

BIO 235 Human Anatomy and Physiology – Spring 2020

Instructor: Dr. Ian N. Cost
Office: Science 239
Office Phone: 610.921.7728
Email: icost@albright.edu

Labs Tuesday 1-3:50
Wednesday 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 second semester of this class is to understand the underlying internal 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). Here, we will investigate how the structures and functions influence and develop together.

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 in the endocrine, circulatory, digestive, and other internal systems. 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.

A Note on “Surviving” Anatomy and Physiology:

There is a large amount of material in both anatomy and physiology. In combining the two topics you must know the structures and functions of often disparate parts of the body that work together to maintain a living balance. You must therefore maintain a balance yourself between studying after lectures and labs and knowing the material before the class meets. Chapters and exercises are provided ahead of time on the syllabus and any supplementary materials will be disseminated through Moodle prior to class meetings in which they are pertinent. PowerPoint files will be available, in an abbreviated form, on my personal website prior to class. Feel free to print these as note pages or download and write notes directly on them during class. They are posted for your use and so that you may get better acquainted with information prior to arriving in class. Studying in a fashion in which one attempts to “cram” knowledge in at the end of a unit is highly detrimental to learning and being able to explain the complex nature of anatomy and physiology and is therefore highly discouraged.

Texts:

Required:

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

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

Recommended:

Martini, F.H., Ober, W.C., Nath, J.L., Bartholomew, E.F., and Petti, K.F. 2018. Visual Anatomy & Physiology, 3rd Edition Pearson Education Inc.

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

Attendance (Lecture and Lab):

Lecture and laboratory attendance requirements are outlined in the Department of Biology (DoB) Attendance Policy posted [here](#). Unexcused absences from lecture will count as a **0.5 point reduction from the class discussion grade**. Unexcused absences from lab will count as a **percent reduction from the lab participation grade, not the course total** that is outlined in the DoB Attendance Policy.

BIO 235 Human Anatomy and Physiology – Spring 2020

In addition, I ask that if you are a part of a sports team, club, or performance group that you share with me a schedule, endorsed by your coach or faculty mentor, within the first two weeks of class that highlights any conflicts with your lecture and/or laboratory schedules. This will allow us to act in accordance with the DoB Attendance Policy from the start of the semester.

Class Discussions and Professionalism:

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. Class discussions will be conducted respectfully and professionally. Anatomy and physiology is an important topic for students on the path to becoming professionals in medical and research careers and our discussions will be conducted professionally, as in those careers. We will use proper terminology to discuss topics. Each student is expected to be respectful of their peers and to hold everyone, including me, responsible for properly addressing students by their chosen names, pronouns, and respective titles and using proper terminology in discussions. If any student wishes to discuss class discussion, content, or any other aspect of class with me they are welcome and encouraged to do so. If you feel uncomfortable speaking with me for any reason, I encourage you to contact the [Office of the Dean of Students](#) with your concerns.

Exams and Grading:

The point breakdown for the course will be as follows:

Five lecture tests (includes final exam):

Friday February 14 - worth 100 points

Friday March 6 - worth 100 points

Friday March 27 - worth 100 points

Friday April 17 - worth 100 points

Date of Final - worth 100 points

Three laboratory tests:

Tues Feb 18/Wed Feb 19 - worth 50 points

Tues Mar 31/Wed Apr 1 - worth 50 points

Tues May 5/Wed May 6 - worth 50 points

Pre-Laboratory quizzes:

- worth 50 points

Post-Laboratory work:

- worth 50 points

Laboratory participation:

- worth 50 points

Class Discussions/Readings

- worth 100 points

Clinical Presentations:

- worth 100 points

Total 1000 points

Exams:

Exams will be conducted on the day indicated on the syllabus. Information on exam will be taken from the assigned reading as well as lecture. Some topics from lab and lecture will cross over one another. These should be used to your advantage as your understanding of the topic can be augmented by lab activities. However, information not covered in lecture but covered in lab will not be used in lecture tests.

Class Discussion and Readings:

Readings will be assigned via student choice on Moodle. The week before readings are assigned a poll will be posted with article titles that are relevant to the unit topic. A majority vote will decide which article is read. In lieu of a class discussion, a forum will be posted for each reading. Students will be expected to post 3 questions and to answer 3 questions that other students post. Articles will be discussed in class also to answer questions that students found especially difficult. These discussions will be conducted at the beginning of new units. Each forum participation event is worth 20 points for a total of 80 points for all of the reading assignments. Class discussions on non-reading discussion days will constitute the remaining 20 points for a total of 100 points on all class discussions.

