

BIOL 3410

Comparative Vertebrate Anatomy

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*Additional times or virtual meetings available upon request. [Office Zoom Link](#).

Time and Place of Class Meetings:

BIOL 3410 lectures will take place on Tuesdays and Thursdays from 9:30-10:45pm in SciTech room 279.

Description of Course Content:

Comparative Vertebrate Anatomy examines vertebrate morphology in an evolutionary context with specific emphasis on the relationship of structure and function. Lectures will examine the origin and evolution of major vertebrate systems and the functional significance of morphological adaptation. The Laboratory component provides direct observation of major vertebrate organs and organ systems through dissection and comparison across representative organisms.

Prerequisite: BIOL 1306, 1307 with a grade of C or better.

Note: Modern Biology is an integrative discipline, incorporating elements of Mathematics, Chemistry, Computer Science, and Writing. We expect that you have at least a basic understanding of each of these elements.

Student Learning Outcomes:

Demonstrate an understanding of:

1. the Scientific Method
2. Evolutionary relationships
3. Evolution and development of common structures
4. Structure and function of organ systems
5. Biological roles of structures

Recommended Textbooks and Other Course Materials:

- *Vertebrates: Comparative Anatomy, Function, and Evolution*, 5th Edition or Higher.
- Additional materials and assignments will be posted on BlackBoard.

Blackboard Ultra:

This class uses the learning management system Blackboard Ultra to administer content and evaluate understanding. I will post links to videos, notes, reading materials, digital supplements, and administer essay exams from this learning platform.

Grading Policy:

Biology 3410 consists of both a lecture and laboratory component. The following standard scale will be used when reporting your composite grade: 90-100=A, 80-89=B, 70-79=C, 60-69=D, 0-59=F.

Final Course Grade = (Lecture Grade x 75%) + (Laboratory Grade x 25%)

Your lecture grade will be determined by FIVE exams, the last of which is your cumulative final exam. Each in-semester exams will be worth 1/5 of your lecture grade. The exams are a mixture of short-answer, essay, and labeling with both specific and conceptual questions. You will need to bring a scantron 882e (which can be obtained from the bookstore) to each exam. If extra credit is assigned, it will be made available to everyone in the class. 90-100%=A, 80-89%=B, 70-79%=C, 60-69%=D, 0-59%=F.

Grade Components:

Your grade will be determined by five in-class exams (100 points each), one Historical Figure Presentation (50 points), and participation in class discussions (50 points). Your grade will be determined by the number of points earned divided by the total points possible (600 points).

In Class Exams: There will be five multiple choice/short answer/listing exams administered in class. One will be the final exam. You will use a Scantron 886-E and a sheet of notebook paper for these exams.

60-Second Scientist: You will be assigned a historical figure/aspect in vertebrate anatomy and prepare a 60-second video presentation on their life and contribution to the field.

Participation: During class, I will note your contributions to our conversations on weekly topics. You do not have to comment every class period, but you should make multiple comments throughout the semester.

THERE WILL BE NO INDIVIDUAL EXTRA CREDIT.

(If extra credit is assigned, it will be made available to everyone in the class.)

Use of Generative AI: There are situations and contexts within this course where you may be asked to use artificial intelligence (AI) tools to explore how they can be used. Outside of those circumstances, you should not use AI tools to generate content (text, video, audio, images) that will end up in any student work (assignments, activities, discussion responses, etc.) that is part of your evaluation in this course. Any student work submitted using AI tools should clearly indicate with attribution what work is the student's work and what part is generated by the AI. In such cases, no more than 25% of the student work should be generated by AI. If any part of this is confusing or uncertain, students should reach out to their instructor for clarification before submitting work for grading. Use of AI-generated content without the instructor's permission and/or proper attribution in this course qualifies as academic dishonesty and violates Texas A&M-San Antonio's standards of academic integrity.

Schedule

LECTURE SCHEDULE

Introduction
Origins and Phylogeny
Vertebrate Diversity
Size, Shape, and Biomechanics

Chapter 1
Chapter 2
Chapter 3
Chapter 4

Life History of Vertebrates

Chapter 5

EXAM I

Integument and its Derivatives

Chapter 6

The Skull

Chapter 7

The Axial Skeleton

Chapter 8

The Appendicular Skeleton

Chapter 9

EXAM II

The Muscular System

Chapter 10

The Digestive System

Chapter 11

EXAM III

The Respiratory System

Chapter 12

The Circulatory System

Chapter 13

The Urogenital System

Chapter 14

The Endocrine System

Chapter 15

EXAM IV

The Nervous System

Chapter 16

Sensory Organs

Chapter 17

Conclusions

Chapter 18

FINAL EXAM

The complete academic calendar is available online [here](#).