

Biology 3407 – Vertebrate Natural History



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Office hours: Monday – Thursday (Del Rio) 1:30pm – 3:00pm
or by appointment (or online by request)

Required Texts: *Vertebrates: Comparative Anatomy, Function, Evolution*, by Kenneth V. Kardong. Any edition will be acceptable.
Your Inner Fish, by Neil Shubin
Optional: Field guides to Mammals, Birds, and/or Reptiles & Amphibians

Student Learning Outcomes: There are seven broad goals for this course. Basic Survey of Sciences students will:

- Review and practice teaching theories and methodologies of elementary instruction as they pertain to elementary science.
- Demonstrate understanding of basic Physics principles such as matter, energy, light, sound, electricity and magnetism after discussions of such topics.
- Demonstrate understanding of Earth Science subjects such as weather, seasons, climate, and plate tectonics after discussions of such topics.
- Comprehend basic categorization and organization of animal, plant, and other life, after discussions of such topics.
- Comprehend basic organization and functioning of the human body, after discussions of such topics.
- Understand and be able to carry out a wide variety of demonstrations and experiments suitable for elementary students.
- Be prepared for the science-related questions on the TExES exam

Attendance and Participation:

Class will be a time of discussion, demonstration, and collaborative learning. I will provide links to some instructional videos on the various topics, plus you have your book and other resources, so come to class having already studied the topic of the day, thus leaving more time for collaborative learning and lab and field activities. I will communicate by sending out announcements over Blackboard, so please check regularly (notices of announcements will be sent to your school email account).

We will occasionally leave the classroom on short field trips—dress appropriately for walking over rough terrain. Bring binoculars and field guides if you have them. Optional overnight field experiences will be offered at least twice during the semester. You are encouraged, but not required to participate.

Semester Overview (exact dates and topics subject to change)

Date	Topic(s)
Jan. 17	Introduction, Origin of Chordates, The Vertebrate Story
Jan. 24	Biological Design, Life History, Integument
Jan. 31	Skull, Axial Skeleton, Appendicular Skeleton
Feb. 7	Muscular System, Respiratory System, Circulatory System
Feb. 14	Digestive System, Urogenital System, Endocrine System
Feb. 21	Nervous System, Sensory Organs, Conclusions
Feb. 28	Review of comparative anatomy
Mar. 7	Midterm exam and lab exam 1
Mar. 14	Spring Break
Mar. 21	Agnathans, Gnathostomes, and Teleosts
Mar. 28	Primitive Tetrapods and Amphibia
Apr. 4	Reptilia
Apr. 11	Aves
Apr. 18	Aves part 2
Apr. 25	Mammals part 1
May 2	Mammals part 2
May 9	Final Exam and lab exam 2

Grade assessment: Use of the standard grading scale, with the following 500 points

Small Assignments (10 points each, lowest dropped; 100 points total):

1. Biological design and integumentary system
2. Skeletal and muscular systems
3. Circulatory and respiratory systems
4. Digestive and urinary systems
5. Urogenital and endocrine systems
6. Nervous systems and sensory organs
7. Primitive chordates and early tetrapods
8. Class Amphibia
9. Class Reptilia
10. Class Aves
11. Class Mammalia

Large Assignments (50 points each, 100 points total):

1. Report on the book *Your Inner Fish*
2. Field identification and natural history of: 10 local fish species, 10 local amphibian species, 10 local reptile species, 20 local bird species, 10 local mammal species

Exams (300 points total):

1. 2 lecture examinations (100 points each)
2. 2 lab exams (50 points each)

Americans with Disabilities Act (ADA):

Sul Ross State University is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is the student's responsibility to initiate a request for accessibility services. Students seeking accessibility services must contact Mary Schwartz, M. Ed., L.P.C., in Counseling and Accessibility Services, Ferguson Hall, Room 112. The mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas 79832. Telephone: 432-837-8691. E-mail: mschwartz@sulross.edu

Academic Honesty:

Cheating will not be tolerated. The University expects all students to engage in all academic pursuits in a manner that is above reproach and to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. "Cheating" includes, but is not limited to:

- Copying from another student's test paper, a laboratory report, other report, or computer files, data listings, and/or programs.
- Using, during a test, materials not authorized by the person giving the test.
- Collaborating, without authorization, with another person during an examination or in preparing academic work.
- Knowingly, and without authorization, using, buying, selling, stealing, transporting, soliciting, copying, or possessing, in whole or in part, the contents of an unadministered test.
- Substituting for another student; permitting any other person; or otherwise assisting any other person to substitute for oneself or for another student in the taking of an examination or test or the preparation of academic work to be submitted for academic credit.
- Bribing another person to obtain an unadministered test or information about an unadministered test.
- Purchasing, or otherwise acquiring and submitting as one's own work any research paper or other writing assignment prepared by an individual or firm. This section does not apply to the typing of the rough and/or final versions of an assignment by a professional typist.

Plagiarism will not be tolerated. "Plagiarism" means the appropriation and the unacknowledged incorporation of another's work or idea into one's own work offered for credit. This includes verbatim written answers by colleagues with whom you might discuss laboratories exercises. Plagiarism also includes copying information from internet resources. To avoid plagiarism, make sure you always use your own words to construct your written answers.

Parting thoughts from Charles Darwin:

"If it could be demonstrated that any complex organ existed, which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down. But I can find no such case."

"In the long history of humankind (and animal kind, too) those who learned to collaborate and improvise most effectively have prevailed."