SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE MARIE, ON

COURSE OUTLINE

Course Title: INTRODUCTION TO FISHERIES

Code No.: FOR238 **Semester:** IV

Program: FISH & WILDLIFE TECHNICIAN

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Date: JAN 98 **Previous Outline Date:** JULY 97

Approved: January 19, 1998
Dean, Natural Resources Programs — Date

Total Credits: 3 **Prerequisite(s):**
Length of Course: 3 hrs/week **Total Credit Hours:** 48

INTRODUCTION TO FISHERIES — COURSE NAME

FOR 238 3 — CODE NO.

I. COURSE DESCRIPTION:

- **This course helps students to develop skills in the identification and classification of fishes. Fundamental aspects of anatomy, physiology, ecology and natural history of fishes of the Great Lakes Region will be considered. Emphasis will also be placed on Ontario's management strategies for important sports and commercial species. Lab sessions will provide experience in microscope and key use in fish identification as well as in the collecting and recording of fish vital statistics and the preparation of fish aging structures.**

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

(Generic Skills Learning Outcomes placement on the course outline will be determined and communicated at a later date.)

A. Learning Outcomes:

1) Identify freshwater fishes from the Great Lakes basin to the family, genus and species level based on taxonomic characteristics.
2) Demonstrate an understanding of the morphological and physiological adaptations of freshwater fishes to the aquatic ecosystem
3) Outline the biology and management of Ontario's important sport and commercial fish species.
4) Using appropriate equipment and technique, collect, measure, remove, prepare and interpret structures or vital statistics taken from fish.

B) Learning Outcomes and Elements Of The Performance:

Upon successful completion of this course the student will demonstrate the ability to:

1) Identify freshwater fishes from the Great Lakes basin to the family, genus and species level based on taxonomic characteristics.

Potential Elements of the Performance:

- correctly identify both external and internal anatomical structures of a fish
- correctly demonstrate the use of meristics and morphometrics in fish classification
- recognize common fish families given key characteristics
- list the major fish orders and their associated families with species representatives for each family
- demonstrate effective use of a bifurcated (dichotomous) fish key
- identify to species Ontario's important sports and commercial fishes

B) Learning Outcomes and Elements Of The Performance: (continued)

2) Demonstrate an understanding of the morphological and physiological adaptations of freshwater fishes to the aquatic ecosytem.

Potential Elements of the Performance:

- discuss the relative proportions of marine versus freshwater species as well as the significance of fish relative to other vertebrates.
- explain the characteristics of water and its influence on fish design
- list the six (6) basic fish body shapes and key features for each
- discuss the various reproductive strategies of fish and their relative success.
- list the various fish scale shapes and structures and discuss the distinguishing features for each
- identify and discuss the function of external/internal structures and basic physiology of a generalized fish.
- differentiate between anadromous and catadromous fishes, giving examples of each.

3) Outline the biology and management of Ontario's important sport and commercial fish species.

Potential Elements of the Performance:

- discuss fish development from egg to adult
- demonstrate an understanding of terminology specific to the salmon family.
- summarize the biology of an Ontario fish species based on classification, range, description, habitat, food habits, reproduction and importance.
- outline the life cycle and discuss the importance of common fish parasites in Ontario.
- discuss the role of fisheries as a reflection of the health of the environment.
- state the goal and strategic management actions of the strategic plan for Ontario fisheries.
- outline and discuss the three (3) general approaches to fisheries management.
- list and briefly discuss five methods of fisheries habitat enhancement.
- describe a typical fish culture operation.
- list and explain various management prescriptions to reduce the harvest of a given fishery
- explain the principal objectives and operational units of the Department of Fisheries, Sea Lamprey Control.
- Review statistical components of a creel survey and conduct angler interviews as well as process field data for a roving creel survey.

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B) LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE (Continued)

4) and Using appropriate equipment and technique, collect, measure, remove, prepare interpret structures or vital statistics taken from fish.

Potential Elements of the Performance:

- correctly remove fish scales, spines, fin rays and otoliths for aging purposes.
- roll fish scale to make scale impressions on acetate slides
- section fish spines and fin rays for age determination
- prepare otoliths for aging
- correctly determine fish length, weight and sex and record using standard equipment and record forms
- identify common external and internal fish parasites

III. TOPICS:

1) **Introduction to Ichthyology**
2) **Fish Ecology**
3) **Classification of Fishes**
4) **Fish Biology**
5) **Fish Aging and Growth**
6) **Introduction to Fisheries Management**

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

1) **Introduction to Fisheries (FOR 238) Study Guide, Sault College of Applied Arts & Technology, Sault Ste. Marie.**
2) **Introduction to Fisheries (FOR 238) Lab Manual, Sault College**
3) **How to know the Freshwater Fishes 1978 Eddy, Samuel & James C. Underhill Wm. C. Brown Publishers**

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V. EVALUATION PROCESS/GRADING SYSTEM

Unit Tests	**40%**
Lab tests/Assignments	**45%**
Small Fish Collection	**15%**
	100%

Lab assignments and report values will be reduced at a rate of 10% per day for late submissions for a period of 5 days after the due date. After 5 days and lab assignment/report value will be zero. All labs/assignments and reports must be submitted regardless of lateness to pass the course.

Method of Assessment (Grading Method) The following letter grade will be assigned:

A+	**Consistently outstanding**	**(90% - 100%)**
A	**Outstanding achievement**	**(80% - 89%)**
B	**Consistently above average achievement**	**(70% - 79%)**
C	**Satisfactory or acceptable achievement in all areas subject to assessment**	**(60% - 69%)**
R	**Repeat -- The student has not achieved the objectives of the course and the course must be repeated.**	**(Less than 60%)**

CR **Credit exemption**

X **A temporary grade, limited to situations with extenuating circumstances, giving a student additional time to complete course requirements.**

NOTE: Students may be assigned an "R" grade early in the course for unsatisfactory performance.

VI. SPECIAL NOTES:

- **Special Needs**

  If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, learning disabilities), you are encouraged to discuss required accommodations with the instructor and/or contact the Special Needs Office, Room E1204, Ext. 493, 717, 491 so that support services can be arranged for you.

- **Plagiarism**

  Students should refer to the definition of "academic dishonesty" in the "Statement of Student Rights and Responsibilities."

  Students who engage in "academic dishonesty" will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course, as may be decided by the Professor.

  In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.