



Course Syllabus

BIOL 2401 - Anatomy and Physiology 1

Revision Date: 1/11/2017

Catalog Description: Anatomy and Physiology I is the first of a two course sequence. It is a study of the structure and function of the human biology including cells, tissues and organs of the following systems: integumentary, skeletal, muscular, nervous and special senses. Emphasis is on interrelationships among systems and regulation of physiological functions involved in maintain homeostasis. The lab provides a hands-on learning experience for exploration of human system components and basic physiology. Systems to be studied include integumentary, skeletal, muscular, nervous, and special senses.

Prerequisites: TSI reading completed. A background in basic chemistry and basic biology is advised. One semester from the following is recommended: CHEM 1405, CHEM 1411, BIOL 1408, BIOL 1409, BIOL 1411, BIOL 1413 or BIOL 2404.

Semester Credit Hours: 4

Lecture Hours per Week: 3

Lab Hours per Week: 3

Extended hours per week: (A&P Concepts) 1

Contact Hours per Semester: 112

State Approval Code: 26.0707.51 03

Core Components and Related College Student Learning Outcomes

This course counts as part of the academic requirements of the Panola College Core Curriculum and an Associate of Arts or Associate of Science degree. Yes No: If no, skip to Instructional Goals.

The items below marked with an X reflect the state-mandated outcomes for this course **IF this is a CORE course:**

- Critical Thinking Skills – to include creative thinking, innovation, inquiry and analysis, evaluation and syntheses of information
 - CT1: Generate and communicate ideas by combining, changing, or reapplying existing information
 - CT2: Gather and assess information relevant to a question
 - CT3: Analyze, evaluate, and synthesize information
- Communication Skills – to include effective development, interpretation, and expression of ideas through written, oral, and visual communication
 - CS1: Develop, interpret, and express ideas through written communication
 - CS2: Develop, interpret, and express ideas through oral communication
 - CS3: Develop, interpret, and express ideas through visual communication

- Empirical and Quantitative Skills – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
 - EQS1: Manipulate and analyze numerical data and arrive at an informed conclusion
 - EQS2: Manipulate and analyze observable facts and arrive at an informed conclusion
- Teamwork – to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
 - TW1: Integrate different viewpoints as a member of a team
 - TW2: Work with others to support and accomplish a shared goal
- Personal Responsibility – to include the ability to connect choices, actions, and consequences to ethical decision-making
 - PR1: Evaluate choices and actions and relate consequences to decision-making
- Social Responsibility – to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities
 - SR1: Demonstrate intercultural competence
 - SR2: Identify civic responsibility
 - SR3: Engage in regional, national, and global communities

Instructional Goals and Purposes:

Human Anatomy and Physiology 1 is a biology course designed for students with majors/minors in the sciences or related disciplines. This course will provide the student with an in-depth study of the anatomy and physiology (structure and function) of the human body. Both normal and pathological conditions are emphasized

Lecture Learning Outcomes:

After studying all materials and resources presented in the course, the student will be able to:

1. Use anatomical terminology to identify and describe locations of major organs of each system covered.
2. Explain interrelationships among molecular, cellular, tissue and organ functions in each system.
3. Describe the interdependency and interactions of the systems.
4. Explain contributions of organs and systems to the maintenance of homeostasis.
5. Identify causes and effects of homeostatic imbalances.
6. Describe modern technology and tools used to study anatomy and physiology.

Laboratory Learning Outcomes:

After studying all materials and resources presented in the course, the student will be able to:

1. Apply appropriate safety and ethical standards.
2. Locate and identify anatomical structures.
3. Appropriately utilize laboratory equipment, such as microscopes, dissection tools, general lab ware, physiology data acquisition systems, and virtual simulations.
4. Work collaboratively to perform experiments.
5. Demonstrate the steps involved in the scientific method.
6. Communicate results of scientific investigations, analyze data and formulate conclusions.
7. Use critical thinking and scientific problem-solving skills, including, but not limited to, inferring, integrating, synthesizing, and summarizing, to make decisions, recommendations and predictions.

