SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: WETLAND MANAGEMENT

CODE NO.: FOR333 SEMESTER: 5

PROGRAM: INTEGRATED RESOURCE MANAGEMENT TECHNOLOGY

AUTHOR: HAROLD COOPER

DATE: JUNE 1997

PREVIOUS OUTLINE DATED: MAY 1996

APPROVED: _____
JOE FRUCHTER, DEAN
SCHOOL OF BUSINESS & HOSPITABLITY,
NATURAL RESOURCES PROGRAMS &
COMPUTER PROGRAMS

DATE: June 13/97

TOTAL CREDITS: 3

PREREQUISITES:

LENGTH OF COURSE: 3 hrs/week TOTAL: 48

WETLAND MANAGEMENT — COURSE NAME

FOR333-3 — CODE NO.

I. PHILOSOPHY/GOALS:

This course will provide the biological background for management of wetland habitats, emphasizing waterfowl and aquatic fur-bearers. Students will evaluate several local wetlands, assess their limitations, and design a plan for their enhancement to optimize recreational , aesthetic and economic values.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

A. LEARNING OUTCOMES:

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

1. Discuss the classes of wetlands in Canada, and the ecological characteristics of each class.
2. Identify and discuss the role of the biological components of each type of wetland.
3. Evaluate and submit a written assessment form for one or more local wetlands by the Environment Canada/Ministry of Natural Resources "Ontario Wetland Habitat Evaluation" survey technique.
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.
5. Discuss the merits and draw-backs of various methods of water-level control.
6. Develop a wetland management plan designed to improve an existing wetland for waterfowl, fur-bearers and resource users.

B. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Discuss 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
   * Summarize 4 characteristics of each wetland class
   * Describe the values of each wetland class and potential reasons for wetland loss
   * Divide class into 5 groups to represent each wetland class to summarize their findings in a "workshop format"

2. Identify and discuss the role of the biological component of wetlands.
   Potential elements of the Performance:
   * Review written reports on the role of indicator species in wetlands (from "readings" study manual) and complete response sheet attached

   * Using actual specimens, study skins, slides or visual materials, identify indicator species of amphibians, reptiles, macro-invertebrates, aquatic plants, birds and mammals commonly found in wetlands.
   * Fill in the data sheet assignment (from study manual) to describe the identifying features, sites and roles of the above species.

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3. Evaluate and submit a written assessment form for one or more local wetland(s) by the Environment Canada? Ministry of natural Resources "Ontario Wetland Habitat Evaluation" survey technique.
   Potential elements of the performance:
   * Review the procedures described in the Ontario Wetland Habitat Evaluation manual
   * Perform a field survey of a wetland using the above procedure
   * Complete the maps and forms required for this survey.
   * Compare the Ducks Unlimited wetland evaluation 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 on vegetation management, and discuss why vegetation and vegetation control may constitute a problem to managers
   In an in-class brain-storming session
   * Discuss and rate the advantages of the methods of physical vegetation control
   * Discuss and rate the advantages of the methods of chemical vegetation control.
   * Discuss and rate the advantages of the methods of biological vegetation control.
   * Prepare a chart to summarize the above

5. Discuss the merits and draw-backs of various methods of water-level control.
   Potential elements of the performance:
   * Review the assigned readings to assess the purpose and types of water level manipulation and control
   * Discuss in class the relative merits and draw-backs of various control devices

6. Develop a wetland management plan designed to improve an existing wetland for waterfowl fur-bearers and resource users.
   Potential elements of the performance:
   * Select a local wetland that requires a management plan, with the assistance of the Ministry of natural Resources.
   * Prepare field maps of the area
   * On the site, do a complete inventory of biotic and abiotic features of importance
   * Map aquatic vegetation communities by the prescribed methods
   * Perform a complete wetland habitat evaluation by an approved methodology
   * Assess limitations of the wetland and how these limitations could be overcome by proper management
   * Summarize the above information in an appropriate professional report that can be submitted to the Ministry of Natural resources to further their knowledge about the wetland.

III. **TOPICS TO BE COVERED:**

Note --These topics will not necessarily be explored as isolated learning units or in the order presented below:

1. Wetlands and their roles in Ecosystems
2. Wetland losses

3. Biological components of Wetlands
4. Wetland evaluation
5. Water level control
6. Vegetation management
7. Habitat improvement for game and non-game wildlife

IV. REQUIRED RESOURCES:

1. Wetland Management course manuals . There are 3 parts
   a. Study Guide
   b. Readings in wetland management
   c. Laboratory Manual
2. Payne, Neil F. 1992. *Techniques for Wildlife Habitat Management of Wetlands* . McGraw-Hill Inc. Toronto. 549pp.

