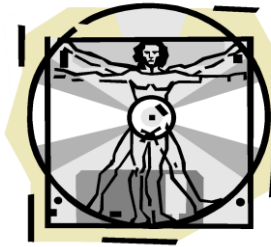


Bio 201A: Human Anatomy & Physiology I Laboratory
National University



Course Syllabus

Instructor

Mr. Todd Kennedy
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Textbook

Laboratory Manual for Anatomy and Physiology, 5th Edition by Connie Allen and Valerie Harper

Course prerequisites:

Students must be concurrently enrolled, or have satisfactorily completed, BIO 201 or an equivalent course in human anatomy and physiology.

Course description and goals

This course provides hands-on use of many instruments used in research and medical practices. Through laboratory activities, students will gain a practical understanding and appreciation of the structure and function of human anatomy and physiology. Topics covered include cells, tissues, organs, digestion, and metabolism. Students will conduct fetal pig dissections to better understand mammalian anatomy, especially the cardiovascular and urogenital systems.

Learning Outcomes:

Upon successful completion of this course, students will be able to:

1. Use the compound light microscope.
2. Prepare slides of tissues for microscopic examination.
3. Describe the cellular components of human tissues and organs.
4. Examine the physiology of cells and cell membranes.
5. Classify cells and tissues of the integumentary system.
6. Identify structural components of the human skeleton, including bones and joints.
7. Classify different kinds of human muscles, and explain their functioning.
8. Analyze the anatomy and physiology of the nervous system and special senses.
9. Explain how and why buffers function.

Prerequisites:

National University's goal is for all students to achieve their academic potential, and to have a positive learning experience in the BIO201-203 series. Department of Mathematics and Natural Sciences has developed advice for students for the courses BIO 201-203. The purpose of this advice is to ensure that students are properly prepared for

the materials in these courses.

The Department's advice to students is:

1. Health Science and Pre-Nursing students that are new to National University should take the Areas A-E program requirements (eg. ENG 100, ENG 101, COM 200, ILR 260) before taking BIO201-203. This will enable students to adjust to the pace of National University, while strengthening their written communication and exam skills.
2. Before taking BIO201-203, students should have taken introductory biology and chemistry (BIO100, 100A, 101, 101A), or the equivalent, within the past 5 years.
3. Students should take BIO201-203 in the numerical sequence. This scheme familiarizes students with the laboratory before taking BIO203, which is the most laboratory intensive course.

Diagnostic Self Test

Following are terms and concepts that you should be familiar with from previous science courses. If you are not able to explain these terms, or if they are completely unfamiliar, then this is a strong indication that you need to take lower level biology before enrolling in BIO201-203.

Diffusion / Osmosis

pH scale: acids, bases

Cell structures: cytoplasm, cell membrane, nucleus, DNA, RNA, mitochondria, ribosomes.

Cell division: mitosis and meiosis

Cellular respiration

CLOs Bio201

- * Describe the physiology of cells and cell membranes, including membrane transport processes.
- * Explain the structure and function of skin, epithelial membranes, and connective tissue membranes.
- * Describe the process of bone formation, growth and function.
- * Identify bones and joints of the human skeleton.
- * Explain how muscles contract.
- * Describe mechanisms of signal transduction by the nervous system, including action potentials and synaptic transmission.
- * Describe the anatomy and physiology of the central and peripheral nervous system.
- * Explain how the special senses operate.

Assignments and grading

Lab reports for Exercises section 1	50 points
Lab reports for Exercises section 2	50 points
WileyPlus	100 points
Quizzes	200 points
Midterm (practical)	200 points
Final (practical, non-cumulative)	200 points
TOTAL	800 points

National University's +/- system is used:

A	95 - 100 %	C+	77 - 79 %	D-	60 - 63 %
A-	90 - 94 %	C	74 - 76 %	F	0 - 59 %
B+	87 - 89 %	C-	70 - 73 %		
B	84 - 86 %	D+	67 - 69 %		
B-	80 - 83 %	D	64 - 66 %		

Lab reports. Students are to complete the lab reports in the Lab Schedule. Students may simply fill in the pages, tear them out, and hand them in on the indicated dates. Written work is acceptable, **but it must be legible.**

Lab schedule

<u>Date</u>	<u>Topic</u>
5/8	Lab 1: Language of Anatomy Lab 2: Organ system Overview LAB REPORTS DUE (1-2)
5/15	Lab 3: The Light Microscope Lab 4: The Cell: Anatomy and Div. Lab 5: The Cell: Transport Mechanisms LAB REPORTS DUE (3-5)
5/22	Lab 6: Classification of Tissue Lab 7: Integumentary Sys Lab 8: Bone Structure and Function Lab 9: Axial Skeleton LAB REPORTS DUE (6, 7)
5/29	MIDTERM practical -- LAB REPORTS DUE (8, 9)

6/5 Lab 10: Appendicular Skeleton
 Lab 11: Articulations and movement
Basic Mammalian Anatomy I (pig dissections) [supplement]
LAB REPORTS DUE (10, 11 + pig)

6/12 Lab 12: Skeletal Muscle
 Lab 13: Contraction of Skeletal Muscle
 Lab 14: Skeletal Muscles and their actions
Basic Mammalian Anatomy II (pig dissections part 2) [supplement]
LAB REPORTS DUE (12-14)

6/19 Lab 16: Nervous Tissue
 Lab 17: Spinal Cord Structure and Function
 Lab 18: Spinal Nerves
 Lab 20: Brain Structure and Function
LAB REPORTS DUE (16, 17, 18)

6/26 Lab 21: Cranial Nerves
 Lab 22: Autonomic Nervous system
 Lab 23: General Senses
 Lab 24: Special Senses
 FINAL practical (non-cumulative) --
LAB REPORTS DUE (all remaining)

Other issues

1. The equipment and materials for the laboratory exercises and exams are set up for each particular day, and are then put away in preparation of the next class meeting. Therefore, it is extremely difficult, as well as inconvenient, to make up missed exercises and tests. Thus, students **need to attend all class meetings**. The umbrella policy for this course is that **missed labs and exams cannot be made up**.
2. Reminder: if you miss three or more class meetings and do not Withdraw from the course before the 7th class meeting, then the Registrar will assign a grade of F. **It is the student's responsibility, not the instructors, to officially Withdraw from a course.** See "Attendance Procedures" on pp. 45-46 of the 2004 General Catalog.
3. Lab reports: the simplest solution is to do all work on time. Health, family, or work emergencies may earn extra time. Otherwise, 5% of the earned grade will be deducted for every calendar day that the assignment is late. Students are encouraged to email late work to me (tmkennedy8@gmail.com) in order minimize the late penalty.