

General Physiology (Biol 5423/ 4423.010) Fall 2021



Instructor: Dr. Laurel Fohn, MD, PhD

Email: lfohn1@angelo.edu

Phone: 325-486-6644

Office: Cavness 107

Office Hours: Posted on office door and on first day of class. Additional office hours will be by appointment only. All office hours/ appointments will occur in a socially distanced manner and may occur via telephone, Blackboard Collaborate, outdoors, etc.

Attendance: There will be assigned seating and roll is taken at each class meeting for both in-person and remote students and factors into your grade as described below.

Course Information

Course Description

The goals of this course are to: [1] provide students with factual knowledge about the field of physiology; to introduce fundamental principles of the field. These represent progress points 1 & 2 on the IDEA course evaluation form to be filled out at the end of the semester.

Prerequisite and Co-requisite Courses

Must have completed Biol 1413 and 1480, or Biol 1406 and 1407, or Biol 2423 and 2424 with a grade of "B" or better.

Prerequisite Skills

Completion of lab safety and chemical safety training courses, proficiency in accessing and utilizing ASU Blackboard platform, internet websites, using ASU Library resources, and proficiency with Microsoft Word and/or PowerPoint are expectations of the course.

Student Learning Outcomes

Upon completion of this course, students should::

1. understand homeostasis and its maintenance primarily through negative feedback
2. understand the functioning of the basic organ systems (ie. conceptual content)
3. be able to apply this understanding to unknown situations
4. begin understanding the intercoupling/dependence of function between systems

Course Delivery- Face to Face with Synchronous Remote Sessions for lecture portion (additional lab information in separate section below).

Classic lecture style utilizing Synchronous Remote Sessions supplemented with transparencies/figures/ powerpoints. Students will be assigned textbook readings as well as supplemental reading/ viewing material online. The format of the laboratory accompanying the lecture is described in separate section below. This course is designed for upper level science majors particularly those with health professions interests.

To maintain academic quality while accommodating social distancing needs this semester, this course will use a split delivery model that combines face-to-face teaching with remote instruction.

The goal is to provide face-to-face instruction to students who are eligible (no illness, no symptoms of illness, and no contact with COVID19) and want to return to campus, while also allowing students who may need to learn remotely to participate via virtual class sessions for lecture portions of class. These sessions may be recorded.

How Does It Work?

When you are not in the physical class, you will attend live remote sessions at the same time as our scheduled course. You will also be expected to complete coursework via [Blackboard](#).¹ The lab portion of the course will require in-person attendance unless otherwise specified.

Please refer to this [Health and Safety web page](#)² for updated information about campus guidelines as they relate to the COVID-19 pandemic.

Required Texts and Materials

Lecture Text: Animal Physiology, Fourth Edition. Author: Richard W. Hill..

Print ISBN: 9781605354712, 1605354716

eText ISBN: 9781605355986, 1605355984

Laboratory Text: Bio. 4423 Laboratory Handouts (available through Blackboard one week in advance of laboratory) and PhysioEx 9.0 (manual): Laboratory Simulations in Physiology with 9.1 (software) Update. ISBN#: 9780321929648

Technology/ Communication Requirements

Technology: Students will need to utilize and check their **Angelo State University email** account for all email communications with the instructor and for course announcements. Additionally, students should maintain the ability to utilize **Blackboard** to access grades, reading assignments, synchronous lectures via Collaborate, exams, quizzes, assessments, and other course material.

To successfully complete this course, students need to have access to a **smart phone, reliable internet, and a computer (a PC or Mac computer/ laptop or iPad) with webcam** capable of utilizing **Respondus Lockdown Browser and Respondus Monitor**.

Access to some exams and quizzes may be through Blackboard and Respondus Lockdown Browser and will be video recorded via Respondus Monitor. Respondus requires a desktop computer or laptop (not a Chromebook) and a webcam. For best results, use an ethernet cable to connect to your Internet source instead of relying on Wifi. Refer to the Blackboard course for Respondus installation instructions.

