

Angelina College
Science and Mathematics Division
BIOL 2402 Anatomy and Physiology II (BIO 2402.C75)

I. BASIC COURSE INFORMATION

- A. Course Description** (as stated in the bulletin, including necessary pre-requisite courses, credit hours)
BIOL 2402--Anatomy and Physiology II. Four hours credit. Anatomy and Physiology II is the second part of a two-course sequence. It is a study of the structure and function of the human body including the following systems: endocrine, cardiovascular, immune, lymphatic, respiratory, digestive (including nutrition), urinary (including fluid and electrolyte balance), and reproductive (including human development and genetics). Emphasis is on interrelationships among systems and regulation of physiological functions involved in maintaining homeostasis. The lab provides a hands-on learning experience for exploration of human system components and basic physiology. Three lecture and two lab hours each week. Prerequisite: TSIA Complete; Grade of C or better in BIOL 2401. Lab fee.
- B. Intended Audience**
This course is the second semester of the two-semester human anatomy and physiology course sequence, a continuation of BIOL 2401. It is a laboratory-based course designed for those pursuing a degree in health related careers and/or pre-professional course work (i.e. nursing, pre-medical, pre-dental, etc.).
- C. Instructor**
Instructor's Name: **Todd Farmer**
Office Location: **S116**
Office Hours: **M: 11-1:00; W: 9:30-11:30; R: 11-12:00**
Office Phone: **936-633-5365**
E-mail Address: **tfarmer@angelina.edu**

II. INTENDED STUDENT OUTCOMES:

- A. Core Objectives Required for this Course**
1. **Critical Thinking:** To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
 2. **Communication:** To include effective development, interpretation and expression of ideas through written, oral and visual communication.
 3. **Empirical and Quantitative Skills:** To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
 4. **Teamwork:** To include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.
- B. Course Learning Outcomes for all Sections** (ACGM Lower Division Academic Course Guide Manual; <http://www.theccb.state.tx.us/reports/pdf/6309.pdf?CFID=20849286&CFTOKEN=77757605>)
Upon successful completion of this course, students will:
1. **Lecture**
 - a. Use anatomical terminology to identify and describe locations of major organs of each system covered.
 - b. Explain interrelationships among molecular, cellular, tissue, and organ functions in each system.
 - c. Describe the interdependency and interactions of the systems.
 - d. Explain contributions of organs and systems to the maintenance of homeostasis.
 - e. Identify causes and effects of homeostatic imbalances.
 - f. Describe modern technology and tools used to study anatomy and physiology.
 2. **Lab**
 - a. Apply appropriate safety and ethical standards.
 - b. Locate and identify anatomical structures.
 - c. Appropriately utilize laboratory equipment, such as microscopes, dissection tools, general lab ware, physiology data acquisition systems, and virtual simulations.
 - d. Work collaboratively to perform experiments.
 - e. Demonstrate the steps involved in the scientific method.

- f. Communicate results of scientific investigations, analyze data and formulate conclusions.
- g. Use critical thinking and scientific problem solving skills to make decisions, recommendations, and projections.

III. ASSESSMENT MEASURES:

A. Assessments for the Core Objectives

1. **Critical Thinking:** Students will evaluate and analyze a subject related worksheet that is presented to them during a physiology topic. They will then answer essay questions on the worksheet, and the Angelina College (AC) Critical Thinking Rubric will be used to assess each student's critical thinking skills and correctness.
2. **Communication:** Students will work in groups in order to write a report that communicates information about a disease/disorder related to physiology. The Angelina College (AC) Communication Rubric will be used to assess each student's communication skills and correctness.
3. **Empirical & Quantitative Skills:** Students will work in groups to analyze an assigned physiology subject. They will then answer questions through elementary calculations, and the Angelina College (AC) Empirical & Quantitative Skills Rubric will be used to assess each student's empirical and quantitative skills and correctness.
4. **Teamwork:** Students will work in groups in order to write a report that communicates information about a disease/disorder related to physiology. The Angelina College (AC) Teamwork Rubric will be used to assess each student's teamwork skills and correctness.

B. Assessments for Course Learning Outcomes

1. Lecture

- a. Students will use anatomical terminology to identify and describe locations of major organs of each system covered by answering written questions during lecture activities, on lecture exams, and by orally answering questions during presentations and class activities.
- b. Students will explain interrelationships among molecular, cellular, tissue, and organ functions in each system by answering questions during lecture activities and on lecture exams.
- c. Students will describe the interdependency and interactions of the systems by answering written questions during lecture activities and on lecture exams.
- d. Students will explain contributions of organs and systems to the maintenance of homeostasis by answering written questions about case studies and on lecture exams.
- e. Students will identify causes and effects of homeostatic imbalances by answering embedded exam questions and by answering written questions about case studies and current advances in medicine.
- f. Students will describe modern technology and tools used to study anatomy and physiology by answering written questions about case studies or writing critical analyses of current medically related journal articles.