Course Content:

A general description of lecture/discussion topics included in this course are listed in the Learning Objectives / Specific Course Objectives sections of this syllabus.

Students in all sections of this course will learn the following content:

Lecture Objectives

1. To identify basic anatomy and physiology concepts.
2. To interrelate chemistry with anatomy and physiology.
3. To identify structural components of the cell and recognize how the cell is genetically regulated.
4. To relate enzymes, energy and metabolism to cell function.
5. To identify the importance of membrane transport and membrane potential to cell function.
6. To examine the classification, structure and function of tissues.
7. To identify the structure, function and clinical considerations of the integumentary system.
8. To identify the structure, function and clinical considerations of bone and describe bone development.
9. To describe the structure, function and clinical importance of articulations.
10. To identify the structure, function, and clinical considerations associated with muscles.
11. To identify muscles of the axial and appendicular skeleton.
12. To describe the functional organization of the nervous system.
13. To identify characteristics, components and functions of the central nervous system.
14. To identify characteristics, components and functions of the peripheral nervous system.
15. To identify characteristics, components and functions of the autonomic nervous system.
16. To identify structure, function and clinical considerations of sensory organs.

Laboratory Objectives

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4. To relate enzymes, energy and metabolism to cell function.
5. To identify the importance of membrane transport and membrane potential to cell function.
6. To examine the classification, structure and function of tissues.
7. To identify the structure, function and clinical considerations of the integumentary system.
8. To identify the structure, function and clinical considerations of bone and describe bone development.
9. To identify bones and structures comprising the axial and appendicular skeletons.
10. To describe the structure, function and clinical importance of articulations.
11. To identify the structure, function, and clinical considerations associated with muscles.
12. To identify muscles of the axial and appendicular skeleton.
13. To identify characteristics, components and functions of the central nervous system.
14. To identify characteristics, components and functions of the peripheral nervous system.
15. To identify structure, function and clinical considerations of sensory organs.

Lecture

- Unit #1 – Lecture Objectives 1-5
- Unit #2 – Lecture Objectives 6-8
- Unit #3 – Lecture Objectives 9-11
- Unit #4 – Lecture Objectives 12-13
- Unit #5 – Lecture Objectives 14-16

Laboratory

- Unit #1 – Laboratory Objectives 1-4
- Unit #2 – Laboratory Objectives 5-7
- Unit #3 – Laboratory Objectives 8-9

Unit #4 – Laboratory Objectives 9-10
Unit #5 – Laboratory Objectives 11-15

Methods of Instruction/Course Format/Delivery:

This lecture portion of the course is offered in a variety of formats: face to face lecture, hybrid lecture, and online lecture. The lab portion of the course is offered in the face to face format. The course typically includes lecture, class discussion, reading assignments, laboratory performance, web-based assignments including and web-based tutorials.

Major Assignments / Assessments:

The following items will be assigned and assessed during the semester and used to calculate the student's final grade.

Assessment(s):

Lecture:

Quiz: Several quizzes will be given during the semester. Any lecture session may begin or end with a quiz. Quiz questions will be drawn from lecture notes, reading assignments and text objectives. Each quiz may consist of multiple-choice, true/false and matching questions. Missed quizzes due to legitimate reasons should be rescheduled with the professor within one week of the scheduled quiz. It is the responsibility of the student to schedule makeup quizzes. Makeup quizzes are harder and may consist of fill in the blank questions.

Mastering A&P Quizzes: There will be several quizzes on Mastering A&P (tab inside Canvas). The quizzes are untimed and multiple attempts per question are allowed. They will be open for a few days and will close at date and time set by the professor. No extensions are allowed on these quizzes.

Exams: Several tests will be given during the semester. Test questions will be drawn from lecture notes, reading assignments, text objectives and review sheet. Each exam may consist of multiple-choice, matching, true/false, fill in the blank, and essay type questions. Missed examinations due to legitimate reasons should be rescheduled with the professor within one week of the scheduled examination. It is the responsibility of the student to schedule a makeup exam. A student will not be permitted more than one makeup exam. A makeup exam may consist of multiple-choice, matching, fill in the blank and 2 essay questions.

