BIOL201 16

Course Summary

Course : BIOL201 **Title :** Principles of Anatomy and Physiology with Lab
Length of Course : 16
Prerequisites : N/A **Credit Hours :** 4

Description

Course Description: This course introduces students to the fundamental principles associated with the structure and function of the human body. It is intended to prepare students for careers in the health sciences and healthcare systems (medical assisting, medical technology, radiologic technology, respiratory therapy, health information management, medical coding, etc.). Lessons and laboratory exercises focus on the organization, microscopic and gross anatomy, and the functions of the integumentary, musculoskeletal, nervous, endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems of the human body. The basics of chemistry and cell biology are introduced in order to provide the foundation for discussion of the individual organ systems. This course includes a hands-on laboratory component, and students are required to perform dissection of preserved animal specimens. Some of the laboratory activities require the use of glass or sharp laboratory instruments; therefore, students must have a safe work area available to perform laboratory activities. Students must also have room temperature storage available in order to maintain laboratory materials and specimens. Refrigerated storage is not required. In addition, students must be able to document their laboratory work using still pictures and/or video. This is a time and resource-intensive course. Students intending to pursue a career in the health sciences should verify that this course meets the requirements of their intended program prior to enrollment. NOTE: Students may take either BIOL201 or BIOL250/BIOL251 for credit, but not both versions of anatomy & physiology.

Course Scope:

This course provides the foundation for further study in areas of healthcare that require a single, four-credit-hour course in human anatomy and physiology with a laboratory component. A basic knowledge of both the structure (anatomy) and the function (physiology) of the human body is critical for providing effective care to patients and managing their health information. Others will entrust you with their care and health information, and it is your professional obligation to understand both the underlying mechanisms and the terminology used in the management of their care.

This course takes a systems approach to learning anatomy and physiology. Chemistry, cell biology, genetics, and the structure of tissues are common to all of the organ systems of the body. We will use that foundation to discuss the anatomy and physiology of the 11 organ systems as single, independent systems. As we progress through the course, we will relate how the individual organ systems work together to maintain homeostasis: The maintenance of a consistent environment within the body.

It is important to note that this is a science course, and not a course specific to any particular discipline. The

content and assignments in this course were selected to develop both your foundational knowledge in anatomy and physiology, as well as your scientific literacy skills. The laboratory exercises included in this course provide you the opportunity to apply the knowledge contained in the lesson materials, develop your scientific inquiry skills, and produce products that demonstrate your knowledge of anatomy and physiology to others.

Objectives

After successfully completing this course, you will be able to:

CO-1 Explain the principle of homeostasis and its relationship to human health.
CO-2 Explain the principles of basic chemistry, biochemistry, and cell biology relevant to human physiology.
CO-3 Describe the functions and general organization of the 11 organ systems of the human body.
CO-4 Identify the gross and microscopic structures of the 11 organ systems of the human body.
CO-5 Explain the normal physiological processes of the 11 organ systems of the human body.

Outline

Week 1: Introduction to Anatomy & Physiology

Learning Objectives

CO-1
CO-2

Readings

Text Readings

OpenStax: Anatomy & Physiology
Chapter 1, Sections 1.1-1.6

eScience Lab Activity:

Getting Started

Assignment

Introduction Forum

Quiz 1
Chapter 1

Assignment 1: Lab Safety Video and Contract

Week 2: The Chemical and Cellular Levels of Organization

Learning Objectives

CO-1
CO-2

Readings

Text Readings
OpenStax: Anatomy & Physiology

Chapter 2, Sections 2.1-2.5

Chapter 3, Sections 3.1-3.6

eScience Lab Activity
Diffusion and Osmosis

Assignment

Forum 2

Quiz 2
Chapters 2-3

Week 3: The Tissue Level of Organization and the Integumentary System

---

Learning Objectives

CO-3
CO-4
CO-5
CO-6

Readings

Text Readings
OpenStax: Anatomy & Physiology
Chapter 4, Sections 4.1-4.6
Chapter 5, Sections 5.1-5.4

eScience Lab Activity
Diffusion and Osmosis (continued from Week 2)

Assignment

Forum 3

Assignment 2: *Diffusion and Osmosis* (continued from Week 2)

Unit Exam 1
Chapters 1 – 5

Week 4: The Skeletal System and Joints

Learning Objectives

CO-3
CO-4
CO-5

Readings

Text Readings

OpenStax: Anatomy & Physiology
Chapter 6, Sections 6.1-6.4

Chapter 7, Sections 7.1-7.4

Chapter 8, Sections 8.1-8.4

Chapter 9, Sections 9.1-9.5

eScience Lab Activity
The Skeletal System

- Experiment 4: Virtual Model – The Axial Skeleton
- Experiment 6: Virtual Model – The Appendicular Skeleton

The Muscular System

- Experiment 4: Virtual Model – The Muscular System (Upper Body)
- Experiment 5: Virtual Model – The Muscular System (Lower Body)

Assignment

Forum 4

Quiz 3
Chapters 6-9

Week 5: The Muscular System

Learning Objectives

CO-3
CO-4
CO-5

Readings

Text Readings
OpenStax: Anatomy & Physiology
Chapter 10, Sections 10.1-10.8

Chapter 11, Sections 11.1-11.6

eScience Lab Activity
The Skeletal System (continued from Week 4)

- Experiment 4: Virtual Model – The Axial Skeleton
- Experiment 6: Virtual Model – The Appendicular Skeleton

The Muscular System (continued from Week 4)

- Experiment 4: Virtual Model – The Muscular System (Upper Body)
- Experiment 5: Virtual Model – The Muscular System (Lower Body)

Assignment

Forum 5

Quiz 4

Chapters 10-11

Assignment 3: *Bones and Muscles*
(continued from Week 4)

Week 6: The Nervous System, Part I

Learning Objectives

CO-3
CO-4
CO-5

Readings

Text Readings
OpenStax: Anatomy & Physiology
Chapter 12, Sections 12.1-12.5

Chapter 13, Sections 13.1-13.4

eScience Lab Activity
None

Assignment

Forum 6

Unit Exam 2
Chapters 6-13

Week 7: The Nervous System, Part II

Learning Objectives

CO-4
CO-5

Readings

Text Readings
OpenStax: Anatomy & Physiology
Chapter 14, Sections 14.1-14.3

Chapter 15, Sections 15.1-15.3

eScience Lab Activity
The Nervous System

- Experiment 1: Sheep Brain Dissection

Assignment

Forum 7

Quiz 5
Chapters 14-15

Assignment 4: The Brain

Week 8: The Endocrine System

Learning Objectives

CO-3
CO-4
CO-5

Readings

Text Readings
OpenStax: Anatomy & Physiology
Chapter 17, Sections 17.1-17.10

eScience Lab Activity
None

Assignment

Forum 8

Quiz 6
Chapter 17

Week 9: Blood and the Heart

Learning Objectives

CO-3
CO-4
CO-5

Readings

Text Readings
OpenStax: Anatomy & Physiology
Chapter 18, Sections 18.1-18.6
Chapter 19, Sections 19.1-19.4

eScience Lab Activity
Blood and the Heart

- Experiment 1: Blood Typing Experiment

Assignment

Forum 9

Unit Exam 3
Chapters 14-15, 17-19

Week 10: Blood Circulation and the Lymphatic and Immune Systems

---

Learning Objectives

CO-4
CO-5

Readings

Text Readings
OpenStax: Anatomy & Physiology
Chapter 20, Sections 20.1-20.5

Chapter 21, Sections 21.1-21.5

eScience Lab Activity
Blood and the Heart

- Experiment 1: Blood Typing Experiment (continued from week 9)

Assignment

Forum 10

Quiz 7
Chapters 20-21

Assignment 5: *Blood Typing*

Week 11: The Respiratory System

Learning Objectives

CO-3
CO-4
CO-5

Readings

Text Readings
OpenStax: Anatomy & Physiology
Chapter 22, Sections 22.1-22.6

eScience Lab Activity
Blood and the Heart

- Experiment 2: Sheep Heart Dissection

Assignment

Forum 11

Quiz 8
Chapter 22

Assignment *6: The Heart*

Week 12: The Digestive System

Learning Objectives

CO-3

CO-4
CO-5

Readings

Text Readings
OpenStax: Anatomy & Physiology
Chapter 23, Sections 23.1-23.6

eScience Lab Activity
None

Assignment

Forum 12

Unit Exam 4
Chapters 20-23

Week 13: Metabolism and Nutrition

Learning Objectives

CO-3
CO-4
CO-5

Readings

Text Readings
OpenStax: Anatomy & Physiology
Chapter 24, Sections 24.1-24.7

eScience Lab Activity
None

Assignment

Forum 13

Quiz 9
Chapter 24

Week 14: The Urinary System and Fluid, Electrolyte, and Acid-Base Balance

---

Learning Objectives

CO-5

Readings

Text Readings
OpenStax: Anatomy & Physiology
Chapter 25, Sections 25.1-25.10

Chapter 26, Sections 26.1-26.4

eScience Lab Activity

Electrolytes, Water, Acids, and Bases

- Experiment 1: Breathing and Acid-Base Balance
- Experiment 2: Urine pH

Assignment

Forum 14

Quiz 10
Chapters 25-26

Assignment 7: *Electrolytes, Water, Acids, and Bases*

Week 15: The Reproductive System and Development

Learning Objectives

CO-3
CO-4
CO-5

Readings

Text Readings
OpenStax: Anatomy & Physiology
Chapter 27, Sections 27.1-27.3

Chapter 28, Sections 28.1-28.7

eScience Lab Activity
None

Assignment

Forum 15

Unit Exam 5
Chapters 24-28

Week 16: Wrap-Up and Assessment

Learning Objectives

CO-4
CO-5

Readings

Text Readings
Review previous chapters

eScience Lab Activity:
None

Assignment

Forum 16

Comprehensive Final Exam

Includes all assigned OpenStax: Anatomy & Physiology chapters from Weeks 1-15

Evaluation

Your final grade in the course will be determined by your performance on five types of assessments:

Discussion Forums (16 forums; 10% of final grade)
During each week of the course, you will provide an initial post to the discussion forum that is relevant to the assigned topic. In addition, you will respond to at least two of your classmates' initial posts and answer any questions asked about your initial post. The forums are for student interaction, and input should be submitted per the due dates listed in the classroom in order to fully participate in the discussions. Students should demonstrate their own knowledge in the forums and avoid copying and pasting from websites.

Initial Post (40 possible points)

- The post is on topic, clearly related to the thread, and addresses all components of the assignment with significant depth, analysis, and clarity.
- The post is approximately 250-350 words long and written in your own words.

Reply Posts (30 possible points)

- Reply to at least two of your classmates' original posts with responses that are on topic, clearly related to the thread, and further the discussion of the original comment. For example, ask an interesting and related question, or share relevant information on the topic.
- The post is approximately 100-200 words long and written in your own words.
- Please reply early enough in the week to allow time for your classmates and instructor to respond.

Creates Conversation and Community (15 possible points)

- Respond to follow-up questions and comments posted to your initial post by your classmates and instructor during the week.
- All posts are written in a constructive and respectful tone.

Terminology, Sources, and Attribution (15 possible points)

- All posts accurately apply scientific concepts and use scientific terminology correctly (including spelling).
- Posts include background information based on credible sources of scientific information, where applicable, to support discussion. *
- All sources used are attributed to the original author with a citation or URL so that your classmates and instructor can locate and view the source. *
- If a post is based on an opinion, the post offers a well phrased and thought out position.

**Please reviewAcademic Honesty Policies.*

Quizzes (10 quizzes; 10% of final grade)
In most weeks, you will complete a quiz. Quiz questions will cover the week's lesson and reading from the textbook. Quizzes are open-book, open-notes and may be submitted multiple times prior to the due date with the highest grade recorded.

Lab Assignments (6 assignments; 30% of final grade)
You will apply the lesson content in six laboratory exercises. You will submit these laboratory assignments based on the related laboratory exercises. Three of these assignments will be written assignments and three will be video-based submissions.

Unit Exams (5 exams; 35% of final grade)
You will complete five unit exams during the course. Each exam will cover approximately 5 chapters of the course textbook. Exam questions cover both new material and relevant material from previous chapters. Unit exams are closed-book, closed-note, and the use of any external resources is prohibited.

Cumulative Final Exam (1 final exam; 15% of final grade)
You will complete one final exam during the course which will cover all course readings completed during the course. The final exam is closed-book, closed-note, and the use of any external resources is prohibited.

Detailed instructions for each of these assessments are provided in the classroom.

Please see the Student Handbook to reference the University's grading scale.

Grading:

Name	Grade %

Materials

Book Title: BIOL201 Custom A&P Lab Kit

Author:

Publication Info: eScience

ISBN: 5024

Book Title: Anatomy & Physiology - e-book available online, link provided in the classroom Lessons section

Author: No Author Specified

Publication Info: OpenStax

ISBN: N/A

Book Title: Until further notice, eScience kits will ship without any action needed from students. Your shipping address on file must be current - https://apus.libanswers.com/coursematerials/faq/238652

Author:

Publication Info:

ISBN: eScience Note

In accordance with the Student Handbook (http://www.apus.edu/student-handbook/course-materials/), students who have not received a shipping confirmation email from eScience Labs or UPS by the first Friday of class must drop the course and re-register for a future semester.

Required Technology

- See the Technology Requirements section of the undergraduate catalog for the minimum hardware and software requirements.
- In addition, students must be able to document their laboratory work using still pictures and/or video.
- Microsoft Office 365 is available to APUS students for free. To sign up, visit http://products.office.com/en-us/student. If you have questions about accessing the software, please contact Classroom support at classroomsupport@apus.edu.

Course Guidelines

Citation and Reference Style

- Attention Please: Students will follow the APA Format as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Format.

Tutoring

- Tutor.com offers online homework help and learning resources by connecting students to certified tutors for one-on-one help. AMU and APU students are eligible for 10 free hours* of tutoring provided by APUS. Tutors are available 24/7 unless otherwise noted. Tutor.com also has a SkillCenter Resource Library offering educational resources, worksheets, videos, websites and career help. Accessing these resources does not count against tutoring hours and is also available 24/7. Please visit the APUS Library and search for 'Tutor' to create an account.

Late Assignments

- Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. The due date for each assignment is listed under each Assignment.
- Generally speaking, late work may result in a deduction up to 15% of the grade for each day late, not to exceed 5 days.
- As a working adult I know your time is limited and often out of your control. Faculty may be more flexible if they know ahead of time of any potential late assignments.

Turn It In

- Faculty may require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. In some cases professors may require students to use Turnitin.com. This is automatically processed through the Assignments area of the course.

Academic Dishonesty

- Academic Dishonesty incorporates more than plagiarism, which is using the work of others without citation. Academic dishonesty includes any use of content purchased or retrieved from web services such as CourseHero.com. Additionally, allowing your work to be placed on such web services is academic dishonesty, as it is enabling the dishonesty of others. The copy and pasting of content from any web page, without citation as a direct quote, is academic dishonesty. When in doubt, do not copy/paste, and always cite.

Submission Guidelines

- Some assignments may have very specific requirements for formatting (such as font, margins, etc) and submission file type (such as .docx, .pdf, etc) See the assignment instructions for details. In general, standard file types such as those associated with Microsoft Office are preferred, unless otherwise specified.

Disclaimer Statement

- Course content may vary from the outline to meet the needs of this particular group.

Communicating on the Forum

- Forums are the heart of the interaction in this course. The more engaged and lively the exchanges, the

more interesting and fun the course will be. Only substantive comments will receive credit. Although there is a final posting time after which the instructor will grade comments, it is not sufficient to wait until the last day to contribute your comments/questions on the forum. The purpose of the forums is to actively participate in an on-going discussion about the assigned content.

- "Substantive" means comments that contribute something new and hopefully important to the discussion. Thus a message that simply says "I agree" is not substantive. A substantive comment contributes a new idea or perspective, a good follow-up question to a point made, offers a response to a question, provides an example or illustration of a key point, points out an inconsistency in an argument, etc.
- As a class, if we run into conflicting view points, we must respect each individual's own opinion. Hateful and hurtful comments towards other individuals, students, groups, peoples, and/or societies will not be tolerated.

Identity Verification & Live Proctoring

- Faculty may require students to provide proof of identity when submitting assignments or completing assessments in this course. Verification may be in the form of a photograph and/or video of the student's face together with a valid photo ID, depending on the assignment format.
- Faculty may require live proctoring when completing assessments in this course. Proctoring may include identity verification and continuous monitoring of the student by webcam and microphone during testing.

University Policies

Student Handbook

- Drop/Withdrawal policy
- Extension Requests
- Academic Probation
- Appeals
- Disability Accommodations

The mission of American Public University System is to provide high quality higher education with emphasis on educating the nation's military and public service communities by offering respected, relevant, accessible, affordable, and student-focused online programs that prepare students for service and leadership in a diverse, global society.