2. Lab

- a. Students will demonstrate and apply appropriate safety and ethical standards by answering written questions during lab activities and by orally answering questions during lab activities.
- b. Students locate and identify anatomical structures by answering written questions about simulated lab activities, dissections, and by identifying anatomical structures during lab exams.
- c. Students will demonstrate the appropriate utilization of laboratory equipment such as such as microscopes, dissection tools, general lab ware, physiology data acquisition systems, and virtual simulations by answering written questions during lab activities and by orally answering questions during lab activities.
- d. Students will work collaboratively to perform experiments and demonstrate teamwork ability by working together to answer questions during teamwork activities.
- e. Students will demonstrate the steps involved in the scientific method by collecting laboratory data and performing elementary comparisons of that data, as well as, answering embedded lab exam questions.
- f. Students will communicate results of scientific investigations, analyze data and formulate conclusions by orally answering questions and writing answers to questions during lab activities.
- g. Students will demonstrate critical thinking and scientific problem solving skills to make decisions, recommendations, and projections by answering written questions about case

studies.

IV. INSTRUCTIONAL PROCEDURES: This course will be taught as a hybrid and will require computer and internet access. The course is taught using a combination of lectures and laboratory exercises that complement and supplement lecture material. Audio-visual materials, models, and dissection of specimens will be employed to enhance lecture and laboratory presentations. Some activities will require internet access and will be completed online.

V. COURSE REQUIREMENTS AND POLICIES:

A. Required Textbooks, Materials, and Equipment:

1. Human Anatomy and Physiology by Elaine Marieb (Benjamin/Cummings), **Tenth Edition.**
2. Human Anatomy and Physiology Laboratory Manual by Elaine Marieb (Benjamin/Cummings), **Eleventh Edition.**
3. **PHYSIOEX 9.1 Computer Simulations**, CD ROM - Packaged with textbook
4. Access to blackboard (www.angelina.blackboard.com). Obtaining a copy of the course **Lecture Notes** is highly recommended by the instructor for success in the classroom. Course lecture notes are available to print from the BIO 2402 blackboard site. Also print a copy of the **Lab Study Guide and Images** which can be found on the blackboard site as well.
5. Students are required to supply their own scantron forms for test taking. *Students will need 7 FORM NO. 884-E scantrons.*

B. Course Policies – (This course conforms to the policies of Angelina College as stated in the Angelina College Handbook.)

1. **Academic Assistance:** If you have a disability (as cited in Section 504 of the Rehabilitation Act of 1973 or Title II of the Americans with Disabilities Act of 1990) that may affect your participation in this class, you should see Karen Bowser, Room 208 of the Student Center. At a post-secondary institution, you must self-identify as a person with a disability; Ms. Bowser will assist you with the necessary information to do so. To report any complaints of discrimination related to disability, you should contact Dr. Patricia McKenzie, Administration Building, Room 105 or 936-633-5201.
2. **Attendance:** Attendance is required as per Angelina College Policy and will be recorded every day. Any student with three (3) consecutive absences or four (4) cumulative absences may be dropped from the class. Records will be turned in to the academic dean at the end of the semester. Do not assume that non-attendance in class will always result in an instructor drop. **You must officially drop a class or risk receiving an F.** This is official Angelina College Policy.
3. **Additional Policies Established by the Individual Instructor:**

STUDENT CONDUCT

A positive environment for learning will be maintained by students being courteous to each other and to the instructor.

- Arrive in class on time and do not prepare to leave before class is over, unless special arrangements have been made prior to class with the instructor.
- No eating in class.
- Cell phones should be on “vibrate only” (silent mode) or turned off.
- Only one person speaks at a time. Distracting conversations during lecture will not be allowed. Respect all members of the class.
- Profanity will not be tolerated. Rude or provocative logos on clothing are not allowed in the classroom.
- Cheating on tests is not tolerated as per Angelina College policy and may result in expulsion from the course. Plagiarism is not tolerated and will result in a zero for any assignment in which it is detected.

