## GENERAL PHYSIOLOGY – BIOL 5423/4423.010
### FALL-2018

**Time:**  
Lect.: TTh 9:30-11:00 AM (CAV.123)  
Lab.: Thursday 2:00-4:50PM (SciIII. 107)

**Instructor:** Dr. Laurel Fohn  
**Office:** Cavness Science Building  
CAV. 107

**Office hours:** By appointment and as posted on office door and in Lecture/ Lab #1

**Phone:** 325-942-2189 (biology dept); 325-486-6644 (office)  
**E-Mail:** Laurel.Fohn@angelo.edu  

**Text:**  
**Lecture:** Animal Physiology, Fourth Edition. Author: Richard W. Hill.  
Print ISBN: 9781605354712, 1605354716  
eText ISBN: 9781605355986, 1605355984  

**Laboratory:** 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

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### LECTURE TOPICS

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<td>Basic cell structure and function.*</td>
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| Intercellular communication/ Integrating Systems: | III |
| 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 |

| 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 |
**Lecture Exams:**

**EXAM I**
Sept. 20 (Thurs.)

**EXAM II**
Oct. 30 (Tues.)

**EXAM III**
Combined with Lab Exam 3

**FINAL (comprehensive/ optional)**
Dec. 13 (Thur. 8:00am-10:00am)

**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.**

**STUDENT LEARNING OUTCOMES:**
1. gain an understanding of homeostasis and its maintenance primarily through negative feedback
2. gain an understanding of 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

**LABORATORY SCHEDULE**

**WEEK: DATE:** Lab exercises will correlate with lecture classes & will be posted to blackboard.

1: 8/30 Lab #1: Intro, Experimental Design/ Controls, Conversions, Solutions
2: 9/6 Lab #2: Osmosis and Diffusion
3: 9/13 Lab #3:
4: 9/20 Lab #4:

**5: 9/27** EXAM I

6: 10/4 Lab #5:
7: 10/11 Lab #6:
8: 10/18 Lab #7: **Student Presentations**

**ALL MATERIALS MUST BE EMAILED TO INSTRUCTOR BY 10 PM SUN 10/14**

9: 10/25 Lab #8: **Student Presentations**
10. 11/1 Lab #9:

**11: 11/8** EXAM II

12: 11/15 Lab #10:
13: 11/22 Lab #11: Thanksgiving week- LAB does NOT MEET
14: 11/29 Lab #12:

**15: 12/5 or 12/7** EXAM III
PLEASE NOTE:
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 (see Section VIII below).

INCIDENTALS:
I. Exams
   In both lecture and lab, each major exam will be composed of practical questions arising from lecture material 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.

NOTES:
• 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.

II. Determination of grade
   Lecture: EXAM I + EXAM II + EXAM III **  
            3
   Laboratory: EXAM I + EXAM II + EXAM III + Presentation Grade* 
               4 
               *see III & IV below
               ** See V below
   Final Course Grade = 0.60(Lecture Grade) + 0.40(Laboratory grade). Therefore, each lecture grade is worth 20% of your final grade and each lab grade is worth 10% of your final grade. There will be an OPTIONAL COMPREHENSIVE FINAL. It may be used to replace any 1 grade. As exam III is a combined lecture/ lab exam, it may only replace the lecture or lab portion of the grade, not the grade in both locations.
   90-100=A  80-89.99=B  70-79.99=C  60-69.99=D  <59.99=F

III. Absences:
   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 purely 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.

IV. 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. Groups of 3-4 students will be randomly generated and randomly assigned a topic. Each group will be responsible for researching/organizing/presenting a 30 min PPT to the class. Each PPT should include a quick review of the relevant anatomy, physiology and common pathophysiologies. Each group will also be responsible for formulating questions + answers from which laboratory exam questions will be extracted. More information will be distributed on assignment day.

V. Make-up Work

Students are required to take all exams and to complete all assignments on time. Exceptions will be made only in rare and unusual circumstances and ONLY BY PRIOR ARRANGEMENT. THERE ARE NO EXCEPTIONS TO THIS RULE.

