

BIO 430 - VERTEBRATE NATURAL HISTORY SPRING 2008

Instructor: Dr. Monte L. Thies

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Lecture: 8:00-9:20 TTh (LDB115)

Lab: 2:00-3:50 Tu and as arranged

Office hours: 10:00 - 11:00 MWF, 11:00 - 12:00 TTh, and by appointment

Course description: This course deals with the taxonomy, natural history and ecology of vertebrates. Laboratories emphasize the identification of Texas vertebrates and field techniques used in their study. Prerequisite: Minimum grade of C in (BIO 138/118, 139/119) or (BIO 161/111, 162/112). Two-hour laboratory. Spring. Credit 3.

Course objectives: Students completing this course should have the ability to recognize most common vertebrates (fishes, amphibians, reptiles, birds, and mammals) found in Texas and have a general understanding of their life histories, distribution, and habitat requirements. The student should also become familiar with the science of taxonomy (including fundamental concepts and limitations), general field identification methods, and appropriate handling and husbandry techniques where appropriate.

REQUIRED TEXTS AND FIELD SUPPLIES

Lecture text: Linzey, D. W. 2001. Vertebrate Biology. 1st ed. Prentice-Hall.

Laboratory texts: A series of field guides will be required as references for completion of the laboratory and to support the lecture. The following are suggested but there are alternatives that you may prefer – just make sure that the books you choose are complete and will suit your needs for the course.

Fish: Page, L. W., and B. M. Burr. The Peterson field guide series No. 42: Freshwater fishes. Houghton Mifflin Co., Boston.

Herps: Conant, R., and J. T. Collins. The Peterson field guide series No. 12: Reptiles and amphibians: Eastern/Central North America. Houghton Mifflin Co., Boston.

Birds: Robbins, C. S., B. Bruun, and H. S. Zim. A guide to field identification: Birds of North America. Golden Press, NY.

Mammals: Reid, F. A.. 2006 or comparable edition. Mammals of North America. The Peterson Field Guide Series, Houghton Mifflin Co., Boston.

Field equipment: A good pair of binoculars for use in the field is strongly recommended – this is something you can use for many years following this class.

**** Appropriate footwear and long pants must be worn for all outdoor activities – we WILL be tromping through swampy habitats and Poison Ivy!!!**

GRADE DETERMINATION FOR VERTEBRATE NATURAL HISTORY

Two mid-semester lecture exams	200 pts
Final exam	150 pts
Trapping Report	75 pts
Taxonomic key	75 pts
Lab practical – Fish	50 pts
Lab practical – Herps	50 pts
Lab practical – Birds	50 pts
Lab practical – Mammals	50 pts
Field Notebook	50 pts
Herpetology Collection (Optional – this is your extra credit)	40 pts maximum
Total Possible Points for Course	790 pts

Final Grade Determination	
A	675+ pts
B	600 - 674 pts
C	525 - 599 pts
D	450 - 524 pts
F	< 450 pts

This point distribution will not change.

Class Attendance Policy: Regular and punctual class attendance is expected of each student. To do well, you must be an equal and active participant in your education. Therefore, it is your responsibility to attend class. Most testing material will be based on class lecture, laboratory exercises and notes: to do well on tests **you must attend lecture and read the book!** Excessive absences (>6 lectures and 2 labs) may influence your final grade for the course. This may amount to one letter grade for students on the borderline. If you are unable to come to class due to illness or unexpected circumstances, it is your responsibility to obtain the class notes. You may contact me in my office if you have specific questions about a lecture; however, I will not repeat lectures for students who have missed class.

Academic Honesty: The University expects all students to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. Furthermore, the University and its official representatives may initiate disciplinary proceedings against any student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is submitted, plagiarism, collusion and the abuse of resource materials.

Exams:

- Each lecture exam will consist of multiple choice, True/False, matching, short answer, and essay questions and will cover material from lecture.
- The laboratory practicals will test your ability to identify vertebrate species - these will include preserved specimens, live animals, pictures, and vocalizations.
- The Final Exam will be a comprehensive exam covering general material and concepts we discussed during the course of the semester.

I consider the recommended text and field guides as reference sources for material covered in class. Please use them as such. Periodic outside readings on significant topics may be assigned and may be covered on exams.

NO make-up exams will be given without notification prior to the exam by the student and approval from the instructor.

FINAL EXAM: 8:00 - 10:00 Thursday May 15th

TRAPPING REPORT - Due Thursday March 25th at beginning of class.

Each student will be required to complete a formal laboratory report using the data we will collect during the mark/recapture exercise. This report must incorporate analyses of the data sets gathered and is to be submitted in an appropriate type-written format complete with tables, figures, and supporting literature. Complete guidelines will be provided.