This class will utilize Blackboard Collaborate (which requires a web cam).

Communication: Faculty will respond to email and/or telephone messages within 2 business days (Monday through Friday) during working hours.

All private email communication will be done exclusively through your ASU email address. Check frequently for announcements and policy changes. In your emails to faculty, include the course name and section number in your subject line.

Virtual communication: Office hours and/or advising may be done with the assistance of the telephone, Collaborate, Skype, etc.

Assessment/ Grading/Assignment and Activity Descriptions:

Students will be assessed on the above objectives through exams and homework as detailed below. Course grades will be determined as indicated in the table below.

Evaluation and Grades-

The assessment information in this section applies for most students. Students taking this course by Honors Contract or for Graduate credit (5423) will have modifications as described in those sections.

| Date | Assessment | Percent of Total Grade |
|--------------------------|--|--|
| 9/21 or 23 in lab | Lab Exam 1* | 10% |
| 9/28 | Lecture Exam 1* | 20% |
| 10/12(14) and 10/19 (21) | Lab Presentations* | 10% |
| 10/26 | Lecture Exam 2* | 20% |
| 11/2(4) in lab | Lab Exam 2* | 10% |
| 11/23 | Lecture Exam 3* | 15% |
| 11/30 (12/2) in lab | Lab Exam 3 (lab comprehensive final) | 15% |
| Tuesday 11/24 at 8 am | Optional Comprehensive Final Exam* | Will replace single lowest exam (except for the lab final -exam 3) score up to 20% |
| | *Note: Portions of all exam grades above may be derived from homework assignments as described in lecture and lab. | |

NOTE: November 22, 2021 is currently listed as the **last day to Drop/Withdraw from class without a grade** (ie. these students will receive a W on their transcript). **Any student remaining on the official role after this date will receive a grade.**

Grading System

Course grades will be dependent upon completing course requirements and meeting the student learning outcomes.

The following grading scale is in use for this course:

A = 90.00-100 percent

B = 80.00-89.99 percent

C = 70.00-79.99 percent

D = 60.00-69.99 percent

F = 0-59.99 percent (Grades are not rounded up)

Assignment and Activity Descriptions (exams, attendance, presentations, etc.)

Exams:

On exam days, lecture and lab exams will be given during the normally allocated lecture/ lab time. All exams will be turned in promptly at the end of the lecture/ lab period. Extra time will not be allocated for finishing the exam unless academic accommodations have been previously applied for/ made. Exams will be proctored either in person or online using Respondus Lockdown Browser and Monitor. No learning materials (notes, books, handouts, etc) or electronic devices (other than the exam device), including calculators, are permitted on desktops/ surrounding exam areas during exams and no assistance from any other being is permitted.

In both lecture and lab, exams will be composed of practical questions arising from lecture material, readings, or laboratory experiments. Exams will contain multiple choice, short answer, matching, essay and experimental design questions. While approximately 50% of questions will be based on factual recall, the remaining 50% of each exam will be composed of questions that will require a “synthesis” of information or an “application” of knowledge to solve an unknown situation.

No make-up exams will be administered. Therefore, attendance is imperative and if an exam is missed, it will become a 0. This should then be the lowest of the exam scores, and the drop score as discussed below.

NOTE for exams:

- Additional reading assignments/ study guides may be given during lecture or posted to blackboard. Students are responsible for this information as well as that presented in class/ textbook. You may AUDIO tape (but NOT VIDEO OR PHOTOGRAPH lectures/slides).

- The week before a major exam (IN LAB), take-home review questions may be available through Blackboard. These questions will be designed to test your understanding of physiological principles and may include clinical/case-study questions. Each major LAB exam may include questions picked from these take-home exercises.

→ You may use any resource available to you to answer these questions- textbook, reliable internet sources, library, or colleagues. However, these are take-home assignments-not take-Dr. Fohn assignments- I will not answer these questions for you.

