DOC. 463

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: WILDLIFE SURVEYS

CODE NO.: FOR 312-4 SEMESTER VI

PROGRAM: FISH AND WILDLIFE TECHNOLOGY

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DATE: OCTOBER 1994 PREVIOUS OUTLINE DATED: JANUARY 1990

APPROVED: _____ _____
DEAN DATE

WILDLIFE SURVEYS — FOR 312-4

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TOTAL CREDIT HOURS - 64

PREREQUISITE(S):

I. PHILOSOPHY/GOALS:

This course is aimed at the understanding and performing of various techniques essential for wildlife management. Topics include: Field note taking, data recording and retrieval; literature searches; food habit analysis; habitat evaluation techniques; population estimation; criteria for sexing & aging game birds and mammals; methods of capture, handling and marking wild animals; evaluation of wildlife damage.

II. PERFORMANCE OBJECTIVES:

Upon successful completion of this course the student will be able to:

1. Use problem-solving procedures to assist in investigations and wildlife research.
2. Describe necropsy procedures for birds and mammals.
3. Perform food habit and habitat analysis surveys.
4. Estimate population levels of a variety of wildlife species by different techniques.
5. Correctly sex and age important wildlife.
6. Demonstrate ability to capture, handle and mark bird and mammal specimens.
7. Discuss methods of collecting and preserving biological specimens.
8. Outline types of damage done by different wildlife, and explain control methods.

III. TOPICS TO BE COVERED:

1. Introduction and Problem Solving.
2. Necropsy procedure.
3. Analytical Procedure - Food Habit Studies.
4. Habitat Evaluation Techniques.
5. Population Analysis and Evaluation.
6. Criteria of Sex and Age.
7. Methods of Capture, Handling and Marking Wild Animals.
8. Collection and Preservation of Biological Specimens.
9. Evaluation of Wildlife Damage.
10. Recent Tools in Wildlife Research.

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IV. LEARNING ACTIVITIES	REQUIRED RESOURCES
Unit I - INTRODUCTION AND PROBLEM-SOLVING:	
1. Solve typical wildlife management problem by a logical step-by-step sequence of investigation such as the scientific method.	Read: Ch. 1 - Schemnitz. "Problem solving" handout. Given the scenario of a typical problem a game manager encounters, complete the problem-solving chart.
2. Be familiar with the methods of performing literature searches, making effective field notes, and preparing abstracts on wildlife investigational techniques.	Read Ch.2 pg. 7-12 Schemnitz pgs 35-37 " Ch.4 p. 45-54 " Prepare wildlife abstracts as outlined in Laboratory Manual, Lab. #1.
Unit II - NECROPSY PROCEDURES:	
1. Describe the major purposes for necropsy or post-mortem examinations.	Read Ch. 7 - Schemnitz Ch. 8 " Read pages 89-98 from above.
2. Perform a necropsy satisfactorily on an animal and/or a bird.	Complete Laboratory #2 - Necropsy of a mammal/bird.
3. Fully describe the physiological condition of the above specimen, referring to 4 types of physiological indicators of health	Read Ch. 8 p. 99-112 - Summarize the 4 major groups of physiological indicators.
Unit III - FOOD HABIT ANALYSIS:	
1. Correctly state the values of food habit analysis.	Read Ch. 9 - Schemnitz
2. Describe field and laboratory procedures for food habit investigation.	Laboratory - Perform a Food Habit Study by stomach analysis (bird or mammal).

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IV. LEARNING ACTIVITIES	REQUIRED RESOURCES
Unit IV - HABITAT EVALUATION TECHNIQUES:	
1. Explain the nutritional requirements and food analysis breakdowns for any herbivore and/or carnivore.	Read Ch. 19, Schemnitz p. 305-306,311-314,319-322
2. Describe and perform the following techniques, including calculations: - food production, availability and consumption for herbivores - energy budgets and cover evaluation - wetland classification and analysis	Read MNR "Standards and Guidelines" for deer, moose and other game species habitat analysis and requirements. Review Wetland Evaluation Manual. C.W.S. Do sample evaluation of a prescribed wetland.
Unit V - POPULATION ANALYSIS AND ESTIMATION:	
1. Explain the major types of census and their strengths and limitations.	Read Ch. 14 - Schemnitz pg. 221-229, 231-235
2. Be able to describe the methods and perform the required field work and calculations for specific techniques under the following headings: - total counts - sample census - mark - recapture techniques - indices of populations	Read M.N.R. publications "Guidelines for Pellet Group surveys" and "Procedure for Aerial Moose Surveys".
Unit VI - CRITERIA OF SEX AND AGE:	
1. Explain the importances of knowing sex and age ratios.	Read Ch. 11 - Schemnitz pages as assigned for selected species.
2. Correctly sex and age the following species or groups: - all common waterfowl from specimen or wing - all common fur-bearers, big game animals, small game animals - all game birds & waterfowl	Lab test on Sexing and aging all game species emphasis on: Waterfowl wing sex & age Deer and moose jaws Incisor sectioning Furbearer tooth sections

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IV. LEARNING ACTIVITIES	REQUIRED RESOURCES
Unit VII - CAPTURE, HANDLING AND MARKING WILD ANIMALS:	
1. Demonstrate the ability to live trap or kill trap, as required, the following groups of animals: - nuisance birds or mammals - fur-bearers - big game species - small game birds or mammals	Read Ch. 6 - Schemnitz
2. Explain the relative merits and deficiencies of marking by mutilation, colouring, and tagging.	Lab Test on capturing and marking techniques.
Unit VIII- COLLECTION AND PRESERVATION OF BIOLOGICAL SPECIMENS:	
1. Use suitable preservatives for skin and flesh retention.	Read Ch. 32 - Schemnitz p. 537-551
2. Prepare a suitable study skin for class use.	Prepare a suitable study skin in Laboratory using techniques pictured on pages 545-546. (to be graded).
Unit IX - EVALUATION OF WILDLIFE DAMAGE AND WILDLIFE CONTROL	Read Ch. 22 - Schemnitz
1. Identify predators and nuisance spp. by their signs.	Identification of predator/ nuisance species damage or tracks or signs will be considered part of a) A field test b) Lab test (from slides/specimens)
2. Assess and control damage done by these species.	

