

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



**SAULT
COLLEGE**

COURSE OUTLINE

COURSE TITLE: Wildlife Surveys

CODE NO. : NRT 255 **SEMESTER:** 4

PROGRAM: Fish & Wildlife Conservation Technician

AUTHOR: Rob Routledge (modified after T. Winter, 2012)

DATE: Jan. 2014 **PREVIOUS OUTLINE DATED:** Jan. 2012

APPROVED:

	“C. Kirkwood”	Jan. ‘14
	_____	_____
	DEAN	DATE

TOTAL CREDITS: 4

PREREQUISITE(S): NONE

HOURS/WEEK: 4

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I. COURSE DESCRIPTION:

The goal of this course is to provide students with the practical skills and knowledge of standard field and lab techniques used in the study of wildlife. Wildlife management concepts and associated terminology will be introduced. Some of the major topics include fundamentals of population ecology, wildlife population assessment methods, methods of wildlife capture, handling and marking, criteria for sexing and ageing wildlife, and wildlife damage management.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

- 1. Review a primary research article from a scholarly journal directed towards the effects of forest harvesting activities on an eastern North American wildlife species or group of similar species.**

Potential Elements of the Performance:

- Demonstrate the ability to interpret a primary research article by:
 - defining the problem that the research proposes to answer
 - describing the process of data collection and explain how the methods employed are used to answer the “problem” under study
 - summarizing conclusions and future research directions suggested by the study

- 2. Conduct an analysis of the scientific literature on population assessment methods in relation to a selected wildlife species or group of similar species (mammal, birds, or herpetofauna).**

Potential Elements of the Performance:

- Demonstrate proficiency in:
 - developing a clear, organized key word list
 - accessing scientific literature
 - reviewing abstracts for relevance
 - gleaning appropriate information
 - summarizing findings in tabular or graphical form within a standard report (e.g., summarized by population assessment method, study objectives, geographical area, key findings, future research directions, etc.)

3. Explain techniques used to capture, handle and mark wildlife, humanely and safely.

Potential Elements of the Performance:

- Understand and discuss legal, ethical, and humane considerations in wildlife research
- Understand and discuss advantages and disadvantages of common wildlife capture devices (e.g., mist nets and cannon nets for birds; cannon nets, net guns, box and cage traps for mammals)
- Describe the common techniques and equipment used for marking wildlife (e.g., ear tagging, tattooing, radio-collaring, PIT tags) and explain the advantages and disadvantages of invasive and non-invasive marking techniques
- Describe techniques and equipment used for safe handling and physical constraint of captured or anesthetized animals and to ensure safety of the handler
- Demonstrate proficiency in capturing, handling, marking, and releasing small mammals (completed at Fall Field Camp, NRT 251)
- Participate in the capture, handling and banding of migrating owls (optional, if can be arranged before the semester ends)

4. Describe population assessment methods, understand their limitations, and demonstrate ability to conduct in the field.

Potential Elements of the Performance:

- Describe direct wildlife counting methods (complete counts, incomplete counts, and mark-recapture), indirect wildlife counting methods (indices), and wildlife detection methods (presence/absence)
- Understand the common role indices play in addressing inventory and monitoring questions and the advantages and disadvantages for their use
- Demonstrate appropriate sampling methodology and use of equipment to estimate deer density using deer pellet group counts
- Demonstrate the ability to conduct surveys of relative abundance (e.g., winter track transects, red shouldered hawk/spring woodpecker survey, nocturnal owl survey)
- Demonstrate proficiency in track and sign identification and interpretation (identify wildlife tracks and signs in the field, complete a photo collection of tracks and signs indicating species and key features, and differentiate among scat of selected mammals)
- Demonstrate a general understanding of wildlife inventory and monitoring by describing a wildlife monitoring program and how it contributes to the adaptive management process

5. Demonstrate knowledge and skills to sex and age wildlife.Potential Elements of the Performance:

- Review techniques used for age and sex determination from previous course NRT 205
- Demonstrate ability to sex and age upland game bird species using biological features (i.e., wings and tails)
- Demonstrate ability to assess age of selected mammals using, e.g., cementum annuli, canine pulp cavity, and tooth wear

6. Demonstrate an understanding of important aspects of population ecology in relation to the management of wildlife populations.

