

# BIO 234 Human Anatomy and Physiology - Science 155

Instructor: Dr. Ian N. Cost  
Office: Science 239  
Office Phone: 610.921.7728  
Email: [icost@albright.edu](mailto:icost@albright.edu)

Labs Wednesday 1-3:50  
Thursday 1-3:50  
Office Hours: Monday 10-11  
Tuesday 10-11  
or by appointment

**Course Objectives:** This course is designed to fill two semesters of learning human anatomy and physiology. The main objective of the first semester of this class is to understand the underlying structures of human anatomy and its physiology. Anatomy and physiology are very closely associated as the structures (anatomy) of a body are influenced by or reflective of their function (physiology).

Student Goals and Class Objectives:

1. To learn, comprehend, and use proper anatomical terminology. This will include learning the roots of words to better understand how anatomical terminology is used in medical and science careers.
2. To gain familiarity with basic human body structure and function.
3. To understand the details of anatomy from cells to tissues to organ systems to organisms. We will work together to understand how cellular processes inform organ processes. We will form a working knowledge of how body systems work independently and together.
4. To form a knowledge base with which we will be able to discuss injuries, diseases, and other clinical implications of anatomy and physiology.

**Texts:**

**Required:**

Marieb, E.N. and L.A. Smith. 2016. Human Anatomy & Physiology Laboratory Manual. 12th edition (cat version). Pearson Education Inc. publishing as Benjamin Cummings.

Betts et al. 2017. Human Anatomy & Physiology. OpenStax

**Recommended:**

ANY Anatomical atlas published since 2005. A list is available on Moodle.

**Clinical Presentations:**

You will each present two clinical applications of anatomical and physiological topics to the class. Your presentation presentations will highlight the relevant anatomical and physiological aspects of a common injury or condition. In this way, we will have the opportunity to explore multiple real-world applications of the course material throughout the entire semester. These projects and their requirements will be discussed in greater depth the first week of October.

**Classwork and Class Discussion:**

Class discussions will be conducted on various topics throughout the semester. These will, at times, require some reading outside of class of scholarly articles. Worksheets will be distributed with articles on Moodle before the scheduled discussion. You will be reminded in class prior as well as on Moodle when these readings are available. The worksheets will contribute to your grade, as will your participation.

**Attendance:** Tests and exams are scheduled to be taken on the dates indicated. Assignments are to be submitted on or before the appropriate dates. Late reports will not be accepted.

If you miss an exam or lab for legitimate reasons, which are documented and verified, you will be excused from that assignment. In the absence of such documentation, a score of zero will be recorded and included for your grade. In the event that illness or family emergency prevents you from completing your assignments, attending class, or writing an exam in this or any course, proper procedure requires notification of the Dean of Students or the Registrar. These offices will formally notify all your professors of your absence, saving you the extra stress of having to find each instructor.

**Exams And Grading:**

The point breakdown for the course will be as follows:

Five lecture tests (includes final exam):

Friday September 13 - worth 100 points  
Friday September 27 - worth 100 points  
Friday October 18 - worth 100 points

# BIO 234 Human Anatomy and Physiology - Science 155

Friday November 8 - worth 100 points  
 Date of Final - worth 100 points  
 - worth 200 points  
 - worth 100 points  
 - worth 100 points  
 - worth 100 points  
**Total 1000 points**

Laboratory quizzes:

Laboratory worksheet/discussion:

Class Discussions/Reading Worksheets

Clinical Presentations:

## Academic Support Services:

Academic support resources are available to students at no charge through the Academic Learning Center, the Writing Center and Disability Services. For more information, visit <http://www.albright.edu/catalog/academicsupport.html>

## Lecture Schedule

**This schedule is subject to change due to student interest and classroom discussions. All changes will be announced through Moodle ahead of the class meeting.**

Date	Meeting	Topic	Reading in OpenStax
Aug. 26	1	Course Introduction	Ch. 1
28	2	Homeostasis and chemistry	Chs. 2 – 3
30	3	Cells and their properties	Chs. 2 – 3
-----			
Sept. 2	4	Epithelial and Connective tissue	Ch. 4
4	5	Nervous and Muscle tissue	Ch. 4
6	6	Tissue development and skin	Chs. 4 – 5
-----			
9	7	Skin functions and accessory organs	Ch. 5
11	8	Accessory skin organs and tissue repair	Chs. 4 – 5
13	9	<b>Exam 1: Lectures 1-8</b>	
-----			
16	10	Bone development, growth, and repair	Ch. 6
18	11	Bone development, growth, and repair/Axial skeleton	Ch. 6/7
20	12	Axial skeleton	Ch. 7
-----			
23	13	Axial/Appendicular skeleton	Ch. 8
25	14	Appendicular Skeleton/Articulations and movements	Ch. 9
27	15	Articulations and movements	Ch. 9
-----			
30	16	Bone and joint physiology and nutrition	Chs. 6 – 9
Oct. 2	17	Skeleton review/Miscellany <b>Clinical Presentation Guidelines</b>	Chs. 6 – 9
4	18	<b>Exam 2: Lectures 10-17</b>	
-----			
7	19	Muscle structure, groups, and organization	Chs. 10 – 11
9	20	Muscle and Contractile physiology	Chs. 10 – 11
11	21	Smooth muscles	Chs. 10 – 11
-----			

