DOC. 326

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: WILDLIFE SURVEYS

Code No.: FOR 312-5 6

Program: FISH AND WILDLIFE TECHNOLOGY

Semester: VI

Date: MAY, 1988

Author: H. A. COOPER

New: _____ Revision: X

APPROVED: _____ August 2/88
Chairperson Date

FISH & WILDLIFE TECHNOLOGY
FOR 312-5
WILDLIFE SURVEYS

CALENDAR DESCRIPTION

WILDLIFE SURVEYS	FOR 312-5
Course Name	Course Number

PHILOSOPHY/GOALS:

A course aimed at getting students to understand and capable of performing various techniques essential for game & fish management. Topics include: Field note taking, recording and retrieval; literature searches; food habit analysis; habitat evaluation techniques; population estimation and analysis; criteria for sexing & aging game birds and mammals; methods of capture, handling and marking wild animals; evaluation of wildlife damage.

Prerequisite - FOR 301-4

METHOD OF ASSESSMENT (GRADING METHOD):

3 Term tests	- 50%
2 Laboratory (practical tests)	- 30%
A-V project (see attached)	- 10%
Lab reports, projects, abstracts	- 10%
	100%

GRADING:

Term tests	A+= 90%+
	A = 80 - 89%
	B = 70 - 79%
	C = 60 - 69%
Lab tests	A+= 95%+ Consistently
	A = 90 - 94%
	B = 75 - 89%
	C = 65 - 74%

TEXTBOOK(S):

SCHEMNITZ, S.S., 1980, Wildlife Management Techniques Manual, The Wildlife Society, Washington, D.C., 686 p.

READINGS:

Journal of Wildlife Management, 1966-1988, (LRC)
Also various assigned readings

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UNIT #	PERIODS	TOPIC DESCRIPTION	REFERENCE
I	4	INTRODUCTION AND PROBLEM SOLVING - criteria of effective techniques - the scientific method and problem-solving - wildlife literature, field notes, and map preparation	CH. 1,2,3,4,5,17
II	4	NECROPSY PROCEDURE AND PHYSIOLOGICAL INDICATORS - purposes and procedure for necropsy - wildlife indicators of health: -reproduction -nutritional -blood characteristics -stress indices	CH. 7,8
III	4	ANALYTICAL PROCEDURE FOR FOOD HABIT ANALYSIS - uses of food habit info. - field techniques - laboratory procedure for mammals and birds	CH. 9
IV	12	HABITAT EVALUATION TECHNIQUES - types of techniques - nutritional requirements and food analysis - food production, availability and utilization techniques - cover evaluation and energy requirements - wetland classification and analysis	CH. 10,20
V	16	POPULATION ANALYSIS AND ESTIMATION - major methods of census and techniques including: - total counts - sample census such as strip census etc. - mark-recapture techniques - census indices - pellet group survey, etc. - use of harvest statistics	CH. 14,15

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UNIT #	PERIODS	TOPIC DESCRIPTION	REFERENCE
VI	16	CRITERIA OF SEX AND AGE - rationale of learning sex and age criteria - sexing and aging methods for waterfowl, game birds, game and fur-bearing animals by histological and physiological criteria	CH. 11
VII	12	METHODS OF CAPTURING, HANDLING AND MARKING WILD ANIMALS - methods of capture of animals and birds - live capture and kill capture - trap types and sets - use of drugs in capture and handling - marking of animals and birds - rationale - methods including mutilation, colouring, tagging	CH. 6
VIII	4	COLLECTION AND PRESERVATION OF BIOLOGICAL SPECIMENS - use of correct preservatives - skin preparation and flesh retention - preparation of study skins	CH. 32
IX	8	EVALUATION OF WILDLIFE DAMAGE - identifying predators or nuisance spp. by sign or damage - assessing wildlife damage - control of nuisance spp. by mechanical or chemical means	CH. 22
X	6	NEW TOOLS IN WILDLIFE RESEARCH - modern technology and equipment - new techniques e.g. infra-red imagery new remote sensing equipment instrumentation radioisotopes	CH. 18 p. 28-31 "Wildlife Conservation" p. 219

NOTES: All references refer to chapters in the recommended text, unless otherwise stated.

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PERFORMANCE OBJECTIVES:

Unit I - INTRODUCTION AND PROBLEM-SOLVING: At the completion of this unit, the student must be able to:

1. Solve any typical wildlife management problem by a logical step-by-step sequence of investigation such as the scientific method.

2. Be familiar with the methods of performing literature searches, making effective field notes, and preparing abstracts on wildlife investigational techniques.

Unit II - NECROPSY PROCEDURES: At the completion of this unit, the student must be able to:

1. Describe the major purposes for necropsy or post-mortem examinations.

2. Perform a necropsy satisfactorily on an animal and/or a bird.

3. Fully describe the physiological condition of the above specimen, referring to 4 types of physiological indicators of health.

Unit III - FOOD HABIT ANALYSIS: At the completion of this unit, the student must be able to:

1. Correctly state the values of food habit analysis.

2. Describe field and laboratory procedures for food habit investigation.

Unit IV - HABITAT EVALUATION TECHNIQUES: At the completion of this unit, the student must be able to satisfactorily:

1. Explain the nutritional requirements and food analysis breakdowns for any herbivore and/or carnivore.

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

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Unit V - POPULATION ANALYSIS AND ESTIMATION: At the completion of this unit, the student must satisfactorily:

1. Explain the major types of census and their strengths and limitations.

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

Unit VI - CRITERIA OF SEX AND AGE: At the completion of this unit, the student must satisfactorily:

1. Explain the importances of knowing sex and age ratios.

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
   - and waterfowl

Unit VII - CAPTURE, HANDLING AND MARKING WILD ANIMALS: At the completion of this unit, the student must satisfactorily:

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

2. Explain the relative merits and deficiencies of marking by mutilation, colouring, and tagging.

Unit VIII- COLLECTION AND PRESERVATION OF BIOLOGICAL SPECIMENS: At the completion of this unit, the student must satisfactorily:

1. Use suitable preservatives for skin and flesh retention.

2. Prepare a suitable study skin for class use.

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Unit IX - EVALUATION OF WILDLIFE DAMAGE: At the completion of this unit, the student must satisfactorily:

1. Identify predators and nuisance spp. by their signs.

2. Assess and control damage done by these species.

Unit X - NEW TOOLS IN RESEARCH: At the completion of this unit, the student must satisfactorily:

1. Explain the uses and future of some of the new and innovative tools and techniques used in research and wildlife investigations.

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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. technician 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 intructions
   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.

    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

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MISCELLANEOUS NOTES

Unit I - INTRODUCTION

In this course we will be dealing with techniques to investigate wildlife habitat features and populations. Specifically the course will cover:

- Analysis or evaluation of food supply, cover and other habitat components,
- Assessment of limitations and compensating factors in wildlife habitats,
- Population characteristics such as:
  - present condition of individuals
  - sex and age ratios
  - numerical abundance
  - food habits
  - capturing, handling and marking methods
  - preserving specimens
  - identifying and preventing damage by nuisance species

Techniques for studying the status and well-being of game populations are constantly changing. (See the Journal of Wildlife Management and compare how metholologies have evolved in the past 10 years or so.) Because of this dynamic attribute of techniques, modern students of Game and Fish Management must have knowledge of:

a) Some currently used techniques, e.g. surveys and their limitations

b) The Scientific Method for problem solving.

c) Sampling techniques and tests to evaluate the significance of the results obtained. Most surveys, for example, will provide only estimate values, and cannot be regarded as providers of absolute numbers.