

ZO 315
Wildlife Biology and Techniques
3 Credits

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ZO 315 Version: 14



Wildlife Biology and Techniques

Calendar Description

Students are introduced to some of the tools, techniques and recognized protocols for wildlife conservation and management. Topics include detailed field notes, techniques and protocols for animal capture, care and marking/tagging, animal behavior, the sex-age categorization of wildlife, remote tracking techniques, chronic wasting disease surveillance and management and safe firearm operation.

Rationale

This is a required course for Wildlife and Fisheries Conservation students. A demonstrated understanding of wildlife biology, field techniques and wildlife management are skills expected of wildlife technicians by employers.

Prerequisites

None

Co-Requisites

None

Course Learning Outcomes

Upon successful completion of this course, students will be able to

1. produce accurate and complete field notes and use recognized alpha-codes.
2. distinguish between correlation and cause-and-effect research.
3. explain the role and requirements of Animal Care Committees and of government administered research permits.
4. document and summarize behavioural data in an ethogram.
5. describe and demonstrate methods for live-trapping of wildlife including: zoonotic disease protocols, safe-handling of animals, marking and taking morphometric measures.
6. use field data to summarize sex-age distribution and calculate a population estimate using live-trapping data.

7. demonstrate the proper installation of a trail cameras and acoustic automatic recording units (ARU).
8. distinguish the strengths and limitations of different remote-tracking technologies.
9. operate radio-telemetry equipment (homing and triangulation).
10. identify breeding seasons, assess reproductive status of animals and differentiate the sex and age of selected wildlife.
11. list the signs of chronic wasting disease (CWD), describe how to sample for CWD, and summarize management actions and options.
12. describe the operation and purpose of a hunter check station.

Essential Employability Skills

Essential employability skills are critical for workplace success and lifelong learning. Lakeland College prepares its graduates for the workplace and lifelong learning by integrating and promoting essential employability skills development in its curricula. Each credit course offered at Lakeland College emphasizes one or more of the following five essential employability skills:

- A. **Communication Skills** that enable individuals to listen, interpret, express, and convey knowledge and ideas so that they are received and understood.
- B. **Teamwork Skills** that enable individuals to respect the thoughts and opinions of others as they work together to plan activities, meet deadlines, complete projects, and contribute to an organization's goals.
- C. **Critical Thinking Skills** that enable individuals to conceptualize and analyze issues from various perspectives while rationally evaluating the strengths and limitations of each perspective and deciding what action to take.
- D. **Adaptability Skills** that enable individuals to respond quickly, willingly, and positively to new conditions and changing times.
- E. **Positive Attitude and Behavioural Skills** that enable individuals to be confident about themselves and to deal with people, problems, and situations with honesty, integrity, and personal ethics.

Resource Materials

Required Text:

Course notes are provided by the instructor for the cost of printing

Reference Documents:

Alaska Department of Fish and Game, Division of Wildlife Conservation. Bison Identification Guide and Quiz (2009).

Alberta Environment and Parks. Chronic Wasting Disease - Information for Hunters.

Alberta Environment and Parks. Class Protocol #007 Small Mammal Handling and Trapping.

Alberta Environment and Parks. Fisheries and Wildlife Management Information System (FWMIS).

Anonymous. Bison Behaviour. *extracted from* National Farm Animal Care Council. 2017. Code of Practice for the Care and Handling of Bison: Review of Scientific Research Priority Issues October 2016.

Canadian Food Inspection Agency. Chronic Wasting Disease (CWD) of Deer and Elk.

Chalmers GA, Barrett MW. 1982. Capture myopathy. In Hoff GL, Davis JW (eds) Noninfectious Diseases of Wildlife. Iowa State University Press, Ames, Iowa, pp 84–94.

Public Health Agency of Canada. Pathogen Safety Data Sheet - Infectious Substances (Hantavirus).

Merrill et al. 2013. Alberta Chronic Wasting Disease Northern Border Study Final Report: Executive Summary.

Conduct of Course

This course includes lectures, labs, a field week and may include extended field trips that occur outside of scheduled class time. Lectures focus on practical theory, preparation for lab activities and exams/quizzes. Students must come prepared for all labs/field trips with adequate and appropriate gear and clothing for inclement weather including cold temperatures and snow. Students inadequately prepared for field conditions may not be allowed to participate. Group work is required and prepares students for a career in the natural sciences where group work is common. All assignments and exams must be completed or an incomplete grade (IN) for the course is assigned. Students are encouraged to ask questions during lectures/labs and may communicate with the instructor by email or by an office meeting.

