

WILDLIFE ECOLOGY
BIOL 412/604
FALL 2018

Instructor: Dr. Katherine Parker
Lab Building 8-243
Phone: 960-5812
Office Hours T 3:00-4:00, W 3:30-4:30

Class: M W 1:30-2:20 in 7-158
Lab: M 8:00-10:50 in 8-325
Computer Lab: 8-362
TA: Jeannine Randall
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COURSE OBJECTIVES

1. A functional approach: to understand responses of animals to the environment in terms of bioenergetics, nutritional requirements, and habitat constraints.
2. An ecological approach: to understand how communities meet the needs of wildlife individuals and populations.
3. The integration: to be exposed to interactions between wildlife species and the environment in several different ecosystems.

COURSE REQUIREMENTS

1. There will be 2 one-hour lecture exams and a comprehensive final. There also will be 2 laboratory exams, covering laboratory exercises and associated readings (references attached). No make-up exams will be allowed except in cases of medical emergency, validated in writing by a medical doctor.
2. Also, 3 problem sets relating to a lecture or lab topic will be given. Each set is worth a possible 25 points, and will be reduced by 5 points for each day late.

GRADING

Lecture Tests (2)	200 pts	(100 ea)	40%
Lab Tests (2)	100 pts	(50 ea)	20%
Problem Sets (3)	75 pts	(25 ea)	15%
Final Exam	125 pts		25%
Total Points	500 pts		100%

COURSE MANUAL (IN THE UNBC BOOKSTORE): REQUIRED

LIBRARY REFERENCES: OPTIONAL

Robbins, C.T. 1993. Wildlife Feeding and Nutrition. Academic Press, San Diego, CA. 352 pp.

Silvy, N.J. (ed) 2012. The Wildlife Techniques Manual. 7th ed. Johns Hopkins University Press, Baltimore, MD. Two volumes.

ACADEMIC DISHONESTY

University regulations strictly forbid academic dishonesty of any type, including plagiarism, cheating during exams, or misrepresenting the nature of your involvement in any assigned work. Students involved in such acts can receive an automatic F in the course.

SPECIAL ACADEMIC ACCOMMODATION

Students who, because of a disability, may have need for special academic accommodations, should please come and discuss this with me as early as possible during the course. They also may wish to contact staff at the Access Resource Centre (arc@unbc.ca) located in the Teaching and Learning Centre, Room 10-1048.

General Lecture Topics

<u>Date</u>		
Sept	5	Course description/requirements; introduction to energetics
	10-19	Energetic requirements, activity budgets of wildlife (Problem Set #1)
	24-26	Nutritional requirements
Oct	1	Water requirements
	3	EXAM #1
	8	<i>No class: Thanksgiving</i>
	10-15	Indices of body condition
	17-24	Constraints of food quality/quantity (Problem Set #2)
	29	Stable isotope ecology
	31	Plant animal interactions, foraging strategies
Nov	5	EXAM #2
	7	Wildlife – range relationships
	12	<i>No class: Remembrance Day</i>
	14-21	Wildlife relationships in rangeland/tundra ecosystems
	26	Value of biodiversity and ecosystems
	28	Wildlife relationships in forested ecosystems
Dec	4-14	FINALS WEEK

Tentative Laboratory Schedule

<u>Date</u>		
Sept	10	Vegetative measures of wildlife habitat
	17	Radio-telemetry
	24	Animal capture
Oct	1	Animal restraint and immobilization
	8	<i>No class: Thanksgiving</i>
	15	Lab Test #1
	22	Body condition / necropsy demonstration
	29	Stable isotope ecology
Nov	5	Herbivore and carnivore food habits
	12	<i>No lab: Remembrance Day</i>
	19	Energetic nutritional modeling (Problem Set #3)
	26	Lab Test #2

Due Dates

Sept	24	Problem Set #1 (Activity Budgets) – given on 17 Sept
Oct	3	EXAM #1
	15	Lab Test #1
	29	Problem Set #2 (Forage Quality) – given on 22 Oct
Nov	5	EXAM #2
	19	Problem Set #3 (Nutrition Model) – from 19 Nov lab
	26	Lab Test #2

READINGS RELATED TO LABORATORY TECHNIQUES 2018**1. Land cover measures of wildlife habitat**

Gharajehdaghpour, T., and J. D. Roth. 2018. Predators attract prey through ecosystem engineering in the Arctic. *Ecosphere* 9(1):e02077.

2. Radio-telemetry

Tucker, M. A. et al. 2018. Moving in the Anthropocene: global reductions in terrestrial mammalian movements. *Science* 359:466–469.

3. Animal capture

Bailey, J. M., et al. 2018. Using radio frequency identification (RFID) to investigate the gap-crossing decisions of black-capped chickadees (*Poecile atricapillus*). *Auk* 135:449-460.

4. Animal restraint and immobilization

Spriggs, M. C., et al. 2017. Effects of live-trapping and isoflurane anesthesia on free-ranging American martens (*Martes americana*). *Journal of Wildlife Diseases* 53:447–458.

5. Body condition

Keay, J. A., C.T. Robbins, and S. D. Farley. 2018. Characteristics of a naturally regulated grizzly bear population. *Journal of Wildlife Management* 82:789-801.

6. Food habits and quality

Crowell, M. M., L. A. Shipley, J. S. Forbey, J. L. Rachlow, and R. G. Kelsey. 2018. Dietary partitioning of toxic leaves and fibrous stems differs between sympatric specialist and generalist mammalian herbivores. *Journal of Mammalogy* 99:565-577.

7. Stable isotope ecology

Lameris, T. K., et al. 2018. Arctic geese tune migration to a warming climate but still suffer from a phenological mismatch. *Current Biology* 28:2467–2473.

8. Energetic nutritional modeling

Pagano, A.M. et al. 2018. High-energy, high-fat lifestyle challenges an Arctic apex predator, the polar bear. *Science* 359:568–572.

9. Ethics in science

Clapham, C. J. 2017. When it's right to be wrong. *Marine Mammal Science* 33: 966–967.