

BIO 2123 Comparative Anatomy of Vertebrates THIS SEMESTER

NOTE FOR ALL SECTIONS (No attendance required): All course materials and performance assessments will be completed and administered entirely on-line through the world wide web internet and via Blackboard software of UTSA (webct.utsa.edu). The introductory lecture on the syllabus and all lectures will be recorded and posted through the Blackboard Homepage and Learning Modules as streaming video. Check the Blackboard Calendar for the scheduled dates for exams in this semester. All performance assessments, e.g., exams and quizzes, will be administered on line beginning the day indicated on the syllabus and specifically as dates posted on the Calendar; an email will be sent via Blackboard Mail to all enrolled students notifying them of availability and end date/time for completion of on line assessment materials. Otherwise, the sequence for completion of other learning activities, e.g., Exercises and Terminology Assessments, are indicated via the Learning Modules outline format. All lecture presentations will be posted, e.g., Powerpoint and pdf slides, and pdf handouts for printing, on the Blackboard course site. **All correspondence will be conducted via the Blackboard Mail function on the course site.** Grades are posted automatically to the My Grades page, upon completion of performance assessment materials for all activities. Final grades are posted under My Grades, immediately upon completion of the final exam.

Instructor: Clyde F. Phelix, Ph.D.

Office Hours: Correspondence through Blackboard Mail.

Course Objective: To understand the developmental, functional, evolutionary, and phylogenetic relationships of anatomical systems in the vertebrates; human gross anatomy will be covered with both systemic and regional approaches.

Prerequisites: You must have successfully completed BIO 1404 (Biosciences I) , 1122(Lab) and 1413 (Biosciences II). Concurrent enrollment in BIO 2132 recommended.

Required Text: *Functional Anatomy of the Vertebrates. An Evolutionary Perspective, 3rd edition* by Liem Bemis Walker Grande.

Welcome to Comparative Vertebrate Anatomy, a study of vertebrate animal form and function. In the course of a semester we will study principles of comparative developmental and functional anatomy of the organ systems and body regions. An effort will be made to stress basic quantitative anatomical and functional principles and these quantitative problems will be on the on-line exams. Each quiz will cover the terminology to be learned in achieving a working vocabulary of comparative anatomy. Overall there are 50 activities to generate points toward the final grade; diligence and consistency will be essential.

This course consists of three or more hours of lecture each week, as well as other supplemental and required material on the Blackboard course site. Your grade will be determined in the following manner...

Grading System

Five (5) Comprehensive exams	50% of final semester grade
20 Terminology Assessments	10% of final semester grade
Five (5) Terminology Quizzes	10% of final semester grade
Five (5) On Line Exercises	10% of final semester grade
Three (3) On Line Case Studies	06% of final semester grade
Two (2) Practicals	04% of final semester grade
Ten (10) Human Dissection Quizzes	10% of final semester grade
Letter Grades by points ≥ 450	A = 90% and above
$\geq 400 \leq 449$	B = 80% - 89%
$\geq 350 \leq 399$	C = 70% - 79%
$\geq 300 \leq 349$	D = 60% - 69%
≤ 299	F = 59% and below

Note - Fractions of a percentage will be rounded to the nearest whole percentage.

COURSE OUTLINE

<u>WEEK</u>	<u>(LEC #)</u>	<u>TOPIC</u>
<u>MODULE I: Background for the Study of Vertebrate Anatomy</u>		
(1)	(1)	Introduction (Chapter 1); <u>Terminology 1</u> -Levels of Structural Organization
(2)	(2)	Phylogenetic Relationships of Chordates and Craniates (Chapter 2); <u>Terminology 2</u> - Human Dissection Quiz 1 : Superficial Face & Infratemporal Fossa. -Human Regional Anatomy: Head
(3)	(3)	Diversity and Phylogenetic History of Craniates (Chapter 3); <u>Terminology 3</u> - Human Dissection Quiz 2 : Superficial & Deep Neck. -Human Regional Anatomy: Neck
(4)	(4)	Early Development and Comparative Embryology (Chapter 4); <u>Terminology 4</u> -Human Embryology: Histogenesis. -Tissues, Epithelium, and Body Compartments
(5)	(5)	Form and Function (Chapter 5); <u>Terminology 5</u> - Terminology Quiz 1 ; Exercise 1 on Human Anatomy - Case Study 1 : Lever Systems and Clinical Anatomy of the Human Digits
(5-6)	EXAM I (Lectures 1-5) [on line exam; lectures will continue on line] (<i>CENSUS DAY: LAST DAY TO WITHDRAW WITHOUT A GRADE -- check UTSA Academic Calendar</i>)	
<u>MODULE II: Protection, Support, and Movement</u>		
(6)	(6)	The Integument of the vertebrates (Chapter 6); <u>Terminology 6</u> - Human Dissection Quiz 3 : Pelvic outlet & Split Pelvis. -Anatomical Terminology and Human Integumentary System -Introduction to Sexual Anatomy: Development and the Human Pelvis
(7)	(7)	The Cranial Skeleton of the vertebrates (Chapter 7); <u>Terminology 7</u> -Human Skeletal System I: Development of Bone in the Vertebrate Organisms -Human Skeletal System II: Axial Skeleton I: Skull
(7)	(8)	The Postcranial Skeleton of the vertebrates: The Axial Skeleton (Chapter 8); <u>Terminology 8</u> - Human Dissection Quiz 4 : Thorax & Posterior thorax. -Human Skeletal System III: Axial Skeleton II: Vertebrae and Ribs
(8)	(9)	The Postcranial Skeleton of the vertebrates: The Appendicular Skeleton (Chapter 9); <u>Terminology 9</u> - Human Dissection Quiz 5 : Superficial UE Limb & Axillary fossa. -Human Skeletal System IV: Appendicular Skeleton of UE and LE -Human Regional Anatomy: Shoulder and Upper Extremity to the Elbow
(8-9)	(10)	The Muscular System of the vertebrates (Chapter 10); <u>Terminology 10</u> - Human Dissection Quiz 6 : Shoulder and arm & Forearm and hand & UE joints -Human Muscular System: Development and Histology -Human Regional Anatomy: Trunk and Lower Extremity to the knee