Evaluation Procedures

“Lakeland College is committed to the highest academic standards. Students are expected to be familiar with Lakeland College policies related to academic conduct and academic honesty and to abide by these policies. Violations of these policies are considered to be serious and may result in suspension or expulsion from the College”.

To obtain credit in this course, all assignments and exams must be completed to avoid an incomplete (IN) grade. Late assignments are subject to a -25% per day penalty. Students are assessed using exams and quizzes, and using written technical summaries of data collected in the field which includes accurate and complete data entry.

Exams **40%**

Midterm Exam = 20%

Final Exam = 20%

Assignments **35%**

Animal Behaviour (collecting behaviour data in the field and then producing an ethogram and summary) = 15%

Rodent Live-trapping Term Paper (a practical experience live capturing and marking, summarizing of abundances, demographics and habitat associations, and producing a professionally formatted summary report) = 20%

Quizzes **25%**

Rodent Identification & Habitat Associations Quiz (this quiz prepares students for the live-trapping of rodents) = 10%

Chronic Wasting Disease & Hunter Check Station Quiz (this quiz reviews the lecture material on CWD and prepares students for an excursion for monitoring of CWD = 15%

Knowledge/Skills Matrix

Students apply and demonstrate their knowledge and skills to use

A. Communication Skills

A1. by listening, reading, interpreting information, and communicating effectively
Evaluation(s)/Goal(s): Outcomes 1-12
A2. by using written, spoken, and/or visual formats and media to communicate and meet needs of each particular audience
Evaluation(s)/Goal(s): Outcomes 1-12
A3. by using libraries, Internet, technical publications, journals and other sources to find pertinent information
Evaluation(s)/Goal(s): Outcomes 1-12

B. Teamwork Skills

B1. by using interpersonal skills to create an atmosphere that maximizes the strengths of group members to accomplish tasks
Evaluation(s)/Goal(s): Outcomes 1-12
B2. by using interpersonal skills to resolve conflict, relate to others, and assist others
Evaluation(s)/Goal(s): Labs & Field Activities; Group Assignments
B3. by contributing and listening to others as group determines realistic objectives, prioritizes tasks, and identifies resources and timelines
Evaluation(s)/Goal(s): Assignments; Labs & Field Activities

B4. by treating other members of the group open-mindedly and fairly
Evaluation(s)/Goal(s): Group Assignments; Lectures, Labs & Field Activities
B5. by developing tactics/strategies to accomplish tasks
Evaluation(s)/Goal(s): Outcomes 1-12

C. Critical Thinking Skills

C1. by seeing critical thinking as a lifelong process of self-assessment
Evaluation(s)/Goal(s): Outcomes 1-12
C2. by examining problems closely
Evaluation(s)/Goal(s): Outcomes 1-12
C3. by examining beliefs, assumptions, and opinions, and weigh them against the facts
Evaluation(s)/Goal(s): Outcomes 1-12
C4. by seeking out the truth
Evaluation(s)/Goal(s): Outcomes 1-12
C5. by finding solutions; make decisions
Evaluation(s)/Goal(s): Outcomes 1-12
C6. by incorporating new ideas that may not necessarily agree with previous thought on the topic
Evaluation(s)/Goal(s): Outcomes 1-12
C7. by seeing connections between topics and use knowledge from other disciplines to enhance reading and learning experiences
Evaluation(s)/Goal(s): Outcomes 1-12

D. Adaptability Skills

D1. by working independently or as part of team
Evaluation(s)/Goal(s): Outcomes 1-12
D2. by carrying out multiple tasks or projects
Evaluation(s)/Goal(s): Outcomes 1-12
D3. by being innovative and resourceful: identify and suggest alternative ways to get the job done
Evaluation(s)/Goal(s): Outcomes 1-12
D4. by being open and respond constructively to change and uncertainty
Evaluation(s)/Goal(s): Outcomes 1-12

E. Positive Attitude and Behavioural Skills

E1. by dealing with people, problems, and situations with honesty, integrity, and personal ethics
Evaluation(s)/Goal(s): Lectures, Labs, Assignments and Quizzes/Exams
E2. by showing interest, initiative, and effort
Evaluation(s)/Goal(s): Outcomes 1-12
E3. by affirming the need for positive solutions and encourage positive interaction and feedback
Evaluation(s)/Goal(s): Outcomes 1-12
E4. by balancing personal and family activities with job-related activities
Evaluation(s)/Goal(s): Outcomes 1-12

Grade Equivalents and Course Pass Requirements

A minimum grade of D (50%) (1.00) is required to pass this course.