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IV. LEARNING ACTIVITIES	REQUIRED RESOURCES
Unit X - NEW TOOLS IN RESEARCH:	Each student will summarize one of the following, as an oral presentation.
1. Explain the uses and future of some of the new and innovative tools and techniques used in research & wildlife investigations.	Read Ch.12(p.203-209) - Use of Computers. Read Ch.13(p.211-220) - Modelling Read Ch.18(p.291-300) - Remote Sensing Read Ch.28(p.499-506) - Instrumentation Read Ch.29(p.507-520) - Telemetry Read Ch.30(p.521-530) - Radio isotope

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V. METHOD(S) OF EVALUATION:

3 Term tests based on theory	- 50%
2 Laboratory tests based on practical work	- 30%
A-V project	- 10%
Abstracts, Lab reports, attendance	- 10%
	100%

For theory, Audio-visual project, abstracts

A+ = 90% consistently
A = 80-89%
B = 70-79%
C = 60-69%

MARKS ARE CUMULATIVE

For Laboratory Tests

A+ = 95% consistently
A = 90-94%
B = 75-89%
C = 65-74%

MARKS ARE NOT CUMULATIVE

VI. REQUIRED STUDENT RESOURCES:

1. SCHEMNITZ, S.S., 1980, Wildlife Management Techniques Manual, The Wildlife Society, Washington, D.C., 686 p. (Campus Store)
2. Laboratory Manual for FOR312 - (Campus Store)
3. Laboratory Coat (Any supplier)
4. Dissecting Kit (Any supplier)
5. Snowshoes, hard hat for field trips

VII. ADDITIONAL RESOURCES MATERIALS:

Book Section: N/A

Periodical Section:

Magazines - Ontario Out-of-Doors
Ontario Angler and Hunter
Others as assigned

Journals - Journal of Wildlife Management 1966-1994
Transactions of N.A. Wildlife Conference 1980-1994

VIII. SPECIAL NOTES:

Students are required to participate in winter field trips to various wildlife habitat areas, most of which are of 1 day duration. Also there is usually at least one prolonged field trip where overnight accommodation (2 days +) is required. These trips are also compulsory and it is recommended that students participate in fund-raising activities to assist in defraying costs.

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WILDLIFE SURVEYS - VIDEO PROJECT

During the semester, each student will research and prepare a video that clearly explains a wildlife management practice or technique.

Audience

The video will be aimed at wildlife interest groups such as naturalists or angler/hunter clubs that are somewhat knowledgeable about wildlife in general, but are not familiar with techniques of management or research.

Topics

Some topics are suggested in the following list. The student may research up-to-date reference material and select another topic, if approved by the instructor.

Due Date

This project is due the third Friday in April

Late penalty - 10% deducted per day late. If the video is not submitted in an acceptable fashion by the end of the rewrite period, an "R" grade will be assigned for the course.

General Suggestions

1. Pick an interesting topic and do your research immediately.

2. Prepare a story board for your project.

3. Summarize - important points you will cover
   - objectives of this procedure
   - problems and limitations of the technique
   - suggested references

4. Consult with instructor, who will go over your proposal with you.

5. Book the camera and start shooting only after learning how to use camera properly.

6. Consult A.V. technologist to determine when editing can be done.

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Some suggested topics and possible references

1. Use of the Microtome for sectioning hard and soft tissues.

   Ref. Microtome manual of instructions
   Lab manual
   Histology lab manual (L.R.C.)

2. Ageing moose and deer-incisor sectioning.

   Ref. As above
   J. of Wildlife Mgmt.

3. Use of Ovary sections for Reproductive indicators.

   Ref. Text
   Lab manual
   J. of Wildlife Mgmt.

4. Ageing beaver and muskrat - variety of techniques.

5. Sexing and Ageing puddle ducks - by wings.

   Ref. Lab manual, C.W.S. publication, Text

6. Sexing and ageing Diving ducks - by wings.

   Ref. as above

7. Sexing and Ageing waterfowl and game birds - Cloacal characteristics.

   Ref. Text

8. Procedure for making a study skin - Mammal.

   Ref. Text, assorted hand-outs

9. Procedure for making a study skin - bird.

10. Making a Wood duck nesting box.

    Ref. Text
    Habitat improvement Handbook

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11. Performing a Pellet group count and mortality survey.

    Ref: Lab manual
         J. Wildlife Mgmt.

12. Habitat analysis/evaluation (any technique).

13. Wetland classification method for evaluation. (Ducks Unlimited or C.W.S.)

    Ref: Lab manual

14. Use of tranquilizing gun for chemical control of nuisance spp.

    Ref: Text
         J. of Wildlife Mgmt.

15. Use of kill traps for predator management or nuisance spp control.

    Ref: Text
         Trapping manuals

16. Use of live traps.

    Ref: as above

17. Remote sensing equipment and uses.

    Ref. Text, Journal of Wildlife Mgmt.

18. Any new technique.

    Ref: Journal of Wildlife Management, Text

19. Use of condition indices.

    Ref: Text, Journal of Wildlife Management