


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

COURSE OUTLINE

Course Title: WATERSHED MANAGEMENT
Code No.: FOR 318-4
Program: Forest Technology Programs
Semester: V
Date: September 1987
Author: R. Currell

New: _____ Revision: X

APPROVED:


Chairperson Sept 2/87
Date

CALENDAR DESCRIPTION

Watershed Management
Course Name

FOR 318-4
Course Number

PHILOSOPHY/GOALS:

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

METHOD OF ASSESSMENT (GRADING METHOD):

Unit Tests (3)	50%
Assignments (6)	50%

A total of three unit tests based on lecture material will be written at the completion of units 2, 4 and 7 and will account for 50% of the course mark.

A series of 6 assignments will be handed in, valued at 50%.

All assignments must be handed in to pass the course though marks for only the best 5 will be calculated in the final grade.

Reports are due 2 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% is received, a test based on the entire course material will be written during the rewrite period.

TEXTBOOK(S):

Stream Enhancement Guide, 1980, Fisheries and Oceans and Ministry of the Environment, Province of British Columbia suggested:

Great Lakes Shore Processes and Shore Protection, 1981,

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
- temperate streams
- river meanders and particle movement

Assignment 1 - Lake Productivity

Unit 2 Control of Runoff in Watersheds

- Basic run-off equation
- control of run-off by vegetation and proper management practices
- role of natural and artificial impoundments, reservoirs and ponds
- construction of impoundments and ponds for private watersheds

Assignment 2 - Role of Beavers in watersheds

Unit test 1

Unit 3 The Aquatic Community and its Habitat

- invertebrates and key vertebrates and their biological requirements to survive
- biological indicator species

Assignment 3 - Biological indicators (W. Davignon Creek)

Unit 4 Shore Processes and Shore Protection

- shore features and processes
- shore protection; criteria and guidelines
- legalities of shore protection devices

Assignment 4 - Report on Shore Processes and shoreline Protection Measures

Unit test 2

Unit 5 Forestry Practices and Watershed Management

- Types of logging practices
- effects of logging on aquatic environments
- proper logging practices to minimize damage
- construction of resource roads, stream crossings and culvert installation

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GRADING

<60%.....	R
60 - 69%.....	C
70 - 79%.....	B
80%.....	A

TECHNICAL REPORT FORMAT

Technical reports will be brief and concise and complete with diagrams/fig and tables wherever possible. Figures will be neat, labelled by hand - lettering and done entirely in black ink.

Length of report will be a maximum of 4 pages (not including title page and reference list) and will be typed or neatly printed.

Technical reports will include:

1. title page
2. abstract/summary
3. introduction
4. procedure
5. results
6. calculations (if applicable)
7. discussion and conclusion
8. appendices (if applicable)
9. reference list using the author - year system
(see reference list in this handout)

N.B. FOOTNOTES ARE NOT ACCEPTABLE IN SCIENTIFIC TECHNICAL REPORTS

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SCIENTIFIC REPORT WRITING

General

- type on standard sized typing paper
- leave margins at least 1" at each side for instructor's comments
- double space
- be brief and concise
- underline all scientific names
- verify all literature citations, do not use quotes or footnotes
- do not use I, me, you, we, our, etc.

All reports should include the following components:

1. Title - brief but specific, denoting contents of paper
2. Abstract - a very brief description of the study, important findings and conclusions (in some reports a Summary may be placed at the end of the report instead)
3. Introduction - justification, intent of the study (WHY?)
 - related studies may be included
 - a description of the study area and time of the study
 - a figure denoting the location of the study area should be included and cited eg. "The study area consists of two 100-meter stretches of the West Davignon Creek (see Fig. 1)."
4. Procedure - include methods of study (how was the study conducted)
 - materials used.
5. Results - a presentation of results, and only results, in an organized format
 - include tables and figures, properly numbered and entitled.

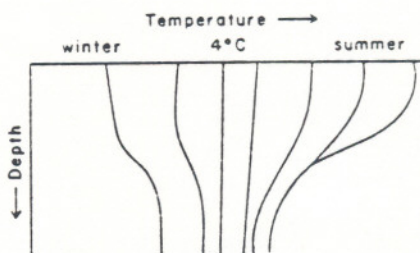


Figure 3.6 Temperature profiles in a hypothetical freshwater lake in a temperate climate from the end of summer (right-hand side) until the end of winter (left-hand side).

Table 10.3 DDT Residues in Anchovies
Taken Off the Southern California Coast

Year	Total DDT Residues in Anchovies (ppm. fresh weight)
1969	4.27
1970	1.40
1971	1.34
1972	1.12
1973	0.29
1974	0.15

Source: Anderson et al. (1975).

- no paragraphs or sentences, tables and figures only

6. Calculations (may not apply in some reports)

- one example of each different calculation used in presenting the results should appear in this section. Subsequent work using the same calculations should appear in the Appendix. Hence, with the exception of one example calculation, all calculations used to generate data in tables must be shown in the Appendix.

7. Discussion and Conclusions

- results are interpreted and discussed
- other literature may be used for comparison and verification
- refer to data (results) using table and figure numbers eg. "A predominance of Class I organisms is evident at the stream station as indicated in Table 3."
- any questions posed at the end of the field exercise should be answered in this section
- there are several acceptable methods of citing references using the author's last name and the date of publication only. e.g., According to Saunders (1972), the principal component of lake trout stomach samples (n=785) in Round Lake prior to 1965 was lake herring (Coregonus artedii) 72% by volume. Data from this study, however, indicate rainbow smelt (Osmerus mordax) as the dominant food item in 525 lake trout sampled, averaging 97% of stomach content by volume (Figures 1 and 2). This change in forage species preference is attributed to the introduction of rainbow smelt in 1969 (Wilson, 1971).

(Note the placement of the period)

FOOTNOTES ARE NOT ACCEPTABLE

QUOTES ARE NOT ACCEPTABLE

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8. Appendix - present calculations for all values appearing in tables.
9. Reference - presented on a separate page at end of report,
i.e., 1) For paper presented in a journal:

Mason, C.F. and R. J. Bryant. 1974. The structure and diversity of the animal communities in a broad land reed-swamp, J. Zool., 172, 289-309.

1 1
issue no. page reference

2) For book references:

Hynes, H. B. N., 1970. The Ecology of Running Waters
Liverpool University Press, Liverpool.

MAJOR DO'S AND DON'TS

1. Don't use first person in report text, i.e., I, we, our.
2. Do refer to tables and figures by number. Be sure all tables and figure in Results are numbered and entitled.
3. Use correct citation of references.
4. Do not use quotes.
5. Scientific names of species need only appear once in text of report. They are placed in brackets and underlined after the common name of the species appears for the first time.

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REPORT MARKING - ONE REPORT SUBMITTED PER TWO STUDENTS

SECTION	MARK	MARKING BASED ON
1. Abstract/Summary	1	Conciseness; completeness
2. Introduction	1	Conciseness; completeness
3. Procedure	1	Conciseness; completeness
4. Results	2	Organization; labels, number on tables, figures; neatness; correctness
5. Calculations	1 (if applicable)	Correctness, completeness
6. Discussion	4 (or 5 if calculations not applicable)	Conciseness; organization; reference material used and cite completeness
TOTAL 10		
7. Appendix	minus 1 mark if absent or incorrect	
8. References	minus 1 mark if absent or incorrect	