Final Exam: A final comprehensive examination will be given the week of final exams and will cover material from the whole semester. The final comprehensive exam may consist of multiple-choice, true/false and matching questions.

Laboratory:

Lab Quiz Grade: Several quizzes will be given during the semester. Any laboratory session may begin or end with a quiz. Missed lab quizzes due to legitimate reasons should be rescheduled with the professor within one week of the scheduled quiz. It is the responsibility of the student to schedule makeup quizzes. Makeup quizzes are harder and may consist of fill in the blank questions.

Mastering A&P Quizzes: There will be several quizzes on Mastering A&P (tab inside Canvas). The quizzes are untimed and multiple attempts per question are allowed. They will be

open for a few days and will close at date and time set by the professor. No extensions are allowed on these quizzes.

Lab Exercise Grade: Laboratory exercises may include drawings, laboratory reports or any other methodologies deemed important by the professor. To earn credit for laboratory work the student must be both present and participating in the activity. Lab exercises are due by the deadline. Thirty points or more will be taken away for any assignment turned in late. The quantity of materials necessary and the time sensitive nature of some exercises are usually not conducive for make-up sessions.

Lab Practicals: Lab practical questions will cover all items studied in lab (including: models, charts, pictures, diagrams, dissections, and experiments), text objectives and review sheet. Lab practicals will consist of fill in the blank questions. Missed lab practical due to legitimate reasons will be rescheduled on one day during the last week of school before final exams. The makeup practical will consist of fill in the blank questions. It is the responsibility of the student to take the makeup lab practical during the scheduled time. A student will not be permitted more than one makeup practical.

A&P Concepts:

To earn credit the student must be both present and participating in the activities.

Course Grade:

The grading scale for this course is as follows: A=90-100, B=80-89, C=70-79, D=60-69, F=59 and below

Components: Lecture is 70% of total course grade; Laboratory is 30% of total course grade.

The number of exams, quizzes, and awarding of points will be at the discretion of the professor.

Lecture Grade: Quizzes – 10%, Mastering A&P Quizzes – 10%, Tests – 60% of lecture grade, and Final exam – 20% of lecture grade.

- A student can have the final exam can replace the lowest lecture exam grade by participating in lecture activities, and not exceeding the college's attendance policy (see below).

Lab Grade: A&P Concepts – 10% of lab grade, Mastering A&P Quizzes – 10%, Lab Quizzes – 20% of lab grade, Lab Exercises – 20% of lab grade, and Lab Practicals – 40% of lab grade.

- A student can earn 1 point on their lab average for attendance, and not exceeding the college's attendance policy (see below)
- A student can earn 1 point for participating in lab activities

Texts, Materials, and Supplies:

Required:

Martini, Nath and Bartholomew. 2015. Fundamentals of Anatomy and Physiology 10th ed. Pearson Education, Benjamin Cummings, San Francisco, CA.

Martini, Ober, Welch, Garrison and Hutchings. 2015. Martini's Atlas of the Human Body 10th ed. Pearson Education, Benjamin Cummings. San Francisco, CA.

Wood. 2017. Laboratory Manual for Anatomy and Physiology –Main version 6th ed. Pearson Education, Boston, MA.

Interactive Physiology 10-System Suite CD.

Modified Mastering A&P access code for lecture book

Modified Mastering A&P access code for lab book

Practice Anatomy Laboratory (PAL) 3.0 CD, can also be accessed under the Lab Mastering A&P study area

Optional:

Bowden and Bowden. 2005. An Illustrated Atlas of the Skeletal Muscles 2nd ed. Morton Publishing, Englewood, CO.

Kapit and Elson. 1993. Anatomy Coloring Book 2nd ed. Addison-Wesley, New York, NY.

Krieger. 2005. A Visual Analogy Guide to Human Anatomy 1st ed. Morton Publishing, Englewood, CO.