Letter	F	D	D+	C-	C	C+	B-	B	B+	A-	A	A+
Percent Range	0-49	50-52	53-56	57-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-100
Points	0.00	1.00	1.30	1.70	2.00	2.30	2.70	3.00	3.30	3.70	4.00	4.00

Students must maintain a cumulative grade of C (GPA - Grade Point Average of 2.00) in order to qualify to graduate.

Attendance

Classroom and laboratory attendance is considered vital to the learning process and as significant to the students' evaluation as examinations and reports, therefore absenteeism is recorded.

- a. Students having a combination of excused and/or unexcused absence of 20 percent or higher for the scheduled course hours can be required to withdraw and would then automatically receive a "RW" (required withdrawal) for the course, regardless of any other evaluation results. (RW is a failing grade).
- b. An excused absence is one that is verified with your instructor. Verification should be prior to the absence or the next class day following the absence. Verification of the absence may take the form of a note from your doctor/College nurse regarding illness, or a note from another instructor regarding a field trip or other activity, or authorization by your instructor following an in-person meeting. Be sure to contact your instructor and ask what they will require from you as verification for each absence. An unexcused absence is anything NOT verified by the instructor prior to the absence or the next class day following the absence.

NOTE: Any exceptions to the above attendance policy (e.g. timetable conflicts, work-related issues) must be approved in writing by the Department Chair prior to the beginning of the course.

It is the students' responsibility to know their own absentee record.

Normal hours are 8:30 a.m. to 6:30 p.m., with potential for evening courses, exams or extended field trips. Students are expected to be available for classes during these times.

Course Units/Topics

Lecture Contents (Course Units)

1. Field Notes

- *Techniques for complete and accurate field notes.*
- *Alpha-codes (i.e. AEP FWMIS).*

2. Live-capture, Handling, Marking & Population Estimation

- *Techniques for live-trapping, marking/tagging and safely handling wild animals for population estimation.*
- *An overview of the Animal Care Committee (ACC) requirements, Alberta Environment and Parks Class Protocols and a summary of the potential negative impacts from field-investigations.*

3. Housing and Care of Captive Animals

- *The basic housing, transport and care requirements of animals in captivity.*

4. Determination of Sex and Age

- *How to use apparent and discrete characteristics to age-sex classify selected mammals, birds and herptiles.*

5. Marking and Tagging Techniques

- *An overview of invasive and non-invasive marking techniques and the potential impacts on animals.*

6. Remote Tracking Techniques

- *A survey of the various techniques and tools for locating and tracking the movements of wildlife including automatic recording units.*

7. CWD Surveillance and the Operation of a Hunter Check Station

- *The history and management of CWD in Canada.*
- *Signs and sampling techniques for CWD.*
- *Operation and purpose of a hunter check station.*

Laboratories and Field Trips

Labs and field trips complement lecture material, and often involve extended excursions to promote hands-on learning. The order and ability to conduct these labs often depends on weather and other factors, so this list may be subject to change. As most of the labs are in the field, students must be adequately prepared and must bring appropriate clothing for the field conditions.

1) Live-capture and Marking for Population Estimation

A multi-day mark-recapture exercise to assess small mammal abundance, population characteristics and habitat associations. Data collected are summarized and analyzed for the term paper assignment.

2) Deploying Trail Cameras and Acoustic Automatic Recording Devices (ARU's)

The placement of trail cameras and ARUs for collecting wildlife observations. Trail camera images are interpreted and summarized next semester in Wildlife Ecology and Management (ZO250).

3) Assessing Wildlife Behaviour

Using binoculars and spotting scopes to document animal behaviour using a standardized technique. Data collected are summarized in an ethology summary report.

4) Safe Operation of Firearms

A field trip to a gun range to practice the safe operation of firearms.

5) Remote Tracking Techniques

The practical application of radio-telemetry equipment to locate tags.

6) Hunter Check Station

An excursion to the CFB Wainwright Hunter Check Station to observe and assist the processing of hunters and their game, and to observe how CWD is sampled. This activity occurs in December and may return to the college later than the lab is scheduled.



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