Clinical Presentations:

You will each present a clinical topic to the class. Your presentations will highlight relevant anatomical and

BIO 235 Human Anatomy and Physiology – Spring 2020

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 March.

Academic Support Services:

Academic support resources are available to students at no charge through the Academic Learning Center, the Writing Center and Disability Services. The Academic Learning Center offers course-specific tutoring, academic skills workshops, hands on learning strategies instruction, and academic counseling to supplement faculty advisement. The Writing Center offers tutoring to assist with writing and reading support for any class. The Student Accessibility and Advocacy office is the source for impairment-related accommodations consistent with the ADA and its amendments. Students who receive accommodations from the SAA office should meet with course instructors privately and in a timely manner to discuss the Academic Accommodation Letter (AAL) provided by that office. **Please note that IEPs and 504 plans do not apply to college level courses.** All three offices are in the administration building. For help or further information, contact the ALC at academiclearningcenter@albright.edu or 610-921-7662; the WC at writingcenter@albright.edu or 610-921-7540; and the Student Accessibility and Advocacy office at SAA@albright.edu or 610-929-6639.

Academic Integrity

The College policy on dishonesty as stated in the section “Academic Dishonesty Policy” in the current Albright College Catalog applies to all aspects of this course, including exams and papers. Academic dishonesty is taking credit for another person’s work and attempting to pass it off as your own. It includes: 1) copying from another student during exams and quizzes; 2) allowing someone to copy from you or providing someone with a copy of your work that results in plagiarism; 3) Presenting someone else’s ideas as your own without express permission and crediting them; 4) Plagiarizing (copying) material from books, articles, and electronic sources for direct use in your work; 5) using cheat sheets, notes, cell phones, etc. to gain outside information during a test or quiz. A student charged with academic dishonesty will be given written or oral notice of the charge, will receive an F on the assignment in question, and the case will be referred to the Provost. At the Instructors' discretion, the student may receive an F for the course. Repeat offenses, in one class or different classes can lead to more severe penalties (e.g. academic dismissal). Please familiarize yourself with this policy.

Snow Days and Weather Delays

The schedule below assumes that all classes and labs will proceed as planned and that there will be no weather-related delays or cancellations. Every effort will be made to make up a lecture in the week in which it was originally scheduled; however, it may be necessary to make additional changes to the schedule. Any modifications to the schedule resulting from weather adjustments will be communicated via Moodle or official Albright email. Students are responsible for checking Moodle and their Albright email any time weather delays or cancellations are announced via the campus system.

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	Lecture	Topic	Reading in OpenStax
Jan. 27	1	Course Introduction, Review/Brush-up	Ch. 1
29	2	Introduction to the Endocrine System/Glands/Control	Ch. 17 Pgs 743-772
31	3	Hormones of the Endocrine System	Ch. 17 Pgs 735-743

Feb. 3	4	Cardiovascular System I: The Heart	Ch. 19 Pgs 824-846, 876-7
	5	Cardiovascular System I: The Heart	Ch. 19 Pgs 846-875

BIO 235 Human Anatomy and Physiology – Spring 2020

7	6	Cardiovascular System II: Blood Vessels	Ch. 20 Pgs 888-921
10	7	Cardiovascular System II: Blood Vessels	Ch. 20 Pgs 922-958
12	8	Cardiovascular System III: Blood	Ch. 18 Pgs 784-810
14		Exam 1: Lectures 1-8	
17	9	Lymphatic System	Ch. 21 Pgs 975-990
19	10	Immune System	Ch. 21 Pgs 990-1011
21	11	Respiratory System I: Embryology and Development Reading Discussion #1	Ch. 22 Pgs 1071-1073
24	12	Respiratory System II: Structures and Breathing	Ch. 22 Pgs 1034-1045
26	13	Respiratory System II: Structures and Breathing	Ch. 22 Pgs 1045-1048
28	14	Respiratory System II: Structures and Breathing	Ch. 22 Pgs 1048-1057
Mar. 2	15	Respiratory System III: Gas Exchange Clinical Presentation Guidelines	Ch. 22 Pgs 1057-1063
4	16	Respiratory System III: Gas Exchange	Ch. 22 Pgs 1063-1069
6		Exam 2: Lectures 9-16	
9	17	Digestive System I: Embryology and Development Reading Discussion #2	Ch. 23 Pgs 1085-1092
11	18	Digestive System II: Structures and Food Pathway	Ch. 23 Pgs 1092-1113
13	19	Digestive System III: Accessory Organs	Ch. 23 Pgs 1123-1129
16			
18		No Class - Spring Break	
20			
23	20	Digestive System IV: Digestion and Absorption	Ch. 23 Pgs 1129-1138
25	21	Digestive System V: Metabolic Pathways	Ch. 24 Pgs 1149-1180
27		Exam 3: Lectures 17-21	
30	22	Urinary System I: Embryology and Development Reading Discussion #3	Supplementary Reading
Apr. 1	23	Urinary System II: Kidney Structure	Ch. 25 Pgs 1205-1218
3	24	Urinary System II: Kidney Structure	Ch. 25 Pgs 1205-1218
6	25	Urinary System III: Kidney Function	Ch. 25 Pgs 1218-1230

