

MARIAN UNIVERSITY
— Indianapolis —®
Marian's Adult Programs

School: Mathematics and Sciences

Course Description

BIO 226 GENERAL HUMAN PHYSIOLOGY ONLINE

The course consists of lecture and laboratory sections that are integrated to emphasize the physiology of the human. The topics covered in this course expound on the relationship between structure and function in human body systems.

Semester and Credit Hours

Credit Hours: 5

Prerequisite: None, but Anatomy and Chemistry are strongly recommended

Required Textbook(s) and Additional Resources

A Mastering A & P Lab is required for this course. Once your course begins, your instructor will provide you with ordering instructions via the Canvas LMS.

Course Objectives

At the completion of the course, the student will be able to:

- Explain differences between external and internal environment
- Specify adaptation mechanisms for maintaining internal homeostasis
- Relate the structure of a biomolecule to its functionality
- Demonstrate knowledge of cell structure, enzyme kinetics, energy production, cell metabolism, and membrane transport

- Demonstrate knowledge of neurophysiology
- Explain synaptic transmission
- Contrast excitatory postsynaptic potentials with inhibitory postsynaptic potentials
- Explain action potential transmission along the length of an axon
- Demonstrate knowledge of the structural organization of the eye and ear
- Relate the structure of the eye and ear to their functionality
- Explain how light and sound are converted to electrical impulses
- Demonstrate knowledge of muscle physiology
- Contrast the functions of the sympathetic and parasympathetic nervous systems
- Identify the components of the heart and how they function
- Demonstrate the ability to trace the flow of blood through the heart
- Demonstrate knowledge of the cardiac cycle
- Relate the events of the cardiac cycle to cardiac output
- Describe the factors influencing cardiac output
- Explain how blood flow through capillaries, arteries, and veins is regulated
- Discuss the functionality of the different types of blood cells
- Summarize the blood clotting process
- Demonstrate knowledge of the physiology of the respiratory system
- Explain the gas laws that determine the exchange of gasses with the blood stream
- Demonstrate knowledge of the three processes of urine formation
- Explain the chemical cascade of digestion in each digestive organ
- Contrast the functional differences of the digestive system organs
- Demonstrate knowledge of the endocrine system and to relate it to the nervous system as a means by which it directs the functioning of the human body
- Explain the various secretions for the wide array of endocrine glands
- Identify how the cells which are located in the lymphatic tissues interact
- Demonstrate knowledge of the lymphatic system and its importance in the immunological response

Topics

Body Organization, Homeostasis, Biomolecules, Cell Structure, Enzymes, Energy, Cell Metabolism, Neurophysiology, Central Nervous System, Peripheral Nervous System, Autonomic Nervous System, Special Senses, Blood, Heart, Blood Vessels, Lymphatic System, Respiratory System, Digestive System, Urinary System, Endocrine System, and Immune System

Lectures

All questions on the lecture exam will deal with material covered in the online lectures. Therefore, it is greatly to your advantage to view the lectures. You will understand the online lectures if you read the chapters indicated on your schedule before listening/viewing the online lecture. In particular, study the figures in the book; they are generally very good and will help you understand the material.

Please be advised that all dates and times in Canvas are Eastern Time (ET) by default. Unless you as the student have changed your personal settings due dates and times will appear as ET. Please plan accordingly.

Laboratory

All questions on the laboratory exam will deal with material covered in the online computer simulations found on the Mastering A&P website under PhysioEx 9.1. Therefore, it is greatly to your advantage to work thoroughly through the computer simulations. You will understand the online computer simulations if you read through the pages associated with the computer simulation and the "Lab Intro/Review" sheets linked to each of the Modules PRIOR to attempting the simulation.

Policy Statements

Academic Misconduct: The University's guidelines for penalties and procedures will be strictly adhered to. If you are not familiar with the guidelines, please refer to the University's *Code of Students Rights and Responsibilities*.

Students with Disabilities: Students with disabilities who have proper documentation must contact the Director of Academic Support Services in the Counseling and Consultation Services office to set up a documentation review. If after the review, accommodations are deemed appropriate, an accommodation plan will be developed. As per the ADA (Americans with Disabilities Act) no accommodations can be provided until this process is complete. Contact Marj Batic, Director of Academic Support Services (mbatic@marian.edu ; 317.955.6150; or stop by the office in Clare Hall).Note: Students who may require assistance in emergency evacuations should consult with the instructor as to the most appropriate procedure to follow. If there are questions regarding such a procedure, contact Ruth Rodgers, Vice President, Student Success and Engagement/Dean of Students @ rrodgers@marian.edu or the Director of Academic Support Services for additional information.

Grading Scale

Grading:

1. The **lecture contribution** to the overall grade is determined based on the following point total:

400 points: Four 100-point exams (each exam consists of 50 multiple-choice questions) will be given. The exams will not be cumulative. **YOU WILL HAVE 60 MINUTES TO COMPLETE THE LECTURE EXAM.**

2. The **laboratory contribution** to the overall grade is determined based on the following point total:

100 points: Four 25-point exams will be given. These tests will have 25 multiple-choice questions worth one point each. **YOU WILL HAVE 30 MINUTES TO COMPLETE THE LAB EXAM.**

Proposed Grading Scale:

Total points = 500 (approximately 80% from lecture and 20% from lab).

93% - 100% (465.0 - 500.0 pts) = A
90% - 92.9% (450.0 - 464.9 pts) = A-
87% - 89.9% (435.0 - 449.9 pts) = B+
83% - 86.9% (415.0 - 434.9 pts) = B
80% - 82.9% (400.0 - 414.9 pts) = B-
77% - 79.9% (385.0 - 399.9 pts) = C+
73% - 76.9% (365.0 - 384.9 pts) = C
70% - 72.9% (350.0 - 364.9 pts) = C-
67% - 69.9% (335.0 - 349.9 pts) = D+
63% - 66.9% (315.0 - 334.9 pts) = D
00% - 62.9% (000.0 - 314.9 pts) = F

Final course grades are assigned objectively and without regard to a student's academic standing or to the requirements of other departments or programs. It is each student's responsibility to see that she or he is safely above any minimum requirements that may apply. Appeals regarding a student's failure to meet such requirements should be directed to the department or program that demands them and not to the staff of BIO 226.

*** NOTE: NO EXTRA CREDIT PROJECTS TO RAISE A FINAL GRADE WILL BE ACCEPTED!**