Attendance:

Lectures-Students may attend lectures at their own discretion; however, in accord with University policy, attendance will be taken at each class meeting. Attendance records are maintained for administrative reasons and will not be a direct negative factor in determining your final grade. Note, however, consistent lecture attendance generally proves beneficial to successful examination performance. It is highly unlikely that persons with sporadic attendance will be able to maintain a successful level of performance; they might find it more profitable therefore to devote their time and energy to other endeavors.

Laboratory-**Laboratory attendance is imperative.** Laboratory will stress the functional application of lecture knowledge and aid the student in grasping physiological principles. **Additionally, assignments from lab will count as points on the lab exams.**

Exams- Students are required to take all exams and to complete all assignments on time. If you miss an exam for any reason you may use the comprehensive final exam as the make-up exam, otherwise a grade of zero (0) will be entered for the exam missed. The grade earned on the comprehensive exam will serve as the replacement for the missed exam. If a second exam is missed, a grade of zero (0) will be assigned.

Exceptions will be made only in rare and unusual circumstances.

- There will be one comprehensive exam given during the final exam period. This exam will cover any/all material presented and assigned from the beginning of the semester in both lecture and lab, and thus includes any material covered during any portion of the course.
- **All students are required to take lab exam 3 as this is the lab final exam.**

Student Presentations

To save lecture time and still attempt to cover most of the organ systems, two laboratory sessions will be devoted to student presentations covering various aspects of gastrointestinal and reproductive/endocrine physiology. Presentation assignments will be made following the first lecture exam. Students will be assigned a topic. Each student will be responsible for researching/organizing/presenting a 15 minute PowerPoint to the class. Each presentation should include a quick review of the relevant anatomy or background, an extensive discussion of physiology, and an example of a common pathophysiology/ or paper that demonstrates the importance of the topic/ system. Each student will also be responsible for formulating questions and answers based on the presentation from which laboratory exam questions will be extracted. More information will be distributed on assignment day.

General Policies Related to This Course

All students are required to follow the policies and procedures presented in these documents:

- [Angelo State University Student Handbook](#)³
- [Angelo State University Catalog](#)⁴

Academic Integrity

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the university's [Statement of Academic Integrity](#).⁵

Accommodations for Students with Disabilities

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA) and subsequent legislation.

Student Disability Services is located in the Office of Student Affairs, and is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability. It is the student's responsibility to initiate such a request by contacting an employee of the Office of Student Affairs, in the Houston Harte University Center, Room 112, or contacting the department via email at ADA@angelo.edu. For more information about the application process and requirements, visit the [Student Disability Services website](#).⁶ **All paperwork associated with this request needs to be submitted at least one week prior to accommodation implementation.** The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dallas Swafford
Director of Student Disability Services
Office of Student Affairs
325-942-2047
dallas.swafford@angelo.edu
Houston Harte University Center, Room 112

Incomplete Grade Policy

It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 [Grading Procedures](#)⁷ for more information.

Plagiarism

Plagiarism is a serious topic covered in ASU's [Academic Integrity policy](#)⁸ in the Student Handbook. Plagiarism is the action or practice of taking someone else's work, idea, etc., and passing it off as one's own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list.

Papers are subject to be evaluated for originality. Resources to help you understand this policy better are available at the [ASU Writing Center](#).⁹

Student Absence for Observance of Religious Holy Days

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 Student Absence for [Observance of Religious Holy Day](#)¹⁰ for more information.

Title IX at Angelo State University

The University prohibits discrimination based on sex, which includes pregnancy, sexual orientation, gender identity, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination including: sexual assault, sex-based discrimination, sexual exploitation, sexual harassment, public indecency, interpersonal violence (domestic violence and/or dating violence), and stalking. As a faculty member, I am a Responsible Employee meaning that I am obligated by law and ASU policy to report any allegations I am notified of to the Office of Title IX Compliance.

