

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE

COURSE TITLE: WETLAND CONSERVATION
CODE NO. : NET210 **SEMESTER:** 3
PROGRAM: NATURAL ENVIRONMENT TECHNICIAN/TECHNOLOGIST
FISH & WILDLIFE CONSERVATION
AUTHOR: T. WINTER (Revised by C. Marcinkowski)
DATE: AUG 2013 **PREVIOUS OUTLINE DATED:** JUN 2012
APPROVED: "C. KIRKWOOD"

DEAN **DATE**

TOTAL CREDITS: 3
PREREQUISITE(S): NONE
HOURS/WEEK: 3

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For additional information, please contact Colin Kirkwood; Dean, Environment/Design/Business, School of Environment, Technology, Business (705) 759-2554, Ext. 2688

I. COURSE DESCRIPTION:

This course provides the biological background for conservation and management of wetland habitats, emphasizing aquatic community component identification, biology and structure. Students will learn how to identify many types of wetlands and categorize them based on their structure. Means by which wetlands are afforded protection will be explored, including conservation limitations, and enhancement to optimize recreational, social, aesthetic and economic values. Steps in the Ontario wetland evaluation process will be completed through both in-field and in-class activities.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Compare the classes of wetlands in Canada, and the ecological characteristics of each class.

Potential Elements of the Performance:

- Research the classes of wetlands from reference material.
- Identify wetland types and summarize characteristics of each.
- Describe the values wetlands have and the major reasons for wetland loss.
- Identify wildlife habitat enhancement features including nesting structures for marsh birds.
- Review waterfowl ecology and management and discuss the role wetlands play in their conservation.

2. Identify and discuss the role of biological components of wetlands including indicator species.

Potential Elements of the Performance:

- Using actual specimens, or visual materials, identify indicator species commonly found in wetlands.
- Describe the habitat and roles of wetland dwelling species of amphibians, reptiles, aquatic plants, marsh birds and mammal species.
- Read and answer questions pertaining to management aspects of wetlands including flora, invertebrates, marsh birds and mammals.

- 3. Perform steps involved in completing an assessment of a local wetland and submit a written wetland evaluation using the Environment Canada/ Ministry of Natural Resources "Ontario Wetland Evaluation System".**

Potential Elements of the Performance:

- Review the procedures described in the Ontario Wetland Evaluation System (Northern Manual).
- Perform a field survey of a wetland using the above procedure.
- Complete the maps and forms required for a wetland survey.
- Compare other wetland evaluation systems to this survey in terms of methodology, time requirements and results.

- 4. Compare physical, chemical, and biological methods of vegetation management in wetlands in terms of methods of application, economic and ecological costs and public acceptance.**

Potential Elements of the Performance:

- Review the assigned readings and case studies on vegetation management, and discuss why vegetation and vegetation control may constitute a problem for managers.
- Discuss and evaluate the advantages/disadvantages of the methods of physical, chemical, and biological vegetation management.

- 5. Discuss structures and methods of water-level control for the conservation and enhancement of wetland productivity.**

Potential Elements of the Performance:

- Describe types of water level manipulation devices, discussing the purpose and function of each.
- Describe the ecological effects of implementing the use of water-level control structure, with emphasis on vegetation and benthic communities.
- Discuss how water control structures are used for biological vegetation control.

- 6. Research issues and planning initiatives in wetland conservation, rehabilitation and restoration.**

Potential Elements of the Performance:

- Using literature, media and electronic resources prepare and report on a wetland profile or issue as a case study.
- Summarize planning efforts and legislation in place to mitigate wetland loss and afford protection.

7. **Demonstrate knowledge of the Marsh Monitoring Program protocol including purpose, data collection and specified techniques.**

Potential Elements of the Performance:

- Complete a marsh bird survey in the field using a broadcast audio device.
- Complete field forms accurately to conduct amphibian survey.
- Map out and record survey plot description and vegetation forms.
- Discuss the application of the Marsh Monitoring Program.

III. TOPICS:

Note: These topics sometimes overlap several areas of skill development and are not necessarily intended to be explored in isolated units or in the order below

1. Wetland ecosystem characteristics
2. Biological components and indicators in wetlands
3. Wetland evaluation systems
4. Vegetation management & water level control
5. Wetland conservation and enhancement

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Harding, J.H., 1997. ***Amphibians and Reptiles of the Great Lakes Region.*** The University of Michigan Press. Ann Arbor, MI. 400 pp.

if you previously purchased the ROM Field Guide which is now out of print (see below) it is an acceptable resource for the fall 2013 semester

Newmaster, S.G., 1997. ***Wetland Plants of Ontario.*** Lone Pine Publishing. Edmonton, AB. 240 pp.

Winter, T. 2010. ***Wetland Conservation Study Guide.*** Sault College.

Ontario Wetland Evaluation System; Northern Manual. Ontario Ministry of Natural Resources. 288 pages (**ONLINE LMS**)

LMS

Calculator, Pencils, Clip Board, Mylar Sheet

Hardhat, Safety Boots, Reflective Vest, (Recommended: Rubber Boots, Rain Suit)

Recommended/Optional:

MacCulloch, R.D., 2002. ***The Royal Ontario Museum Field Guide to Amphibians and Reptiles of Ontario.*** McClelland and Stewart Ltd. Toronto, ON. 168 pp.

Sibley, D. A. 2003. ***The Sibley Field Guide to Birds of Eastern North America.*** Knopf Publishing Group. New York, NY. 432 pp.

V. EVALUATION PROCESS/GRADING SYSTEM:

Exams	30%
Quizzes	20%
Wetland Evaluation	20%
Wetland Profile	10%
Reading Assignments	<u>20%</u>
TOTAL	100%

NOTE: 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, lab assignment/report value will be zero. All labs/assignments and reports must be submitted regardless of lateness to pass the course.

Attendance during field exercises is **MANDATORY**. Student missing field work without valid, documented reason will risk repeating the course.

NOTE: Students given the opportunity to submit a lab report associated with a **missed** field trip will receive a maximum grade of 60% for that report

The following semester grades will be assigned to students:

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

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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.

VI. COURSE OUTLINE ADDENDUM:

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