(Note: this topic was covered in the course NRT 205 in previous years)

Potential Elements of the Performance:

- Describe how wildlife populations can be spatially organized (distribution and density)
- Understand how wildlife populations grow and describe factors that limit their growth
 - primary parameters that control population growth
 - biotic potential or intrinsic growth rate (r)
 - generalized exponential and logistic models of growth
 - concept of carrying capacity (K)
 - generalized life history strategies (R- and K-selection)
 - limiting factors
 - density-independent and density-dependent limiting factors
- Examine case studies in Ontario such as:
 - impacts of predation, inter- and intra-specific competition
 - impacts of invasive species
- Understand and describe factors that affect the demographics of a population (e.g., semelparity vs. iteroparity, trade-offs between survival and reproduction, sex and age ratios)
- Analyze parameters of white-tailed deer herd health such as field dressed weight of all sex and age classes and antler beam diameter from deer check station data and explore trends in harvest, age structure, and herd health using data from previous years

7. Describe reasons (i.e., purpose and goal) for harvesting wildlife populations, how the harvesting can be accomplished, and why the reasons are appropriate.

Potential Elements of the Performance:

- Explain the purpose and goals for harvesting (i.e., hunting and trapping) wildlife; e.g., recreation, culture, and as a management tool
- Describe and compare differences between sustainable harvesting and wildlife control
- Describe and compare differences between additive vs. compensatory mortality
- Define maximum sustained yield (MSY) and describe common strategies for managing the harvest of wildlife
- Explain current opposition to, and advocacy for, harvesting wildlife
- Examine case studies in Ontario such as the impact of hunting and trapping on populations

8. Understand the underlying concept of wildlife damage management and describe wildlife damage control techniques.

Potential Elements of the Performance:

- Describe the concept of wildlife damage management
- Describe common wildlife damage control techniques and evaluate their efficacy
- Examine case studies in Ontario (e.g., black bear capture and translocation)

9. Investigate field techniques used to measure habitat and food use by wildlife species.

Potential Elements of the Performance:

- Demonstrate knowledge of the biases, challenges and advantages / disadvantages of different techniques
- Determine carnivore diet (stomach content analysis)
- Determine the use, availability and quality of winter deer or moose browse

III. TOPICS

- wildlife tracking and signs
- population assessment techniques
- literature search
- wildlife harvest
- population growth
- demographics
- sexing and ageing
- capture, handling, and marking

IV. REQUIRED RESOURCES/ TEXTS/ MATERIALS:

- Laboratory coat, calculator
- Safety vest, snowshoes, hard hat, compass for field trips
- All reference material is on LMS (D2L)

V. EVALUATION PROCESS/GRADING SYSTEM:

Tests and Quizzes 40%

Field and Lab Assignments 60%

- To be eligible to make up for a missed test or quiz, the instructor must be contacted via phone or email ASAP to discuss make-up options. Students not contacting the instructor prior to a missed class or within a day afterwards will get a zero except under extenuating circumstances; e.g., doctor's note.
- Late assignments will only be accepted within 24 hours past the due date and will be penalized 20% except under extenuating circumstances, e.g., doctor's note
- The instructor cannot guarantee responses to questions in the 24-hour period prior to assignment deadlines and tests via phone message or email.

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%	4.00
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.	

VI. SPECIAL NOTES:

- Any student who in the judgement of the instructor behaves inappropriately in scheduled classes or copies the work of another student without the instructor's permission, will be subject to all the terms and conditions in the Student Code of Conduct hand book (see MySaultCollege portal) and may after, reviewing the situation with the instructor, be asked to leave the course with an F grade.
- 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.
- The Instructor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.
- If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your instructor and/or the Special Needs office.