Students are encouraged to report any incidents of sexual misconduct directly to ASU's Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator at:

Michelle Boone, J.D.
Director of Title IX Compliance/Title IX Coordinator
Mayer Administration Building, Room 210

325-942-2022

michelle.boone@angelo.edu

You may also file a report online 24/7 at www.angelo.edu/incident-form.

If you are wishing to speak to someone about an incident in confidence you may contact the University Health Clinic and Counseling Center at 325-942-2173 or the ASU Crisis Helpline at 325-486-6345.

For more information about Title IX in general you may visit www.angelo.edu/title-ix.¹¹

Health/ Safety/ COVID-19 Policy

You are required to complete the daily wellness screen each day prior to attending class. Faculty members may also ask you to display your daily screening badge. If you are not feeling well, please complete the screen and do not return to class until you are cleared for return through the system.

Current research on the COVID-19 virus suggests there is a significant reduction in the potential for transmission of the virus from person to person by wearing a mask/facial covering that covers the nose and mouth areas. Therefore, the CDC and I highly recommend and encourage the wearing of an appropriate mask/facial covering before, during, and after class. You are also asked to maintain safe distancing practices, hygiene and hand washing to the best of your ability.

No food or drink may be consumed in lecture or in lab. Additional health and safety requirements will be discussed in lab.

Modifications to the Syllabus

This syllabus, including grade evaluation and course schedule, is subject to modification. In particular, the COVID-19 pandemic may require significant changes in course delivery and content on potentially short notice.

Course Schedule

Lecture Schedule:

LECTURE TOPICS

Introduction

What is physiology? Ways to study physiology

Composition of organism

Basic cell structure and function.*

Biological membranes. & Membrane Transport**

Homeostasis

SECTION/CHAPTER(S)

I/1-5

| | |
|---|---|
| Genomics and development | |
| Intercellular communication/ Integrating Systems: | III |
| Immunology and cell signaling | (supplemental) |
| Neurons/ Endocrine Comparison & neural histology | III/ 12 |
| Ionic basis of action potential | III/12 |
| Conduction. Myelination. Synaptology | III/13 |
| CNS, PNS, ANS | III/12-14 |
| Sensory processes | III/14 |
| Biological clocks/synaptic plasticity/ learning | III/15,13 |
| Endocrine and Neuroendocrine Physiology | III/16 |
| Blood and Immunology | |
| Muscles-micro/macroanatomy | IV/ 19-21 |
| Excitation-contraction coupling** | |
| Whole muscle physiology | |
| Reflex arc and control of body motions | |
| Red vs. white, smooth | |
| Gastrointestinal & Reproductive physiology | II/6-11, 16, 17 (student presentations) |
| Cardiovascular physiology | V/25 |
| Cardiac muscle | |
| Cardiac function | |
| Cardiac dynamics and Control of cardiac output | |
| Peripheral circulation and its control | |
| Regulation of blood pressure | |
| Respiratory physiology | V/22-24 |
| Renal physiology (time permitting) | VI/27-30 |

Lab Schedule:

The lab will correlate with the lecture and will be posted to blackboard. Please note that **two Lab Safety Courses in Bb must be complete by second lab week** or student will not be allowed to participate in lab and will lose points.

NOTES: **Basic cell structure/function, the fluid-mosaic composition of the cell membrane and mechanisms of crossing cell membranes (osmosis, diffusion, etc.) will not be dealt with in lecture. You will, however, be held responsible for this information for examination purposes (Lab Exam 1). Relevant information can be found in Section 1 of your textbook and related class/lab handouts. Also, if you are unfamiliar with basic chemical principles, the biochemical composition of the body and basic enzyme kinetics, you might find it beneficial to review these subjects in any introductory Biology text.*

******At this point, if you find basic cellular respiration a bit foggy, familiarizing yourself with this subject by briefly reviewing an introductory Biology text might prove helpful.