RESOURCE MATERIALS AVAILABLE IN THE COLLEGE LIBRARY :

1. Bellrose, F.C., 1980. Ducks, Geese and Swans of N.A., 3rd E., Stackpoke, Penn. 540 pp.
2. Bookhout, T.A., E. 1994, Research and Management Techniques for Wildlife and Habitats, Fifth ed., The Wildlife Society, Bethseda, Md., 740 pp.
3. Linde, A.F., 1969. Techniques for Wetland Management. Department of Natural Resources, Madison, Wisconsin. 156 pp.
4. Novak, M., J.A. Baker, M.E. Obbard, B. Malloch ed. 1987, Wild Furbearer Management and Conservation in North America. Ontario Trappers Association, North Bay, Ont. 1150 pp.
5. O.M.N.R. 1987, Community Wildlife Involvement Program Field Manual. Toronto 520 pp.
6. Rue, L.L. III, 1980. Fur-bearing Animals of North America. Crown publ. N.Y. 343 pp.
7. U.S.D.I. 1988-1994. Waterfowl Management Handbook. U.S. Department of the Interior, Washington, D.C.; Series of Fish & Wildlife leaflets.
8. U.S. Forest Service, 1969. Wildlife Habitat Improvement Handbook, U.S.D.A. Washington, 200 pp.

V. EVALUATION PROCESS/GRADING SYSTEM:

Evaluation Process:

Reading assignment summaries and report	- 30%
Term tests based on theory	- 30%
Wetland management report	- 20%
Practical tests	- 20%

Practical test marks will be based on the following:

1. Review quiz of aquatic vegetation
2. Waterfowl at a distance
3. Shorebirds, raptors
4. Fur-bearers, furs, skulls
5. Parasites and diseases of waterfowl, fur-bearers
6. Waterfowl anatomy and physiology

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7. Participation in "volunteer" activities
   * Sandhill crane survey
   * Check stations

GRADING SYSTEM:

	For practical tests	For all else
A+(consistently outstanding)	95% +	90% +
A (Outstanding achievement)	85 -94%	80 -89%
B (Consistently above average)	75 -84%	70 -79%
C (Satisfactory achievement)	65 -74%	60 -69%
R (Repeat -outcomes have not been met)	< 65%	< 60%

VI. **SPECIAL NOTES:**

A. Report topics:

Each student will research and write a technical report on one of the following topics. Format and technical style should be similar to co-op report requirements. Suggested length is 6- 8 typed pages. A summary from these reports will form the basis for lecture material in later units of the course. Your report MUST reflect your knowledge of wetlands and wetland management.

1. Vegetation management by controlled burning
2. Vegetation management by explosives
3. Use of herbicides in wetlands
4. Biological control of vegetation
5. The Wetland policy for Ontario -a critique
6. Use of fertilizers and liming in wetlands
7. Conflicts in land use- wetland decline and degradation in Canada -is there a solution?
8. Legal aspects of water level manipulation.
9. Nuisance waterfowl and their control.
10. Alternatives to lead shot for waterfowl hunting.
11. The Ontario fur harvesting system
12. The Europeans are right- legholds must be eliminated!
13. Requirements for effective management of water-dwelling fur-bearers
14. Requirements for effective management of land-dwelling fur-bearers
15. The North American waterfowl Management Plan -rationale and effectiveness?
16. Needs for effective waterfowl management.
17. Infectious parasites and diseases of fur-bearers.
18. Epidemic diseases of waterfowl.
19. Advantages of water level fluctuation in wetlands
20. Disadvantages of water level fluctuations in wetlands.

Special Needs

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 or 491 so that support services can be arranged for you.

Plagiarism

Students should refer to the definition of "academic dishonesty" in the "Statement of Students 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.

Advanced Standing

Students who have completed an equivalent post-secondary course should bring relevant documents to the Coordinator, Natural Resources Programs.

Retention of Course Outlines

It is the responsibility of the student to retain all course outlines for possible future use in gaining advanced standing at other post-secondary institutions.

Substitute course information is available at the Registrar's Office.

VII. PRIOR LEARNING ASSESSMENT:

Please contact the Prior Learning Assessment Office (H0240) for further information.