Format: Must be typed and at least five double spaced pages not including title page and bibliography. Organize the report into an Introduction, Methods and Materials, Results, Discussion, and Literature Cited. Include tables and figures where appropriate. Do NOT put your report in an outside folder - use a staple. Citations should be in a form similar to that of the style used in *The Southwestern Naturalist*.

Grade: Your grade will be based on your thoroughness, presentation of material, literature review (scientific journals ONLY - NO INTERNET!), and neatness.

TAXONOMIC KEY or FIELD GUIDE - Due Thursday April 29th at beginning of class.

Each student will be required to develop a taxonomic key or field guide that may be used to identify a selected group of Texas vertebrates. Taxonomic levels for each key and content of individual field guides will depend on numbers of species within a group and may be a key for a specific Order or Family. Complete guidelines will be provided when groups are assigned. Choice of topics will be limited to taxonomic groups not previously completed by past BIO430 students.

Format: Must be in MS Word or PowerPoint with both electronic and printed versions turned in. Literature citations should be in a form similar to that of the Trapping Report.

Grade: Your grade will be based on your thoroughness, usability of the key, and incorporation of current taxonomic literature.

FIELD NOTEBOOK - Due Thursday May 8th at beginning of class.

You will be required to keep a detailed journal of your daily field activities, both for regular lab periods and for outside activities conducted throughout the semester. Select a small, good quality notebook for this - my recommendation is to purchase one with waterproof or water-resistant paper from a source such as Huntsville Blueprint. Follow the general guidelines in the handout provided.

HERPETOLOGY COLLECTION - EXTRA CREDIT - All specimens must be turned in prior to the final exam.

An optional live collection of amphibians and reptiles may be made by any student wishing extra credit for the laboratory grade in Vertebrate Biology. The specimens may be turned in any time until finals week. A fishing license is generally required to collect herps.

ALL SPECIMENS COLLECTED BY STUDENTS MUST BE CARED FOR IN ACCORDANCE WITH SHSU ANIMAL CARE AND USE GUIDELINES.

The purpose of this activity is to get the student out into the field to discover and learn about the diversity of herptiles and their habitats in the East Texas region. However, we do not want to unnecessarily sacrifice animals. Therefore, the collection will consist of live specimens properly identified to species. The specimens will be turned in to the instructor, who will then credit the student and in turn release the animals alive. To receive credit, the date, location, habitat, and species name along with the student's name must be typed on a 3 X 5 card and affixed to the container of the specimen being turned in. Each specimen will be worth two (2) points. No points will be given for poisonous snakes or endangered or threatened species (i.e., American Alligator). Only those species listed on the Walker County Checklist will be eligible.

Amphibians must be kept moist and cool. A jar with holes in the lid and a water-saturated paper towel works well for frogs and salamanders. Reptiles need to be kept cool - a snake or lizard in a cloth bag or jar left in a closed car will die quickly.

Specimens collected in adjacent counties are eligible only if they are listed on the Walker County Checklist. Only one LIVE specimen of each species is eligible for credit. Maximum points will be 40 (20 specimens).

GENERAL LECTURE OUTLINE

Part I. What is a Vertebrate? – Characteristics
Overview of the Phylum Chordata

Part II.

Principles of Classification - Species Concept
General Vertebrate Ecology - Habitat, Niche, Distribution, etc.
Biomes - U.S., Texas, East Texas

Part III.

Survey of the Vertebrate Classes - includes characteristics, classification, distribution, morphological and habitat, physiological adaptations, reproductive biology, behavior, economic importance, special topics.

[A.](#) Classes Myxini and Cephalaspidomorpha

Class Chondrichthyes

Class Osteichthyes

[B.](#) Class Amphibia

[C.](#) Class Reptilia

[D.](#) Class Aves

[E.](#) Class Mammalia

Part IV.

Vertebrate Ecology

A. Population dynamics

B. Population movements

C. Territory and home range.

Laboratory Topics

Identification, collection, preservation and study of East Texas vertebrates with emphasis on Walker County forms. Research techniques for studying vertebrate populations (trapping, marking and censusing methods) are used whenever possible.

Laboratory exercises: These exercises will incorporate the identification of representative vertebrates from preserved specimens. General morphological and anatomical features will also be presented.

A. Classes Myxini, Cephalaspidomorpha, Chondrichthyes, and Osteichthyes

B. Classes Amphibia and Reptilia

[Herp lab handout](#)

C. Class Aves

[Bird lab handout](#)

D. Class Mammalia

[Mammal lab handout](#)

Link to "[The Mammals of Texas](#)"

GOOD LUCK !!!!!!!