

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: WATERSHED MANAGEMENT

CODE NO.: FOR 318-4 **SEMESTER:** 6

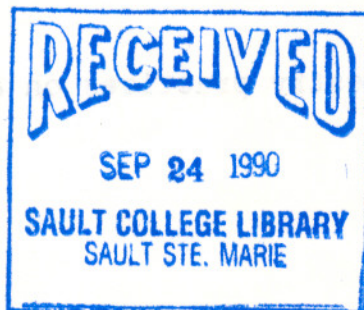
PROGRAM: FISH & WILDLIFE/FOREST MANAGEMENT/PARKS & FOREST REC.

AUTHOR: VALERIE WALKER

DATE: SEPTEMBER 1990 **PREVIOUS OUTLINE DATED:** JAN 1990

APPROVED: *[Signature]* **DATE** Sept 21/90.

DEAN



WATERSHED MANAGEMENT

FOR 318

COURSE NAME

COURSE NUMBER

TOTAL CREDIT HOURS: 48

PREREQUISITE(S): None

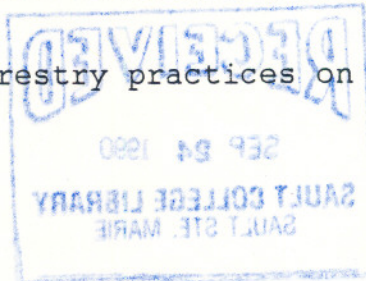
I. PHILOSOPHY/GOALS:

A practical course designed for field personnel to provide information on water management and methods to assist in minimizing erosion and sedimentation on land undergoing development.

II. STUDENT PERFORMANCE OBJECTIVES:

Upon successful completion of this course the student will:

1. Describe the physical & chemical stratification of standing surface water.
2. Describe lake productivity and its various categories.
3. Describe the mechanics of wind action, waves and seiches.
4. Describe the physics of stream flow and its measurement.
5. Describe a basic run-off equation and the factors involved in its determination.
6. Discuss techniques for the control of run-off in watersheds; their advantages, disadvantages and actual construction.
7. Discuss the environmental requirements of fish and various invertebrate species as well as their use as biological indicators of water quality.
8. Describe various types of shore protection devices; how they work, guidelines for their construction and the legal considerations of implementation.
9. Describe methods of erosion control and fish habitat improvement in streams.
10. Discuss the impact of forestry practices on aquatic environments.



WATERSHED MANAGEMENT

FOR 318

COURSE NAME

COURSE NUMBER

III. TOPICS TO BE COVERED:

UNIT #1 Important Physical Properties of Water Affecting Management

- density relationships
- thermal and oxygen stratification
- zonation of lakes and productivity
- wind action, waves and seiches

Assignment 1 - Lake Productivity

- temperate streams
- river meanders, particle movement
- measuring streamflow

Assignment 2 - Cottage Country

UNIT #2 Control of Runoff in Watersheds

- basic run-off equation
- control of run-off by proper management practices
- role of natural and artificial impoundments

Assignment 3 - Role of Beavers in Watersheds

- farm ponds

UNIT TEST #1

UNIT #3 The Aquatic Community and its Habitat

- environmental requirements of fish
- invertebrates and their biological requirements
- biological indicator species

Assignment 4 - Biological Indicators

UNIT #4 Shore Processes and Shore Protection

- shore features and processes
- shore protection; devices and guidelines
- legalities of shoreline development

Field trip - Shoreline Protection

Assignment 5

UNIT TEST 2

WATERSHED MANAGEMENT

FOR 318

COURSE NAME

COURSE NUMBER

III. TOPICS TO BE COVERED: (cont')

UNIT # 5 Stream Improvement Measures

- problem situations in streams
- erosion control
- stream improvement

UNIT # 6 Forestry Practices and Watershed Management

- effects of harvesting on aquatic environments
- proper logging practices to minimize effects
- forestry chemicals and their effects on aquatic life
- construction of resource roads to minimize aquatic effects

Assignment 6 - Resource Road Construction Guidelines

UNIT TEST 3

IV. EVALUATION METHODS:

Unit Tests (3) 45%

Assignments (5) 45%

A total of three unit tests based on lecture material will be written at the completion of units 2, 4 and 6 and, will account for 45% of the course work.

A series of six assignments will be handed in, valued at 45%. All assignments must be handed in to pass the course though marks for only the best 5 will be calculated in the final grade. Quizzes and in-class assignments will be worth 10%.

Reports are due two weeks after assigned; a total of 10% will be deducted for every day late. Reports submitted after 1 week after the due date will receive 0.

Marks are cumulative and 60% is considered a pass. If a final grade of less than 60% but greater than 55% is received, a test based on the entire course material may be written during the rewrite period.

WATERSHED MANAGEMENT

FOR318

COURSE NAME

COURSE NUMBER

V. REQUIRED STUDENT RESOURCES:

Watershed Management Lab Manual; 1990 edition.

VI. SPECIAL NOTES

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.