BIO 235 Human Anatomy and Physiology – Spring 2020

8	26	Urinary System III: Kidney Function	Ch. 25 Pgs 1230-1236
10	27	Urinary System IV: The Bladder and excretions	Supplementary Reading
<hr/>			
13	28	Urinary System V: Homeostasis and the Urinary System	Chs. 25 & 26 Pgs 1236-7
15	29	Urinary System V: Homeostasis and the Urinary System	Ch. 26 Pgs 1247-1270
17		Exam 4: Lectures 22-29	
<hr/>			
20	30	Clinical Presentations	
22	31	Reproductive System I: Female Reproductive Development Reading Discussion #4	Ch. 27 Pgs 1309-1312
24	32	Reproductive System II: Male Reproductive Development	Ch. 27 Pgs 1309-1312
<hr/>			
27	33	Clinical Presentations	
29	34	Reproductive System III: Female Reproductive Physiology	Ch. 27 Pgs 1291-1309
May 1	35	Reproductive System IV: Male Reproductive Physiology	Ch. 27 Pgs 1280-1291
<hr/>			
4	36	Clinical Presentations	
6	37	Fetal Development and Growth	Ch. 28 Pgs 1319-1341
8	38	Fetal Development and Growth	Ch. 28 Pgs 1341-1354
<hr/>			
Final Exam: Lectures 30-38: Tentatively Friday 15 May 2020 at 8:50am			

Laboratory Information:

The schedule for the laboratory is on the following page. 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 lab.

Lab Safety:

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.

Lab Exams:

Lab exams will be conducted at approximately the 1/3 marks throughout the semester. These are larger 50-point exams that will include practical style questions and identifications from dissections and lab activities.

BIO 235 Human Anatomy and Physiology – Spring 2020

Pre-Lab Quizzes:

Lab quizzes will consist of 10 smaller 5-point quizzes conducted at the beginning of each lab, except the first lab. These quizzes will consist of material that students should know entering the lab from the lab protocols and material that they are about to conduct or work on during that period.

Post-Lab Quizzes:

Post-lab quizzes will be conducted via Moodle. These will be open from the end of lab until the day before the next lab. As an example, a lab on a Wednesday afternoon will have the quiz open at 5pm on Wednesday and it will be due by 5pm the following Tuesday.

Lab Participation:

Everyone is expected to participate in lab activities. Participation may appear different for different individuals, and everyone's participation is evaluated on a person to person basis. However, in general, leaving early without showing understanding of the ideas and themes of a lab or having not participated other than standing on the outside of the group and watching do not count as having participated in an activity. Participation penalties are levied as described above in the attendance policy.

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
Jan. 28/29	Reorientation to the Human Body Pulse, blood pressure	Exercises 1 and 2 Exercise 33
Feb. 4/5	Heart, Blood Vessels, Endocrine Dissections	Exercises 27, 30, 32
11/12	Lymphatic System	Exercise 35
18/19	Lab Exam #1	
25/26	Respiratory System Dissection	Exercise 36
Mar. 3/4	Respiratory physiology	Exercise 37
10/11	Digestive System Dissection	Exercise 38
17/18	Spring Break	
24/25	Digestive physiology	Exercise 39
31/Apr. 1	Lab Exam #2	
7/8	Urinary System Dissection	Exercise 40
14/15	Urinary physiology	Exercise 41
21/22	Reproductive System Dissection	Exercise 42
28/29	Reproductive physiology	Exercises 43, 44, 45
May 5/6	Lab Exam #3	