- (9) (11) Functional Anatomy of Support and Locomotion (Chapter 11); Terminology 11
 -**Human Dissection Quiz 7:** Hip and thigh, & Leg and foot, & LE joints
 -Human Skeletal System V: Arthrology
 -**Case Study 2:** Baboon Pelvis and Human Pelvic Floor Disorders
 -**Terminology Quiz 2** and Exercise 2 on Human Anatomy

(9-10) **EXAM II** (Lectures 6-11) [on line exam; lectures will continue on line]

MODULE III: Integration

- (10) (12) The Sense Organs of the vertebrates (Chapter 12); Terminology 12
 -Human Nervous System I: Neurocytology
 -Vertebrate Nervous System Development: Neurulation
- (10) (13) The Nervous System of the vertebrates I: Organization, Spinal Cord, and Peripheral Nerves (Chapter 13); Terminology 13
 -**Human Dissection Quiz 8:** Spinal cord, & Abdominal autonomies
 -Human Nervous System II: Spinal Cord and Nerves
 -Human Nervous System III: Autonomic Nervous System
- (11) (14) The Nervous System of the vertebrates II: The Brain (Chapter 14); Terminology 14
 -**Human Dissection Quiz 9:** Brain
 -Human Nervous System IV: Development of Adult Human Brain
- (11) (15) Endocrine Integration in the vertebrates (Chapter 15); Terminology 15
 -**Terminology Quiz 3** and Exercise 3 on Human Anatomy
 -**Case Study 3:** Anatomy of the Mouse as a Research Animal Model

(11-12) **EXAM III** (Lectures 12-15) [on line exam; lectures will continue on line]

MODULE IV: Metabolism and Reproduction

- (12) (16) The Digestive System of the vertebrates I: Oral Cavity and Feeding Mechanisms (Chapter 16);
Terminology 16
 -Human GI System I: Development and Introduction to Digestive System
- (12) (17) The Digestive System of the vertebrates II: Pharynx, Stomach, and Intestines (Chapter 17);
Terminology 17
 -**Human Dissection Quiz 10** : Pharynx, Peritoneal Cavity & Gastrointestinal Tract.
 -Human GI System II: Gross Anatomy, Histology and Neurovasculature
- (13) (18) The Respiratory System of the vertebrates (Chapter 18); Terminology 18
 -**Human Dissection Quiz 11:** Superficial Thorax and Abdomen, & Nasal Cavity / paranasal sinuses
 -Human Respiratory System
 - Exercise 4 on Human Anatomy
- (13) (19) The Circulatory System of the vertebrates (Chapter 19); Terminology 19
 -Human Circulatory System I: Blood
 -Human Circulatory System II: Development and the Heart
 -Human Circulatory System III: Blood vessels
 -Human Circulatory System IV: Lymphatic System

- (14) (20) The Excretory System and Osmoregulation of the vertebrates (Chapter 20); Terminology 20
-Human Urinary System
- (14) (21) The Reproductive System and Reproduction of the vertebrates (Chapter 21); Terminology 21
-Human Reproductive System: Female
-Human Reproductive System: Male
-**Terminology Quiz 4** and **Exercise 5 on Human Anatomy**
-Comparative Vertebrate Anatomy Practical 1: Thoracic, Abdominal, and Pelvic Regional Anatomy
- (14-15) **EXAM IV** (Lectures 16-21) [**on line exam; lectures will continue on line**]
(**DROP DAY: LAST DAY TO DROP WITH A GRADE OF "W" -- check UTSA Academic Calendar**)

MODULE V: Comparative Anatomy and Evolution in Perspective

- (15) (22) Epilogue (Chapter 22); Terminology 22
-**Human Dissection Quiz 12**: Orbit, & Ear
-**Terminology Quiz 5** and **Exercise 6 on Human Anatomy**
-Comparative Vertebrate Anatomy Practical 2: Regional Anatomy of the Extremities

(15) **STUDY DAYS**

- (16) Check Blackboard Calendar, **FINAL EXAM** as scheduled on-line (Covers lecture 22 and cumulative over others as assigned – check your Blackboard emails.)

