Freshwater Fish
7. Waterfowl
8. Songbirds, Shorebirds, Gamebirds and Raptors
9. Mammals
10. Native Herbage and Traditional Use of Plants

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IV. LEARNING ACTIVITIES:

TOPIC 1: Freshwater Fish

Upon successful completion of this unit, the student will be able to:

1. Identify about 30 species of common freshwater fishes.
2. Construct a chart with the common fish species showing habitat, spawning characteristics and value.

"McClane's Field Guide to F.W. Fish"

Video

TOPIC 2: Club Mosses, Lichen and Horsetails

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

1. Briefly explain the life cycles of club mosses and horsetails.
2. Identify 5 species of club mosses.
3. Classify lichen by growth form and identify 6 species to genus level.

E.B. Study Guide

TOPIC 3: Mosses and Liverworts

Upon successful completion of this unit, the student will be able to:

1. Discuss the life cycle of moss and liverworts.
2. Identify 10 to 12 mosses and liverworts of Northern Ontario, and relate these mosses to their sites.
3. Discuss the role and potential value of Sphagnum moss.

E.B. Study Guide

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IV. LEARNING ACTIVITIES: (cont'd)

TOPIC 4: Ferns

Upon successful completion of this unit, the student will be able to:

1. Identify 14 species of ferns and describe their sites. "Fern Finder" field guide
~~E.B. Study Guide~~ E.B. Study Guide
2. Use a moderately complex key to identify ferns without use of a glossary.
3. Draw and label the life cycle of a fern.

TOPIC 5: Aquatic Plants

Upon successful completion of this unit, the student will be able to:

1. Distinguish between the grass, sedge and rush families. E.B. Study Guide
Video
2. Identify 35 common aquatic plants and relate these plants to habitat and importance.

TOPIC 6: Aquatic Invertebrates

Upon successful completion of this unit, the student will be able to:

1. Identify 25 aquatic invertebrates. E.B. Study Guide
2. Associate these invertebrates with their preferred sites and ecological roles. Video



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IV. LEARNING ACTIVITIES: (cont'd)

TOPIC 7: Waterfowl

Upon successful completion of this unit, the student will be able to:

1. List 5 features that distinguish between puddle ducks and diving ducks.
2. Identify 24 specimens of waterfowl.
3. Describe the location and principal birds of the four North American flyways.
4. Distinguish between breeding plumage and eclipse plumage.

E.B. Study Guide

"Ducks at a Distance" or other field guide

Video

TOPIC 8: Songbirds, Shorebirds, Game Birds and Raptors

Upon successful completion of this unit, the student will be able to:

1. Identify field features of about 50 species of birds found in Northern Ontario.
2. Distinguish between game birds and non-game birds.
3. Compare buteos, accipiters and falcons.

Field Guide to Eastern Birds

Video

TOPIC 9: Mammals

Upon successful completion of this unit, the student will be able to:

1. State examples and characteristics of the major orders of mammals.
2. Identify about 35 species of mammals from 35 mm slides and study mounts.
3. State the preferred habitats of common Ontario mammals.

E.B. Study Guide

Field Guide to the Mammals

Video

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IV. LEARNING ACTIVITIES: (cont'd)

TOPIC 10: Native Herbalogy

Upon successful completion of this unit, the student will be able to:

1. Demonstrate an understanding of traditional native uses of plants used for food or medicinal purposes from your area.
2. Identify approximately 15 plants that are considered edible or of medicinal value.

V. EVALUATION METHODS:

TEST #1	Fishes, Lichens, Club Mosses, Mosses	25%
TEST #2	Ferns, Aquatic Invertebrates	20%
TEST #3	Waterfowl, Aquatic Plants	25%
TEST #4	Birds, Mammals	20%
ASSIGNMENTS		10%
<u>GRADES</u> - A+ = 90%+ A = 80%-84%+ B = 70%-79% C = 60%-69%		

Rewrites:

Students with an overall average of less than 60%, and who have failed only one test may have an opportunity to rewrite that one test.

Students who have not passed two or more tests will be required to rewrite the entire course.

To be eligible for a rewrite, average mark must be at least 55% and attendance must be satisfactory.

VI. REQUIRED STUDENT RESOURCES:

Environmental Biology Study Guide

Hinds, Bob. Ducks at a Distance, Can. Govt. Publishing Centre, Hull, PQ

Suggested References:

- Field Guides for: Eastern Birds
Mammals
McClanes Field Guide to F.W. Fishes of North America

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**VII. ADDITIONAL RESOURCE MATERIALS AVAILABLE IN THE COLLEGE LIBRARY
BOOK SECTION:**

Banfield A.W.F. Mammals of Canada. National Mus. of Nat. Sciences
Tor. 1974 QL721.B215

Godfrey E. Birds of Canada. National Museum of Natural Sciences 1986
QL685.G63

Hotchkiss N. Common Marsh Underwater & Floating-leaved Plant. Dover
Pub. NY NY 1972 QK115.H6

Magee, D.E. 1981. Freshwater Wetlands. Univ. of Mass. press.
QK117.M24

Needham, J.G. 1962. Freshwater Biology. Holden-Day Inc., California
108pp. QH96.N38

Pennak, R.W. 1953. Fresh-Water Invertebrates of the United States.
Ronald Press Co., N.Y. QL141.P45

Scott, W.B., Crossman, E.J. 1973. Freshwater Fishes of Canada.
Information Canada. 966pp. QL626.S34

VIII. SPECIAL NOTES:

Hard hats must be worn on field trips.

Students with special needs (e.g. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.