

Comparative Vertebrate Physiology

1) General Information

Course: BSC 314 - Comparative Vertebrate Physiology

Semester: Fall 2026

Credits: 3

2) Instructor of Record: Marzieh Asadi Aghbolaghi

Office: Science Building (STC), Office

Class Meeting Time: *(To be updated based on the official schedule in MyLeo/D2L.)*

Office Hours: By appointment or during scheduled office hours

Course Website: D2L Brightspace @ myLeo

Email: asadi.marzieh@etamu.edu

Recommended Book:

Titel: Animal Physiology

Authors: Richard W. Hill, Daniel J. Cavanaugh, Margaret Anderson

Publication Year: 2021

Publisher: Sinauer Associates / Oxford University Press

Ebook ISBN: 9780197553619

Casebound ISBN: 9780197552438

Loose-leaf ISBN: 9780197553596

Edition: 5

3) Course description

The course is a comparative study of basic physiological principles and functional organization with emphasis on the functioning of organ systems in various vertebrate classes and their adaptation to the environment leading to an understanding of evolutionary relationships. The course evaluates i) the mechanisms by which animals perform their life-sustaining functions, ii) the ways in which diverse phylogenetic groups of animals both resemble each other and differ, iii) the ways in which physiology and ecology interact, and iv) the importance of all levels of organization, from genes to proteins and tissues to organs, for the full understanding of physiological systems. Crosslisted with: [ANS 314](#).

4) Student Learning Outcomes

- Compare and contrast the structure and function of major physiological systems across vertebrate groups.
- Explain how physiological systems interact to maintain homeostasis and support survival.
- Describe how physiological adaptations enable vertebrates to thrive in diverse environments and relate these adaptations to evolution.
- Analyze the relationships among physiology, ecology, and evolutionary history.
- Apply scientific methods and quantitative reasoning to interpret physiological data and solve biological problems.
- Recognize and explain the fundamental principles that unify vertebrate physiological mechanisms.
- Explain how a Reformed Christian worldview informs the study of vertebrate physiology.

Learning strategies and course requirements

- Reading assignments
- Analysis of scientific literature
- Individual work and group work
- Written synthesis of information
- Proficiency in using the D2L Brightspace Learning Management System through myLeo Online.

Instructional Methods

This course meets in person in the traditional lecture format. You will be required to read the book chapters, supplemental reading material, and instructional PowerPoint slides. Quizzes and exams will cover the material presented to you via myLEO Online and information in the text. I will post announcements on the course homepage to remind students of important due dates, in addition to announcing them in class. Students can monitor their progress in the course on the course webpage in D2L Brightspace.

Student Responsibilities and Tips for Success

- Dedicate study time: Spend consistent time each week reviewing lectures and textbook chapters.
- Stay informed: Check your university email and the myLEO Online homepage daily for updates.

- Submit work promptly: Complete all assignments on time to avoid late penalties.

5) Grading information

Attendance, assignments, and quizzes are required. I encourage interactive participation even though it is an online class. Homework, group projects, and term paper are required.

Grade basis:

- 4 Short exams (400 points)
- 5 assignments (50 points)
- 1 research project (100 points)
- Final exam (450 points)

Penalty enforcement (I reserve the right to adjust your grade for violation of the minimum expectations).

Make-up quizzes will be given only if arrangements are made with the instructor before the scheduled quiz is missed. A documented excuse will be required. Otherwise, missing quizzes will be counted as zeroes in the overall grad computation.

Grading Scale:

90.0 – 100% = A

80.0 - 89.9% = B

70.0 - 79.9% = C

60.0 – 69.9% = D

<60.0% = F

Short exams (5): Short exams will cover the material discussed each week.

Assignments (5): Journal articles

Reading and assimilating information is a critical part of your current and continuing education. For each assigned date, a journal is named in the right column of the table. Choose and read a paper from that journal that you find interesting or relevant. These journals are available in our library (online resources). On that date, provide me with a citation and a short description of the paper (10 sentences).

Date	Journal
WEEK 1-3	Comparative Biochemistry and Physiology
WEEK 3-6	The Journal of Experimental Biology
WEEK 6-9	Physiological and Biochemical Zoology
WEEK 9-12	Frontiers in Physiology
WEEK 12-15	Integrative and Comparative Biology

Research Project and Presentation:

You will work in groups of **three** to develop a research project (literature review) on a specific technique or set of techniques used to study mammals. **I will assign a research topic and a reference to each group** to help you get started. Your project should include the following sections:

- Introduction
- Methodologies used to study your topic
- Results
- Discussion

The presentations will take place during the **last week of class**. Each group will deliver a **10-15 minute presentation** summarizing its research.