Sackheim, George. 1995. Introduction to Chemistry for Biology Students. Benjamin/Cummings Publishing Company, Redwood City, California.

Seiger. 2005. Fundamentals of Anatomy and Physiology Study Guide 7th ed. Pearson Education, Benjamin Cummings, San Francisco, CA.

Van De Graaf and Crawley. 2003. A Photographic Atlas for the Anatomy and Physiology Laboratory 5th ed.

Anatomy and Physiology Revealed version 3.0, Integument, Skeletal, Muscular system and Nervous systems. McGraw-Hill: Boston, MA.

Laboratory coat or apron
Dissection Kit
Map Colors

Required Readings:

- Martini, Nath and Bartholomew. 2015. Fundamentals of Anatomy and Physiology 10th ed. Pearson Education, Benjamin Cummings, San Francisco, CA.
- Wood. 2017. Laboratory Manual for Anatomy and Physiology –Main version 6th ed. Pearson Education, Boston, MA.

Recommended Readings:

- Get Ready for A&P, found in Mastering A&P study area
- Practice Anatomy Laboratory (PAL) 3.0 CD, can also be accessed under the Lab Mastering A&P study area

Course website: <https://panola.instructure.com/login>

Course requirements: The student is responsible for attending all lectures, laboratories and A&P concepts classes, and completing all assigned lecture/lab assignments/examinations. When the professor feels that the student has been absent to such a degree as to invalidate the learning experience, the professor may recommend to the Vice President of Instructional Affairs that the student be dropped from the course. The professor may drop the student for attendance deficiencies after they have accumulated the following number of absences:

Fall or Spring semester
5 absences, MWF classes
3 absences, TR or MW classes
2 absences, one-day-per-week class

Summer semesters:
2 absences, four-days-a-week classes
2 absences, two evenings a-week classes

The student is also responsible for being punctual to class and attentive in class. One point will be deducted from the final average in lecture or lab for every absence that exceeds the college's attendance policy (above). Three tardies count as one absence.

Academic integrity is an important value in student development. Plagiarism and cheating are not allowed. Cheating is defined as unauthorized help on an examination, practical or assigned course material. A student must not receive from any other student or give to any other student any information, answers, or help during an exam, in-class quiz, and practical. A student must

not “steal” the answers from an unsuspecting student during an exam, in-class quiz, and practical. A student must not use any sources for answers during the exam (including, but not limited to: notes, books or electronic devices) without prior authorization from the professor. A student must not obtain exam question illegally, tamper with the exam/in-class quiz/practical questions, nor change the results of an exam/in-class quiz/practical after it has been graded. All cheating infractions will result in a grade of “0” for the assignment. A student will fail the class upon their second cheating offense. Students shall have the right to contest a cheating claim. The appeals process is specifically defined in the student handbook.

The student is responsible for taking notes, reading and outlining course materials, and being prepared for lecture and laboratory responsibilities.

It is the responsibility of the student to complete and turn in all course work on the scheduled dates. Thirty points or more will be taken away for any assignment turned in late. Regardless of any situation, the professor should be contacted ASAP to develop an alternate schedule.

** The student will need to makeup the missed lab hours. Failure to make up the missed lab hours will result in a loss of points. For example, if a student turns in a lab assignment without making up the missed hours will only get 40% of the total grade.

Other:

- For current texts and materials, use the following link to access bookstore listings: <http://www.panolacollegestore.com>
- For testing services, use the following link: <http://www.panola.edu/elearning/testing.html>
- If any student in this class has special classroom or testing needs because of a physical learning or emotional condition, please contact the ADA Student Coordinator in Support Services located in the Administration Building or go to <http://www.panola.edu/student-success/disability-support-services/> for more information.
- Withdrawing from a course is the student’s responsibility. Students who do not attend class and who do not withdraw will receive the grade earned for the course.
- Student Handbook, *The Pathfinder*: <http://www.panola.edu/student-success/documents/pathfinder.pdf>