SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: ICHTHYOLOGY

CODE NO. :   NRT 228   **SEMESTER:**   3

PROGRAM: FISH & WILDLIFE CONSERVATION

AUTHOR: V. Walker (Updated By R. Namespetra)

DATE: May 2013   **PREVIOUS OUTLINE DATED:**   SEPT 2008

APPROVED: "C.Kirkwood"

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                          DEAN   **DATE**

TOTAL CREDITS: 3

PREREQUISITE(S):   NONE

HOURS/WEEK: 3

ICHTHYOLOGY   NRT 228
COURSE NAME   **CODE NO.**

I.   COURSE DESCRIPTION:

This course concentrates on fundamental aspects of anatomy, physiology, ecology and natural history of fishes of the Great Lakes Region. Lab sessions will develop skills in the identification and classification of freshwater fishes as well as in the identification of their common parasites.

II.   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.**
     Use important body parts to determine the age of fish.

     Potential Elements of the Performance:
     1st Lab Test
     - 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

     2nd Lab test
     - identify to species Ontario's important sports and commercial fishes
     - correctly identify to species juvenile Salmonids and larval Lamprey found in Ontario
     - Using scales, otoliths, and fin ray sections document the aging technique and age fish

     This learning outcome will constitute approximately 40% of the course.

2. **Demonstrate an understanding of the morphological and physiological adaptations of freshwater fishes to the aquatic environment.**

    Potential Elements of the Performance:
    1st Theory Test
    - 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 function of external/internal structures and basic physiology of a generalized fish including respiration, circulation, buoyancy and thermal regulation, osmoregulation, growth, nervous and endocrine systems and reproduction
    - differentiate between anadromous and catadromous fishes, giving examples of each
    - discuss the various reproductive strategies of fish and their relative success

    This learning outcome will constitute approximately 25% of the course.

3. **Outline the biology and ecology of selected freshwater fishes of Ontario.**

    Potential Elements of the Performance:
    2nd Theory Test
    - discuss the stages of fish development from egg to adult
    - demonstrate an understanding of terminology specific to the salmon family and to the lamprey family
    - summarize the biology of significant Ontario fish species based on classification, range, description, habitat, food habits, reproduction and importance.
    - outline the life cycle and discuss the importance of common parasites in Ontario
    - list the various fish aging structures and discuss the distinguishing features and advantages for each

    This learning outcome will constitute approximately 35% of the course.

III.   TOPICS:

1.   Fish classification and identification.
2.   Internal and External Anatomy of Fishes
3.   Fish Ecology/Physiology
4.   Fish Biology
5.   Fish Aging

IV.   REQUIRED RESOURCES/ TEXTS/ MATERIALS:

Texts:

☐ Holm, E, N. Mandrak and M. Burridge. 2010. The ROM Field Guide to Freshwater Fishes of Ontario. Altona, Manitoba, Friesens Printers462 pp.

☐ Scott, W.B. and E.J. Crossman.1998. Freshwater Fishes of Canada. Oakville, Gate House Publications Ltd.966 pp.

Supplies:

☐ Lab coat
☐ Dissecting Kit

V.   EVALUATION PROCESS/GRADING SYSTEM:

Exams	**40%**
Lab tests	**30%**
Fish Biology Assignment	**5%**
Physiology Presentation	**10%**
Participation	**15%**
	100%

Lab assignments and report values will be reduced at a rate of 10% per day for late submissions for a period of 10 days after the due date. After 10 days lab assignment/report value will be zero.

All labs and assignments must be submitted regardless of lateness to pass the course. Labs and/or tests missed without documented health or personal reasons will be valued at zero.

The following semester grades will be assigned to students:

Grade	Definition	Grade Point Equivalent
A+	90 – 100%	4.00
A	80 – 89%	
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00

CR (Credit)	Credit for diploma requirements has been awarded.
S	Satisfactory achievement in field /clinical placement or non-graded subject area.
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

VI.   SPECIAL NOTES:

Attendance:
Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

VII.   COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline