Course Syllabus

BIOL 2401 - Anatomy and Physiology 1

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: Additional study is required outside posted class times.
Contact Hours per Semester: 96

State Approval Code: 26.0707.51 03

Class section meeting time:

Alternate Operations During Campus Closure: In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Panola College to move to altered operations. During this time, Panola College may opt to continue delivery of instruction through methods that include, but are not limited to: online learning management system (CANVAS), online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor Panola College's website (www.panola.edu) for instructions about continuing courses remotely, CANVAS for each class for course-specific communication, and Panola College email for important general information.

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:
The purpose of this course is to 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. In so doing, the student will be educated in the core components/college student learning outcomes (listed above) and the course learning outcomes (listed below).

Learning Outcomes: ***[from the ACGM catalog]***
After studying all materials and resources presented in the course, the student will be able to:

Lecture

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.

Lab

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 Outcomes section of this syllabus.

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

Lecture
1. The main concepts concerning anatomy & physiology.
2. The interrelationship of chemistry with anatomy and physiology.
3. The structural components of the cell and the genetic regulation of cells.
4. The importance of enzymes, energy and metabolism to cell function.
5. The importance of membrane transport and membrane potentials to cell functions.
6. The classification, structure and function of tissues.
7. The structure, function and clinical considerations of the integumentary system.
8. The structure, function and clinical considerations of bone tissue including bone development.
9. The structure, function and clinical importance of articulations.
10. The structure, function, and clinical considerations muscles and muscle tissue.
11. The identification of the major muscle of the body.
12. The functional organization of the nervous system.
13. The characteristics, components and functions of the central nervous system.
14. The characteristics, components and functions of the peripheral nervous system.
15. The characteristics, components and functions of the autonomic nervous system.
16. The structure, function and clinical considerations of sensory organs.

Laboratory
1. The main concepts concerning anatomy & physiology.
2. The interrelationship of chemistry with anatomy and physiology.
3. The structural components of the cell and the genetic regulation of cells.
4. The importance of enzymes, energy and metabolism to cell function.
5. The importance of membrane transport and membrane potentials to cell functions.
6. The classification, structure and function of tissues.
7. The structure, function and clinical considerations of the integumentary system.
8. The structure, function and clinical considerations of bone tissue including bone development.
9. The bones and structures comprising the axial and appendicular skeletons.
10. The structure, function and clinical importance of articulations.
11. The structure, function, and clinical considerations associated with muscles and muscle tissue.
12. The major muscles of the body.
13. The characteristics, components and functions of the central nervous system.
14. The characteristics, components and functions of the peripheral nervous system.
15. The structure, function and clinical considerations of sensory organs.

Methods of Instruction/Course Format/Delivery:

This course is offered in a variety of formats: face to face, hybrid, and online. 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.

Assignments

Lecture

1. Class Quizzes: 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, matching, and fill-in-the-blank questions.
2. Mastering A&P Quizzes: There will be several publisher-administered Mastering A&P quizzes which are accessed via Canvas. The quizzes are untimed quizzes which are opened and closed at a date and time set by the professor. Each quiz may consist of multiple-choice, true/false, matching, fill-in-the-blank, and short-answer questions.
3. Exams: Several exams will be administered during the semester. Each exam typically covers two to three chapters from the textbook. 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.
4. Final Exam: A final comprehensive examination will be given the week of final exams and will cover material from the entire semester. The final comprehensive exam may consist of multiple-choice, true/false and matching questions.

Lab

1. Lab Quizzes: Several quizzes will be administered during the semester. Any lab session may begin or end with a quiz. Quiz questions will be drawn from lab notes, reading assignments and text objectives normally for a specific chapter in the lab book. Each quiz may consist of multiple- choice, true/false, matching, and fill-in-the-blank questions
2. Mastering A&P Quizzes: There will be several publisher-administered Mastering A&P quizzes which are accessed via Canvas. The untimed quizzes are opened and closed at a date and time set by the professor. Each quiz may consist of multiple-choice, true/false, matching, fill-in-the-blank, and short-answer questions.
3. Lab Exercises: Lab exercises may include drawings, laboratory reports, topic presentations or any other methodologies deemed important by the professor.
4. 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.

Course Grade:
The grading scale for this course is as follows:

- A=90-100%
- B=80-89%
- C=70-79%
- D=60-69%
- F=< 60%

Lecture (70% of course grade)

- Lecture Quizzes – 10% of lecture grade
- Mastering A&P Quizzes – 10% of lecture grade
- Exams – 60% of lecture grade
- 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). A missed exam is recorded as a zero and must be made-up. The comprehensive final cannot replace a missed exam score of zero

Lab (30% of course grade)

- Lab Quizzes – 20% of lab grade
- Mastering A&P Quizzes – 10% of lab grade
- Lab Exercises – 30% of lab grade
- Lab Practicals – 40% of lab grade.
    - A student can earn up to 2 points on their final lab average by active and studious participating in lab activities and not exceeding the college's attendance policy.

Texts, Materials, and Supplies:

Required:

- Martini, Nath and Bartholomew. 2018. Modified Mastering A&P with Pearson eText – Standalone Access Card for Fundamentals of Anatomy and Physiology 11th Edition. Pearson Education, New York, NY.
- Greene, Robison, and Strong. 2021. Laboratory Manual for Human Anatomy and Physiology: A Hands-On Approach–Main version 1st ed. Pearson Education, Hoboken, NJ. (for face-to-face lab only)
- Labster Access code (for online lab only).

Optional:

- Kapit and Elson. 2013. Anatomy Coloring Book 12th Edition. Pearson Education, Hoboken NJ.
- Krieger. 2013. A Visual Analogy Guide to Human Anatomy 3rd Edition. Morton Publishing, Englewood, CO.
- Perez. 2008. Anatomy (Flash Cards) Bar Charts Publishing, Boca Raton, FL.

Required Readings:

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- Greene, Robison, and Strong. 2021. Laboratory Manual for Human Anatomy and Physiology: A Hands-On Approach–Main version 1st Edition. Pearson Education, Hoboken, NJ. (for face-to-face lab only)
- Labster Access code (for online lab only).

Recommended Readings:

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- Perez. 2008. Anatomy (Flash Cards) Bar Charts Publishing, Boca Raton, FL.

Other:

- Courses conducted via video conferencing may be recorded and shared for instructional purposes by the instructor.
- For current texts and materials, use the following link to access bookstore listings: https://www.panolacollegestore.com
- For testing services, use the following link: https://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 Charles C. Matthews Student Center or go to https://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:* https://www.panola.edu/student-success/documents/pathfinder.pdf