REQUIREMENTS FOR HONORS CONTRACT CREDIT

Honors contract students will design and test a laboratory exercise for future use in the laboratory component of the general physiology course. The experiment/ demonstration should exemplify an aspect of physiology covered in the course, but that is not currently performed as a wet method. The experiment should be suitable for being performed in one to two lab sessions (3-6 hours) by multiple, student groups. The honors student will query the literature/ teaching websites, etc. and write-up a lab protocol including introduction, background and methods and discuss this protocol with the professor. Through this point, each student should work independently and submit an individual product. After this point, students may work in pairs or individually at the discretion of the student and faculty member. In consultation with the professor, the student(s) will then perform the experiment and provide feedback through an oral presentation (in lecture at the end of the semester) of the experiment and written summary. These presentations will address the methodology and findings of the experiment, advantages/ disadvantages of this lab exercise, test questions/ concepts that should be able to be answered/ learned from the exercise, and potential modifications to improve its efficacy for teaching/ student learning. This assignment will impact the lab portion of the student's grade as a fifth lab exam, such that each lab exam is worth 8%. Additional Honors Contract Project information will be posted in Blackboard.

Honors contract deadlines:

1. **Tuesday, August. 31 by 5pm-** Notify me **by email** of your interest in completing this course by honors contract.
2. **Tuesday, Sept. 14 by 5 pm-**
 - a. Performed literature/ teaching website query with 2 ideas of potential experiments to be performed with protocol overview and list of reagents that would be required, and emailed to instructor.
 - b. Must also have scheduled an appointment with me to discuss these findings.
3. **Meet with Dr. Fohn by appointment. Meeting must have occurred by Friday, Sept 24 at 5 pm.**
4. **Thurs, October 1-** Complete any additional paperwork (i.e. IACUC, etc); reagents ordered
5. **Tuesday, November 8- Experiments completed- Note: 10/26 and 11/2 are good lab weeks to work on experiments.**
6. **Tuesday and/or Thursday, 11/30 or 12/2 - Presentation Day. All written and presentation materials emailed to me by Monday, 11/29 at 9 am.**
7. **The instructor will formulate several questions from the presentation for inclusion on the final examination.**

Tardiness/ failure to meet each of these deadlines will result in a half-letter grade (5 point) decrease in the grade for your honors project each day it is late. An honors project grade below 70% will result in loss of honors credit for the course.

REQUIREMENTS FOR GRADUATE CREDIT

Students expecting graduate credit will be required to prepare a formal research report on any topic relevant to physiology (if currently working on a thesis topic, this subject should be of ancillary interest). For graduate students, these papers will be considered an additional lab

grade (i.e. calculated into grade as a fifth lab exam- each lab exam now worth 8% of total grade). Papers should be type written, include a minimum of five (5) primary references and demonstrate an understanding and integration of these references. Papers may be turned in for preliminary review on or before **Monday, October 18**. Papers will be critiqued, graded and returned within the next week. If the student is satisfied with that grade, it will be recorded. If the student wishes to improve his/her grade, the paper should be revised and turned in no later than **Thursday, Nov. 11** for a final grade.

Additionally, each student seeking graduate credit will be required to orally **present his/her research topic to the class on Nov 30 or Dec. 2nd**. This presentation will be recorded as twenty-five percent (25%) of the paper grade. **A grade below 70% on this assignment (paper + presentation) will result in loss of graduate credit for the course. The instructor will formulate several questions from the presentation for inclusion on the final examination.**

¹ <https://blackboard.angelo.edu/>

² <https://www.angelo.edu/covid-19/returning-to-campus/health-and-safety.php>

³ <https://www.angelo.edu/student-handbook/>

⁴ <https://www.angelo.edu/catalogs/>

⁵ <https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php>

⁶ <https://www.angelo.edu/services/disability-services/>

⁷ <https://www.angelo.edu/content/files/14197-op-1011-grading-procedures>

⁸ <https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php>

⁹ https://www.angelo.edu/dept/writing_center/academic_honesty.php

¹⁰ [https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-](https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of)
[of](#)

¹¹ <https://www.angelo.edu/services/title-ix/>