

SOUTHEAST COMMUNITY COLLEGE
DIVISION OF ARTS AND SCIENCES
Sciences

Revision Date: 01-13-20

[Syllabus Statements](#)

I. CATALOG DESCRIPTION

Course Number: BIOS2130
Course Title: Human Physiology
Prerequisite(s): None
Catalog Description: Study of the functions of the various human and body systems including detailed study of cell structure and function, diffusion and osmosis, chemical reactions in the body, muscle contraction, digestion, metabolism, blood components, nerve impulse propagation, kidney function, respiration (specifically the chloride shift concept), select cardiovascular functions, endocrinology, reproduction, and immunology. Lab complements the material presented in lecture and provides a more “hands on” approach. Lab is concurrent with lecture and is required.

Credit Hours: 4.0
Class Hours: 45
Lab Hours: 30
Total Contact Hours: 75

II. COURSE OBJECTIVES: *Course will:*

- A. Show students how intricate and complex the human body is.
- B. Offer students an understanding of the chemical reactions and chain of reactions occurring in the human body.
- C. Give the students the appreciation of what it takes for the body to maintain homeostasis.
- D. Give students the opportunity to explore the “workings” of the internal body via laboratory exercises.
- E. Allow students to be better informed regarding some of the medical aspects of the human body.
- F. Give the student a better understanding of the medical reports they receive after a visit to the doctor.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Follow some of the chemical pathways associated with the body.
 - 2. Explain why the body is out of homeostasis when the chemical pathways are altered due to pathogens (for example).
 - 3. Discuss and explain laboratory results.
 - 4. Understand osmotic terminology.
 - 5. Discuss how nerve impulses are propagated.
 - 6. Discuss how nerves are affected positively or negatively by various drugs.
 - 7. Explain how hormones are involved in maintaining the overall health of a person.
 - 8. Explain how RBCs are formed and the role the bones and liver play in RBC formation.
 - 9. Explain the role WBCs play in the overall health of a person.
 - 10. Explain why a type A person cannot donate blood to a type B person, etc.
 - 11. Follow the pathway that leads up to blood clotting.
 - 12. Explain how the digestive hormones are involved in the digestive system.
 - 13. Explain how the digestive enzymes work in the digestive system.
 - 14. Discuss the significance of cholesterol in the body.
 - 15. Explain the chloride shift concept.
 - 16. Explain the significance of carbon dioxide in the body.

17. Explain how muscles contract via chemical reaction activity.
 18. Explain how rigor mortis sets in.
 19. Discuss laboratory results of urinalysis.
 20. Discuss the hormonal events involved in pregnancy and nonpregnancy.
 21. Explain how vaccines work with regard to the immune system.
- B. General Education Learning Outcomes**
1. GELO #3: Critical Thinking & Problem Solving
 - Outcome: Collect, identify, interpret and analyze data.
 - Outcome: Synthesize information to arrive at reasoned solutions to problems.
 - Outcome: Evaluate the validity of arguments, alternatives, data, outcomes, and/or impacts of actions.
 - Outcome: Acquire and integrate knowledge and construct relationships across disciplines.
 2. GELO #5: Analytical, Quantitative, and Scientific Reasoning
 - Outcome: Apply mathematical and scientific methods to solve problems from an array of contexts and everyday situations.
 - Outcome: Understand and create logical arguments supported by quantitative and scientific evidence and communicate those arguments in a variety of formats.
 - Outcome: Effectively develop strategies, algorithms, or experiments (or performing experiments) to better describe the systems or to solve the problems.
 - Outcome: Manipulate formulas, data sets, graphs, tables, etc. in a way to produce a meaningful outcome.

IV. CONTENT/TOPICAL OUTLINE (*course outline may provide more detailed information*)

- A. The study of homeostasis.
- B. The study of cellular structures.
- C. The study of the cell membrane.
- D. The study of inorganic chemistry as it relates to physiology.
- E. The study of organic chemistry as it relates to physiology.
- F. The study of protein synthesis.
- G. The study of osmosis and diffusion.
- H. The study of cell reproduction.
- I. The study of nerve activity.
- J. The study of the endocrine system.
- K. The study of erythrocytes.
- L. The study of blood typing and donation.
- M. The study of blood clotting.
- N. The study of leukocytes.
- O. The study of heart contractions, pulse, blood pressure.
- P. The study of metabolism.
- Q. The study of respiration, chloride shift.
- R. The study of muscle contraction.
- S. The study of kidney function.
- T. The study of the reproductive system.
- U. The study of the immune system.

V. INSTRUCTIONAL MATERIALS

- A. Required Text(s):
 1. Martini, Frederick, Judi Nath, & Edwin Bartholomew, *Fundamentals of Anatomy and Physiology*, 11th ed., Pearson, 2018. ISBN: 978-0-13-439602.

2. Bassett, Steven, E., *Human Physiology Workbook*, 1st ed., Bluedoor, 2020. ISBN: 978-1-64386-336-8.
3. Bassett, Steven, E., *Human Physiology Laboratory Manual*, 1st ed., Hayden-McNeil, 2016. ISBN: 978-0-7380-8257-8.

VI. METHODS OF PRESENTATION/INSTRUCTION

- A. Methods of presentation typically include a combination of the following:
1. Lecture
 2. Lab
 3. Demonstration

VII. METHODS OF EVALUATION

- A. Methods of evaluation typically include a combination of the following:
1. Exams
 2. Quizzes
 3. Homework from lecture and lab

B. SCC GRADING SCALE

A+	95-100	C+	75-79	F	59 or less
A	90-94	C	70-74		
B+	85-89	D+	65-69		
B	80-84	D	60-64		

VIII. SPECIFIC COURSE REQUIREMENTS

- A. None