In addition, each group must prepare **three questions with their corresponding answers** based on the presentation. Please print copies of the questions and answers to share with your classmates.

During the final exam, I will select **one question from each group**.

Finally, submit the following materials to the assigned Dropbox:

- Your presentation
- The three questions and their answers
- The written component of your literature review

6) Assessments/course schedule (adjustments may be made later at the instructor's discretion)

Date	Topic
WEEK 1	Welcome/Introduction Homeostasis Nutrition Feeding and Digestion
WEEK 2	Nutrition Feeding and Digestion
WEEK 3	Energy Metabolism Aerobic/Anaerobic Metabolism
WEEK 4	Short exams 1 (Week 1, Week 2, Week 3) Aerobic/Anaerobic Metabolism Energetics of Aerobic Activity
WEEK 5	Thermal Relations
WEEK 6	Neurons Synapses
WEEK 7	Short exams 2 (Week 4, Week 5, Week 6) Sensory Processes
WEEK 8	Nervous System Endocrine & Neuroendocrine Physiology
WEEK 9	Endocrine & Neuroendocrine Physiology
WEEK 10	Short exams 3 (Week 7, Week 8, Week 9) Reproduction
WEEK 11	Muscles Respiration
WEEK 12	Respiration Circulation Excretion
WEEK 13	Short exams 4 (Week 10, Week 11, Week 12) Excretion
WEEK 14	Conservation Research Projects and Presentation
WEEK 15	Final Exam

Technology Requirements:

LMS

All course sections offered by East Texas A&M University have a corresponding course shell in the *my*LEO Online Learning Management System (LMS). Below are technical requirements:

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

Zoom Video Conferencing Tool:

https://inside.tamuc.edu/campuslife/CampusServices/CITESupportCenter/Zoom_Account.aspx?source=universalmenu

Access and Navigation

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, an ETAMU campus open computer lab, etc.

Communication and Support

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of *Brightspace*, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

Interaction with Instructor Statement

Response time to any questions sent by email regarding the course will be answered within 72 hours. However, students are encouraged to interact with the instructor directly during the class time and office hours, if necessary. Exceptions such as widespread internet outage apply.

Course and University Procedures/Policies:

Course Specific Procedures/Policies:

You are expected to check your ETAMU email and d2l every day to check for any announcements. Additional information about all course assessment components is provided under “Course Evaluations”. Please do not attend class if feeling ill, if an illness occurs during a course assessment, please see the “General Makeup Policy” section above for guidance.

University Specific Procedures:

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.

<https://inside.tamuc.edu/admissions/registrar/documents/studentGuidebook.pdf>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:

<https://www.britannica.com/topic/netiquette>

ETAMU Attendance

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedure 13.99.99.R0.01](#).

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

Academic Integrity

Students at East Texas A&M University are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

[Undergraduate Student Academic Dishonesty Form](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

[Graduate Student Academic Dishonesty 13.99.99.R0.10](#)

[Graduate Student Academic Dishonesty Form](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf>

AI Statement

East Texas A&M University acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course.

Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors' guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

13.99.99.R0.03 Undergraduate Academic Dishonesty

<https://inside.tamuc.edu/aboutus/policiesproceduresstandardsstatements/rulesprocedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

13.99.99.R0.10 Graduate Student Academic Dishonesty

<https://inside.tamuc.edu/aboutus/policiesproceduresstandardsstatements/rulesprocedures/13students/graduate/13.99.99.R0.10.pdf>

Students with Disabilities – ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

East Texas A&M University

Velma K. Waters Library Rm 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: studentdisabilityservices@tamuc.edu

Website: [Student Disability Services](#)

<https://www.tamuc.edu/student-disability-services/>

Nondiscrimination Notice

East Texas A&M University will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in East Texas A&M University buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of

Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and East Texas A&M Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:
<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1. at 903-886-5868 or 9-1-1.

ETAMU Supports Students' Mental Health

The Counseling Center at East Texas A&M, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit www.tamuc.edu/counsel

Mental Health and Well-Being

The university aims to provide students with essential knowledge and tools to understand and support mental health. As part of our commitment to your well-being, we offer access to Telus Health, a service available 24/7/365 via chat, phone, or webinar. Scan the QR code to download the app and explore the resources available to you for guidance and support whenever you need it.



<http://telusproduction.com/app/5108.html>