FINAL EXAM SCHEDULED FOR ADMINISTRATION ACCORDING THE UTSA OFFICIAL SCHEDULE!

Grading Scheme:

You must complete:

- 20 of 22 Terminology and Definition activities (one per chapter) [**2.5 points each**]
-[completion credit; unlimited attempts]
- 5 Terminology Quizzes (single attempt) on Parts I through V of required textbook [**10 points each**]
- 5 Exams (multiple attempts except for final exam) also from the textbook Parts I-V [**50 points each**]
- 10 of 12 Dissection Quizzes directly from on-line videos on human dissections [**5 points each**]
- 5 of 6 Exercises (tests on Human Anatomy Lectures) [**10 points each**]
-[must score 70 or better to get full credit; unlimited attempts]
- 2 Practicals to assess ability to identify homologous structures in regions of vertebrate organisms
{posted as streaming video with image files provided} [**10 points each**]
- 3 Case Studies from video presentation of anatomical material, research articles, and internet resources
[completion credit; **10 points each**]

Total = 50 performance assessments X proportionate number of points each = 500 points maximum.

Final Letter Grade Scale:

A = 500 X 0.90 = 450 or better

B = 500 X 0.80 = 400 to 449

C = 500 X 0.70 = 350 to 399

D = 500 X 0.60 = 300 to 349

EXAM SCHEDULE: [Each exam will be posted on line on Blackboard and noted on the Calendar. You will have 120 minutes for Exams I-IV; 180 minutes for the Final Exam THAT WILL ALLOW ONLY ONE attempt. The exams I-V will be posted starting 24 hours before the dates below and will remain available for you to take them until midnight on those days.]

EXAM I	DURING WEEK 5-6
EXAM II	DURING WEEK 9-10
EXAM III	DURING WEEK 11-12
EXAM IV	DURING WEEK 14-15
FINAL EXAM	DURING FINALS WEEK

Policy sheet

Attendance: Obviously not, for the on-line section. Be committed to regular visits, viewing, reading, and studying because performance assessments will be administered on time! You should treat this course as a M, W course - as those will be the days the instructor will definitely be checking Blackboard Mail, and sending or receiving messages; every effort will be made by the instructor to visit the Blackboard course each morning. Be sure to view the Blackboard posted lectures, you might discover tips for the exams and other activities.

Exams: EXAMS 1 - 4 approximately 50 questions; and FINAL EXAM is 75 questions evenly distributed from the final chapter and prior examination materials (details will be communicated each semester). Each exam will be graded by Blackboard on line and instantly, except for any short answer questions. Questions will be multiple choice, matching, true/false and short essay. Remember this is an anatomy course; so there will be image files embedded in the exams. Check and double check your on line grades and correspond via Blackboard email with me **promptly** if you have any questions.

Terminology Assessments and Quizzes: There is a Terminology Assessment for each Chapter where you will be provided a term from the current chapter and prompted to type in the definition from the glossary of the textbook. After completion of the chapters with each Part or Learning Module, there is one Terminology Quiz where the term and definition are provided in a matching type of question. When assessed on the Exams, the definition will be provided and you will have to input the term with **correct spelling**.

Missed quizzes and exams: There are **NO make-up quizzes!** Make-up exams may be essay exams of extreme difficulty. You must make up an exam within **2 calendar days** (excluding weekends) of the scheduled day of the exam unless you and I have made other arrangements. Leave a message with the Department office (458-4458) if you cannot reach me in person or by email.

Missed final: You will receive a grade of "I" (incomplete for a postponed final) if you make prior arrangements. Otherwise, if I have not heard from you within 1 day after the final, you will receive a zero for the final.

Exercises, Case Studies, Practicals, and Dissection Quizzes

The instructor will describe the nature of the exercises, case studies, practicals, and dissection quizzes via recorded video presentations and Blackboard Mail emails early in the semester. The Exercises and Dissection Quizzes feature the human anatomy and are provided with unlimited attempts for ease of point collection and reinforcement of learning. Whatever number of each (exercises, case studies, and quizzes) that are completed in a semester will count equally toward the total points for the course, as allotted on the Table of page 1. Note that there are 5 extra activities, 2 Terminology Assessment, 2 Dissection Quizzes, and 1 Exercise on Human Anatomy. Thus the collection of points toward the final grade is manageable and you have a plethora of opportunities to learn vertebrate and detailed human anatomy. You will be provided, as an MS Excel spreadsheet, a formula for calculating your grade during the semester through Blackboard Mail.

Cheating (See <http://www.utsa.edu/infoguide/appendices/b.html> for Student Code of Conduct)

I expect you to be honest. **Cheating includes**, but is not limited to:

- 1) using notes during an exam**
- 2) looking at on line materials while taking the exam**
- 3) looking at another's or letting someone look at your exam**

Dropping the course

Check both the Blackboard and UTSA Academic Calendar to know what is the last day to drop and still get a grade of "W". You must take responsibility for dropping the class. You do not need my signature if you drop by the drop date. You **cannot** drop after the drop date simply because of low grades.