

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: AQUATIC BIOLOGY

CODE NO.: BIO 125-4 SEMESTER: I

PROGRAM: WATER RESOURCES/ENVIRONMENTAL ENGINEERING

AUTHOR: H. A. COOPER

DATE: MAY 1991 PREVIOUS OUTLINE DATED: MARCH 1990

APPROVED:  
BEAN DATE

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I. PHILOSOPHY/GOALS:

This course will introduce the student to the diversity of micro and macroscopic life around and in the aquatic environment. Students will learn to identify major species of microorganisms, plants and animals that are indicators of water quality (that are in) or important to aquatic habitats. Biological and microbiological procedures for examining organisms, their structures and adaptations will be emphasized in laboratory sessions.

II. STUDENT PERFORMANCE OBJECTIVES:

Upon successful completion of this course the student will:

1. Describe the 9 major characteristics of living things.
2. Discuss classification methods and procedure.
3. Distinguish between procaryotic and eucaryotic cell types and their structures.
4. Demonstrate proper microtechnique and knowledge of macro- and micro-biological procedures.
5. Discuss characteristics of viruses, blue-green and bacteria common in aquatic habitats.
6. Compare life cycles and importance of single-celled algae and protozoa.
7. Identify the characteristics and importance of green algae.
8. Discuss importance and identifying features of aquatic plants and riparian vegetation.
9. Discuss the importance of fungi in the aquatic environment.
10. Describe the sequence of development from lower to higher animal life.
11. Describe and identify various important crustacea and insecta.
12. Discuss the features of the aquatic chordates.

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III. TOPICS TO BE COVERED:

1. Fundamentals of Biology.
2. Cell Structure and function.
3. Viruses and primitive life forms.
4. Single-celled organism: Non-green algae and protozoa.
5. Green Algae.
6. Higher Plants in Aquatic Habitats (Aquatic Plants).
7. Higher Plants in terrestrial Habitats (Riparian Vegetation).
8. Fungi
9. Lower animal life - Simple Invertebrates
10. Higher invertebrates - Arthropods.
11. Aquatic Chordates.

IV. EVALUATION METHODS:

Laboratory assignments/Field collections	- 30%
Term tests based on theory material and specimen identification	- 70%
	100%

Grading:

A+=	90% and over consistently
A =	80 - 84% consistently
B =	70 - 79% consistently
C =	60 - 69% consistently

A passing grade will be based on a composite grade of 60%. For students that attain less than 60%, but over 55% overall, ONE rewrite exam may be allowed providing that attendance and demonstrated effort are satisfactory.

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IV. EVALUATION METHODS: (cont'd)

Attendance is required to each lab, and all sketches or lab reports must be submitted. Any session that is missed will be made up on the student's own time.

V. REQUIRED RESOURCES:

Aquatic Biology Course workbook.

Needham, J.G., and P.R. Needham, 1962, A Guide to the Study of Freshwater Biology, Holden-Day Inc., San Francisco, 108 p.

Lab Manual

Lab manual for Aquatic Biology (BIO125) - Bookstore

Other Materials

Dissecting Kit
Laboratory Coat (suggested)
Plain unlined paper
Variety of pencils, eraser, pens

VI. ADDITIONAL RESOURCE MATERIAL:

There will be no assigned text for the course because of the diversity of topics covered. However, the following books will be useful for students to consult for review:

1. Hosie, R.C., 1973, Native Trees of Canada, Can. Dept. of Environment, Ottawa, 380 p.
2. McKane, L. and J. Kandel, 1985. Microbiology - Essentials and Applications. McGraw-Hill Book Co., N.Y., 777 p.

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VI. ADDITIONAL RESOURCE MATERIAL: (cont'd)

3. Anon, n.d., Manual of Ontario Aquatic Plants, draft copy, Ontario Ministry of Natural Resources, Toronto, 80 p.
4. Any Basic college-level Biology text.
5. Slide sets for self-study of specimens (from instructor on sign-out basis).
6. Any Fish Identification book.

VII. 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.