- If you are planning an absence on a lecture exam day for any reason, you must make arrangements to take the exam in advance of the planned absence.
- If you miss a lecture exam for any legitimate, unplanned reason you will be required to take a comprehensive make-up exam or 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.
- 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 lecture/lab exam 3 as this represents 2 exams, and the comprehensive final may only replace one missed exam.

VI. Drop/Withdrawal Policy

The last day that a student may drop/withdraw from class without a grade is Thursday, November 1 (ie. these students will receive a W on their transcript). Any student remaining on the official role after this date will receive a grade.

VII. ACADEMIC DISHONESTY/PLAGIARISM

Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. Students are responsible for understanding the Academic Honor Code, which is contained in both print and web versions of the Student Handbook.

In short, it is the policy of Angelo State University that all students are expected to “engage in all academic pursuits in a manner that is beyond reproach” and to “maintain complete honesty and integrity in their experiences both in and out of the classroom.” Students in this class are expected to submit work in accord with the above stated guidelines. If a student is found to be submitting a completed assignment that is shown not to be their own, that student and the student(s) that allowed his/her work to be copied will not receive credit for the work in contention and will receive a zero for that assignment. Furthermore, any student observed by the instructor to be willfully copying from another student during an exam/quiz or otherwise engaged in using devices not allowed by the instructor during an examination will not receive credit for that examination/quiz and a grade of zero will be assigned. In each case of suspected academic dishonesty, the student will also be subject to further review and potential disciplinary action by the university which may involve dismissal from the course.

VIII. HANDICAPPING CONDITIONS/LEARNING DISABILITIES

Angelo State University prohibits willful acts of discrimination against those individuals
with handicapping conditions or learning disabilities. If you believe that your success in the
course is at risk due to either of these conditions, you are encouraged to consult with your
instructor as early in the semester as possible so that appropriate arrangements can be instituted.

Persons with disabilities which may warrant academic accommodations must contact the
Student Life Office, Room 112 University Center, (325) 942-2191 or (325) 942-2126 (TDD/FAX) or
by e-mail at Student.Life@angelo.edu in order to request such accommodations prior to any
accommodations being implemented. You are encouraged to make this request early in the
semester so that appropriate arrangements can be made. The instructor must receive a letter
from Student Life describing the accommodations to be made at least one week prior to the
assignments the student is requesting accommodation for.

For additional information on this policy, see OP 10.15 on the ASU website at
http://www.angelo.edu/opmanual/.

IX. OBSERVATION OF RELIGIOUS HOLIDAY-
Angelo State University provides for the observation of religious holy days as follows:
1. “Religious holy day” means a holy day observed by a religion whose places of worship are exempt
from property taxation under Texas Tax Code §11.20.
2. A student who intends to observe a religious holy day should make that intention known in writing to
the instructor during the first week of the semester and one week prior to the absence. If this
submission is completed, a student who is absent from classes for the observance of a religious
holy day shall be allowed to take make up missed exams or assignments scheduled for that day
in accordance with syllabus policy.

For additional information on this policy, see OP 10.19 on the ASU website at
http://www.angelo.edu/opmanual/.

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 to be followed 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 (40% of the total grade) of the student’s grade as a fifth lab exam, such that each lab
exam is worth 8%:

Honors contract deadlines:
1. Tuesday, Sept. 4 by 5 pm- Notify me by email of your interest in completing this course
by honors contract.
2. Tuesday, Sept. 18 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
   28 at noon.
4. **Fri, October 12**- Complete any additional paperwork (i.e. IACUC, etc); reagents ordered
5. **Tuesday, November 20**- Experiments completed- Note: 10/11 and 11/1 are good lab weeks to work on experiments .
6. **November 29 or December 4** - Presentation Day; All written and presentation materials emailed to me.
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 22nd.** 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 **Tuesday, Nov. 13** 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 29th or Dec 4th)**. 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.**