## BIO 234 Human Anatomy and Physiology - Science 155

---

14		<b>No Class - Fall Break</b>	
16	22	Nerves: Basic structure and development	Ch. 12
18	23	Potentials and conduction in nerves	Ch. 12
<b>Topics for Clinical Presentations Due</b>			
<hr/>			
21	24	Integration and neural transmission	Ch. 12
23	25	Review muscle and nerve physiology	Chs. 10 – 12
25	26	<b>Exam 3: Lectures 19-25</b>	
<hr/>			
28	27	The brain and braincase	Ch. 13
30	28	Cranial nerves	Ch. 13
Nov. 1	29	Central nervous system disorders	Ch. 16
<hr/>			
4	30	Spinal cord structure and function	Ch. 13
6	31	Sensory reception and processing	Ch. 14
8	32	Autonomic nervous system	Ch. 15
<b>Slides for Clinical Presentations Due</b>			
<hr/>			
11	33	Autonomic nervous system	Ch. 15
13	34	Reflexes and review of central and peripheral nervous systems	Chs. 13 – 15
15	35	<b>Exam 4: Lectures 27-34</b>	
<hr/>			
18	36	Development and basics of the special senses	Supplementary Rdgs. Ch. 12
20	37	Eye anatomy and vision and Ear anatomy and hearing and balance	Supplementary Rdgs. Ch. 12
22	38	Taste and Olfaction	Supplementary Rdgs. Ch. 12
<hr/>			
25	39	Review Special Senses/Miscellany of Special Senses	
27		<b>No Class: Thanksgiving Break</b>	
29		<b>No Class: Thanksgiving Break</b>	
<hr/>			
Dec. 2	40	<b>Clinical Presentations</b>	
4	41	<b>Clinical Presentations</b>	
6	42	<b>Clinical Presentations/Review for the final</b>	
<hr/>			
<b>Final Exam: Lectures 32-42: Tentatively Friday 13 December 2019 at 8:50am</b>			

### Laboratory Information:

Many of the laboratory exercises in this class will be explorations of anatomy. We will complete some more physiologically based exercises as well. Your mastery of the information will be demonstrated on quizzes following each unit. In this way, you can learn the information as we move through the course, rather than saving your studying time for one or two major laboratory exams. Worksheets which allow you to present, analyze and discuss your data, will provide a mechanism for you to demonstrate your understanding of the more experimental laboratory exercises. Your laboratory manual contains the bulk of worksheets to be completed. We will discuss these before you leave lab so that we can identify difficult topics and help you all to be successful in the

# BIO 234 Human Anatomy and Physiology - Science 155

lab.

## Lab Safety (Mostly borrowed from BIO 151 Lab; i. e. you have seen this before!):

Students are expected to **follow all lab safety rules at all times**, including arriving in lab with appropriate footwear. Students who are not wearing proper footwear will be sent away to procure acceptable footwear. At times we will be using sharp tools. Safe use of tools will be further explained in labs but includes properly securing tools when not in use and proper handling of tools. **Food, drinks, candy, gum, and other consumables including tobacco and vaporizer products are not permitted in laboratory spaces.** Any food, drink, or other consumables brought into lab must be disposed of. Failure to follow proper safety procedures may lead to dismissal from the lab, at the discretion of the instructor or the Environmental Health and Safety Officer. A handout on safe lab practices will be provided, which must be signed by the student prior to participation in the lab.

## Laboratory Schedule

**This schedule is subject to change due to student interest and classroom discussions. All changes will be announced through Moodle ahead of the class meeting.**

Date	Topic	Exercise
Aug. 28/29	Orientation to the Human Body	Exercise 1 and 2
Sept. 4/5	Tissue histology	Exercise 6
Sept. 11/12	<b>Tissue Identification Quiz (50 pts)</b> Integumentary system Radiology	Exercise 7 Exercise 9
Sept. 18/19	Skeletal Exploration and Axial Skeleton	Exercises 8 – 10
Sept. 25/26	Appendicular Skeleton Articulations and Body Movements	Exercise 11 and 12 Exercise 13
Oct. 2/3	<b>Skeletal Quiz (50 pts)</b>	
Oct. 9/10	Organization of Skeletal Muscle Gross Anatomy of the Muscular System	Exercise 14 Exercise 15
Oct. 16/17	Gross Anatomy of the Muscular System	Exercise 15
Oct. 23/24	<b>Muscle Quiz (50pts)</b>	
Oct 30/31	Histology of Nervous Tissue Neurophysiology of Nerve Impulses	Exercise 17 TBD
Nov. 6/7	Gross Anatomy of the Brain and Spinal Cord	Exercise 19 and 21
Nov. 13/14	Autonomic Nervous System - GSR Lab Reflex Physiology and General Sensation	Exercise 21 Exercise 22 and 23
Nov. 20/21	Special Senses	Exercise 24 - 26
Dec. 4/5	<b>Brain and Senses Quiz (50pts)</b>	