PHYSIO 1 Course Outline as of Fall 2024

CATALOG INFORMATION

Dept and Nbr: PHYSIO 1 Title: HUMAN PHYSIO
Full Title: Human Physiology
Last Reviewed: 5/8/2023

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	5.00	Lecture Scheduled	4.00	17.5	Lecture Scheduled	70.00
Minimum	5.00	Lab Scheduled	3.00	8	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	7.00		Contact Total	122.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 140.00 Total Student Learning Hours: 262.50

Title 5 Category: AA Degree Applicable
Grading: Grade or P/NP
Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:
Formerly:

Catalog Description:
Students will study the function of the human body with a focus on mechanisms of homeostasis at the biochemical, cellular, and systemic levels. Laboratory experiments are conducted to illustrate major principles associated with these systems. Intended for pre-nursing and pre-dental hygiene students.

Prerequisites/Corequisites:
Course completion of ENGL 1A OR EMLS 10 (formerly ESL 10); AND
Completion of BIO 10 or higher (V7); AND
Completion of CHEM 60, CHEM 3A, or CHEM 1A, or higher (V6)

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: Students will study the function of the human body with a focus on mechanisms of homeostasis at the biochemical, cellular, and systemic levels. Laboratory experiments are conducted to illustrate major principles associated with these systems. Intended for pre-nursing

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Completion of BIO 10 or higher (V7); AND
Completion of CHEM 60, CHEM 3A, or CHEM 1A, or higher (V6)
Recommended:
Limits on Enrollment:
Transfer Credit: CSU;UC.
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**		Effective:	Inactive:
	C	Natural Sciences	Fall 1981	
CSU GE:	**Transfer Area**		Effective:	Inactive:
	B2	Life Science	Fall 1981	
	B3	Laboratory Activity		
IGETC:	**Transfer Area**		Effective:	Inactive:
	5B	Biological Sciences	Fall 1981	
	5C	Fulfills Lab Requirement		

CSU Transfer:	Transferable	Effective:	Fall 1981	Inactive:
UC Transfer:	Transferable	Effective:	Fall 1981	Inactive:

CID:
CID Descriptor: BIOL 120B Human Physiology with Lab
SRJC Equivalent Course(s): PHYZ1

Certificate/Major Applicable:
Both Certificate and Major Applicable

COURSE CONTENT

Student Learning Outcomes:
At the conclusion of this course, the student should be able to:
1. Describe the function of the organ systems of the body.
2. Describe in detail the biochemical and cellular mechanisms that maintain homeostasis.

Objectives:
At the conclusion of this course, the student should be able to:
1. Describe the characteristics of the scientific method and how it forms the basis of all modern scientific research.
2. Define homeostasis and explain how feedback mechanisms function to maintain homeostasis.
3. Explain relationships between structure and function at the molecular, cellular, and systems level of biological organization.
4. Explain how the structures of proteins and cells support the function of organ systems.
5. Compare and contrast the basic mechanisms by which cells, organs, and systems of the body carry out their specific physiological functions and maintain homeostasis.
6. Describe and evaluate the body's response to some major physiological stressors such as exercise, fasting, severe temperature extremes, injury, hemorrhage, infection, and diarrhea.

7. Apply knowledge about the function of the body to understanding the physiological basis for some of the major diseases and disorders of the human body.
8. Conduct physiological experiments that elucidate the functions of the body's organ systems.

Topics and Scope:

Lecture-Related Topics and Scope:
I. Introductory Concepts
   A. Scientific method
   B. Levels of biological organization
   C. Homeostasis
II. Cell Structure and Function
   A. Macromolecules
   B. Organelles
   C. Cell membranes
   D. ATP and enzymes
III. Control Systems: Nervous and Endocrine
   A. Neurons, membrane potentials, and synapses
   B. Structure and function of central, peripheral, and autonomic divisions of the nervous system
   C. Sensory receptors and transduction
   D. Endocrine glands and hormones
IV. Muscle System
   A. Skeletal, cardiac, and smooth muscle
   B. Mechanism and control of muscle contraction
V. Circulatory System
   A. Basic plan of circulation
   B. Cardiac cycle
   C. Blood vessels and blood pressure
   D. Regulation of cardiac output and blood pressure
   E. Basis for heart attack, hypertension, and atherosclerosis
VI. Respiratory System
   A. Mechanisms of ventilation, gas exchange, and gas transport
   B. Regulation of respiratory rate
   C. Description of chronic obstructive pulmonary disease
VII. Urinary System
   A. Mechanism of formation of urine
   B. Regulation of salt and water balance
   C. Regulation of acid-base balance
VIII. Digestive System
   A. Organs and enzymes of digestion
   B. Factors that affect absorption
IX. Immune System
   A. Injury and infection
   B. Organs, cells, molecules, and mechanisms that provide immune defense
X. Reproductive System
   A. Organs and hormones involved in sperm production
   B. Organs and hormones of menstrual cycle, pregnancy, parturition, and lactation

Laboratory-Related Topics and Scope:
XI. Laboratory Exercises
   A. Acid-base balance

B. Blood chemistry
C. Cardiac function
D. Enzyme activity
E. Glucose tolerance test
F. Homeostasis
G. Muscle contraction
H. Pulmonary function
I. Reflex arc
J. Renal function
K. Senses

Assignment:

Lecture-Related Assignments:
1. Reading in text (30-60 pages per week)
2. Research paper may be required (optional, 1-5 pages), requires library research
3. Quiz(zes) (0-17)
4. Exams (3-4)
5. Comprehensive final exam including objective and essay questions

Lab-Related Assignments:
1. Lab reports (18)

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Research paper; lab reports	Writing 10 - 20%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

None	Problem solving 0 - 0%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None	Skill Demonstrations 0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Quiz(zes); exams; comprehensive final exam	Exams 75 - 90%

Other: Includes any assessment tools that do not logically fit into the above categories.

Attendance and participation	Other Category 0 - 5%

Representative Textbooks and Materials:
Human Physiology. 16th ed. Fox, Stuart. McGraw-Hill. 2022.
Human Physiology. 2nd ed. Derrickson, Bryan. Wiley. 2019.
Instructor prepared lab manual textbook.