VI. COURSE CONTENT:

Day		Chapter	Topic
18-Jan	Lecture	Ch. 17	Cardiovascular System: Blood
	Lab	Ex. 29	Blood Lab
25-Jan	Lecture	Ch. 18	Cardiovascular System: The Heart
	Lab	Ex. 30	The heart; Sheep Heart Dissection
1-Feb	Lecture	Ch. 19	Cardiovascular System: Blood Vessels
	Lab	Ex. 32	Blood Vessels
8-Feb	Lecture	Lecture Exam I (Ch. 17, 18, and 19)	
	Lab	Ex. 33	Cardiovascular Physiology
15-Feb	Lecture	Ch. 20	The Lymphatic System
	Lab	Lab Exam I (Ex. 29, 30, 32, 33)	
22-Feb	Lecture	Ch. 21	The Immune System
	Lab	Ex. 35	Lymphatic System
1-Mar	Lecture	Ch. 22	The Respiratory System
	Lab	Ex. 36	Respiratory System Lab
8-Mar	Lecture	Lecture Exam II (Ch. 20, 21, and 22)	
	Lab	Ex. 37	Respiratory System Physiology
15-Mar	Lecture	Spring Break!	
	Lab		
22-Mar	Lecture	Ch. 23	The Digestive System
	Lab	Lab Exam II (Ex. 35, 36, and 37)	
29-Mar	Lecture	Ch. 24	Nutrition and Metabolism
	Lab	Ex. 38	Digestive System Lab - Fetal Pig Dissection
5-Apr	Lecture	Ch. 25	The Urinary System
	Lab	Ex. 40	Urinary System Lab - Kidney Dissection
12-Apr	Lecture	Lecture Exam III (Ch. 23, 24, and 25)	
	Lab	Lab Exam III (Ex. 38, 40, kidney, and fetal pig)	
19-Apr	Lecture	Ch. 16	The Endocrine System
	Lab	Ex. 42 & 43	The reproductive system
26-Apr	Lecture	Ch. 26	Fluid, Electrolyte, Acid-Base Balance
	Lab	Handout	Genetics and Heredity
3-May	Lecture	Lecture Exam IV (Ch. 16 and 26)	
	Lab	Lab Exam IV (Ex. 42, 43, and Genetics/Heredity Handout)	
10-May	Lecture	Cumulative Final Exam	

VII. EVALUATION AND GRADING:

A. Grading Criteria (*percents, extra credit, etc.*)

Questions for lecture exams and quizzes will be taken from lecture notes and textbook chapters. *It is important for the student to understand that not all of the textbook information will be discussed in class, thus it is the students responsibility to read and study all chapter material (besides lecture notes) in preparation for an exam.* Combined scores from lecture and laboratory constitute the final grade in the course:

Lecture

4 Lecture Exams	= 100 points each
Lecture Quizzes (11 online)	= 100 points total (quizzes are averaged to reach this total)*
Comprehensive Final	= <u>100</u> points
	$600 \div 6 = 100$ points

Lab

4 Virtual Practical Exams	= 100 points each
Lab Quizzes (~6 in class)	= <u>100</u> points total (quizzes are averaged to reach this total)*
	$500 \div 5 = 100$ points

Course average will be determined according to the following:

Lecture Average (60%)	$100 \times .60 = 60$
Lab Average (40%)	$100 \times .40 = \underline{40}$
	100

B. Determination of Grade (*assignment of letter grades*)

Grades for the course will be based on the following guidelines:

- A = 90 - 100 points
- B = 80 - 89 points
- C = 70 - 79 points
- D = 60 - 69 points
- F = 59 points

- C. **Lecture Exams:** There will be four lecture exams (worth a total of 100 points) that will be given as shown on the class schedule. Exams include multiple-choice and sometimes short answer questions. The final exam is worth 100 points and will be 100% comprehensive (lecture and lab). The grade on the comprehensive portion of the final exam can replace the single lowest grade on the regular exams. **NO make-up exams will be given for any reason. If you miss an exam, the LECTURE PORTION of the FINAL EXAM grade will replace the grade of that missed exam.**
- D. **Lab Exams:** There will be four comprehensive lab exams (worth a total of 100 points) that will be given as shown on the class schedule. **The lab exams are “virtual practical exams” which are automatic, timed, and presented on PowerPoint.** Students “move” from question station to question station as the slides advance through the exam. *Exams may include line drawings, images from the text, photos of dissected lab specimens, and/or plastic lab models.* Some lab exams will also include multiple-choice questions. **NO make-up exams will be given for any reason. If you miss an exam, the LAB PORTION of the FINAL EXAM grade will replace the grade of that missed exam.**
- E. **Quizzes:** A series of quizzes will be given during lecture and lab. All lecture quizzes (i.e. Blackboard post-chapter quizzes) are to be taken online after reading the chapter and **before the chapter is discussed in class.** Lab quizzes will cover material from the previous week’s lesson. At least **one** lowest lecture and lab quiz grade for the semester will be dropped. *The average of these quizzes will count as another exam grade. **THERE WILL BE NO MAKE-UPS FOR MISSED QUIZZES WHETHER ONLINE OR IN CLASS.**

VIII. SYLLABUS MODIFICATION:

The instructor may modify the provisions of the syllabus to meet individual class needs by informing the class in advance as to the changes being made.