Syllabus

EBIO 4100-XXX: MAMMALOGY

COURSE STRUCTURE
SUMMER 2019

Instructor: Dr. Joseph Merritt

I. DESCRIPTION OF COURSE

Lecture and Laboratory, 3 semester credits. Class will meet on Monday through Thursday (8:00 a.m. to 5:00 p.m.) from **17 June to 3 July 2019** at the **University of Colorado Mountain Research Station**. The *Lecture* portion of this course focuses on evolution, classification, distribution, behavior, physiology and ecology of mammals. *Laboratory* will examine morphological characteristics of mammals as applied to identification of mammals of Colorado. Each student will prepare a brief paper (average length, 3 to 5 pages, double spaced) summarizing a recent research article in the field of mammalogy. Guidelines will be provided at the beginning of the summer session and the manuscripts will be due on the last day of class. Students will also maintain a Field Journal documenting all field activities during the summer session. There will be **3 lecture examinations**, **1 laboratory examination and 1 paper summarizing research in mammalogy**. One field trip will be conducted during the summer session. Students must attend all classes and participate in all local field activities to receive a grade.

II. LECTURE PRESENTATIONS

A. Mammals of the world; Mammals of Colorado
B. Evolution of Mammals,
C. Classification of Mammals
D. Survey of the Orders and Families of Class Mammalia
    1. Prototherian and Metatherian mammals
    2. Eutherian Mammals: Orders Insectivora, Afrosoricida, Erinaceomorpha, Soricomorpha, Macroscelidea, Scandentia, Dermoptera, Chiroptera, Primates, Cingulata, Pilosa, Pholidota, Tubulidentata, Carnivora, Cetacea, Rodentia, Lagomorpha, Proboscidea, Hyracoidea, Sirenia, Perissodactyla, Artiodactyla
E. Zoogeography
F. Structure and Function, Populations, Adaptations
    1. Reproduction
    2. Population dynamics, competition, home range and territoriality
    3. Biodiversity and ecological niche; behavior.
    4. Feeding strategies and interactions
    5. Environmental Adaptations
    6. Techniques: Telemetry, trapping, specimen preparation, parasites, etc.

III. SCHEDULE AND REQUIREMENTS

Lecture and Laboratory

Formal lecture sessions will be conducted on Monday through Friday from 10:00 a.m. to 12:00 p.m. and from 1:30-3:00 p.m. A total of three (3) lecture examinations will administered during the summer session. The tentative exam schedule is as follows:

Exam # 1	100 points	24 June (Monday)
Exam #2	125 points	1 July (Monday)
Project, Journal, article summary	100 points	3 July (Wednesday)
Laboratory Examination	50 points	3 July (Wednesday)
Exam #3 (Final-not comprehensive)	125 points	3 July (Wednesday)
Total	**500 points**	

Laboratory sessions will be conducted on Monday through Friday from 0800-1000 hrs and 1500-1700 hrs. These sessions will entail field work (checking live traps in the morning and late afternoon) and examination of specimens in the laboratory during all other times. The laboratory final examination will entail identification of mammals of Colorado. This will entail use of a dichotomous key (Armstrong 2007) for identification of specimens housed in the laboratory. As part of the Laboratory, the instructor will familiarize students with live-trapping protocol *a priori.* Students are not required to handle/process small mammals. Alternative projects will be described by the instructor prior to the beginning of the class and students can elect not to participate in live-trapping practices.

IV. FIELD TRIPS

There will be 1-day (overnight) field trip during the summer session—
the field trip is ***required.***

Trip #1 (28-29 June—Friday and Saturday)--A 2-day field trip to Eagle Ridge (Armstrong site) located on the Front Range west of Loveland, CO—1.5 hour drive from the MRS. During our field trip we will conduct live trapping of mammalian inhabitants such as deer mice, meadow voles, harvest mice, pocket gophers, and woodrats. This will be an overnight field trip. Dinner and breakfast will be prepared by our host, Dr. David M. Armstrong, Emeritus Professor, Department of Ecology and Evolutionary Biology, University of Colorado. We will depart for home before noon on Saturday. Camping on site. Bring a flashlight, and sleeping bag. You may also wish to bring along a tent.

V. FIELD RESEARCH PROJECT (field survey, 25 points).

The field research project for the class must be completed by all students. This project will represent a field survey performed and orally presented by a team of 3 students. The survey will be presented to the class in the form of an oral *PowerPoint*

presentation. Each team, consisting of groups of 4 students, will work together on all aspects of the project (e.g., development of the experimental design, data collection and organization, literature search, and preparation of the report). The 15-minute oral presentation should include the following general headings:

1. Introduction (literature review, objectives)
2. Methods
3. Results (photographs of field projects are encouraged)
4. Discussion (comparison with results of other class projects)
5. References

VI. FIELD JOURNAL (25 points)

Students are required to maintain a Field Journal during the class. The Journal will detail all field activities occurring during the course. The Journal should represent a complete chronological record of all activities and observations that each student makes while in the field. It answers the questions: *what, where, when, and how*. Students are encouraged to include in your Journal conversations with knowledgeable individuals encountered while in the field. Accounts must be written in the first-person, active voice. A sample of a page from one of your instructor's Field Journals will be provided to assist students with adhering to proper format requirements. Adherence to proper format requirements is crucial.

VII. SUMMARY OF A RESEARCH PAPER (50 points)

Each student will prepare a brief paper summarizing a recent research article in the field of mammalogy. Guidelines will be provided at the beginning of the summer session and the manuscript will be due on the last day of class. Research papers will average 3 pages in length (double spaced).

VIII. GRADING SCALE

A. Total points possible in *Lecture*:	350
B. Total points possible for *Project/Journal/Paper*	100
C. Total points possible for *Laboratory*	50
TOTAL POINTS POSSIBLE =	**500**

Letter grade	Range (%)	Number score
A	90-100	450-500
B	80-89	400-445
C	70-79	350-395
D	60-69	300-345

IX. TEXTS (required text is in bold type)

(A loaner copy of this required text will be provided by the Mountain Research Station)

Armstrong, David M. 2007. Rocky Mountain Mammals: a handbook of Mammals of Rocky Mountain National Park and Vicinity, Third Edition. University Press of Colorado, Boulder. xiv + 264 pp. (ISBN 978-0-87081-882-1)

Feldhamer, G.A., L.C. Drickamer, S.H. Vessey, J.F. Merritt, and C. Krajewski. 2019. Mammalogy: Adaptation, Diversity, Ecology. Second Edition. The Johns Hopkins University Press, Baltimore, MD.

Fisher, C., D. Pattie, and T. Hartson. 2000. Mammals of the Rocky Mountains. Lone Pine Publishing, Vancouver, B.C. Canada

Macdonald, D. (ed.) 2006. The Encyclopedia of mammals. Facts on File, NY 936 pp.

Martin, R.E., R.H. Pine, and A.F. DeBlase 2001. A manual of mammalogy: with keys to families of the World. McGraw-Hill Higher Education, New York, NY

Merritt, J.F. 2010. The biology of small mammals. The Johns Hopkins University Press, Baltimore, MD 368 pp. **(optional)**

Reid, F.A. 2006. A field guide to mammals of North America, north of Mexico. The Peterson Field Guide Series, Houghton Mifflin Company, Boston.

Whitaker, J.O., Jr. 1996. Field Guide to North American Mammals, National Audubon Society, Alfred A. Knopf, New York, NY.

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