PHYSIO 1 Course Outline as of Fall 2008

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:
Cellular mechanisms underlying normal functions of body systems including neuromuscular, endocrine, cardiovascular, digestive, renal, respiratory, immune and reproductive. Selected examples of disturbances to normal functioning of these systems will be related to homeostatic mechanisms. Laboratory experiments are conducted to illustrate major principles associated with these systems. (Intended for physical therapy, nursing, and dental hygiene students)

Prerequisites/Corequisites:
Completion of CHEM 60 or higher and Completion of BIO 10 or higher

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: Cellular mechanisms underlying normal functions of systems including neuromuscular, endocrine, cardiovascular, digestive, renal, respiratory, immune and reproductive. Laboratory experiments included. (Intended for physical therapy, nursing, and dental hygiene students.) (Grade or P/NP)

Prerequisites/Corequisites: Completion of CHEM 60 or higher and Completion of BIO 10 or higher
Recommended:
Limits on Enrollment:
Transfer Credit: CSU;UC. (CAN BIOL12)(PHYSIO 1+ANAT 1=BIOL SEQ B)
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): PHYSIO1

Certificate/Major Applicable:
Major Applicable Course

COURSE CONTENT

Outcomes and Objectives:
Upon completion of the course, students will 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 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:

1. Introductory Concepts
   a. Scientific method
   b. Levels of biological organization
   c. Homeostasis
2. Cell Structure and Function
   a. Macromolecules
   b. Organelles
   c. Cell membranes
   d. ATP and enzymes
3. Control Systems: Nervous and Endocrine
   a. Neurons, membrane potentials, synapses
   b. Structure and function of central, peripheral and autonomic divisions of nervous system
   c. Sensory receptors, transduction
   d. Endocrine glands, hormones
4. Muscle System
   a. Skeletal, cardiac, smooth muscle
   b. Mechanism and control of muscle contraction
5. Circulatory System
   a. Basic plan of circulation
   b. Cardiac cycle
   c. Blood vessels and blood pressure
   d. Regulation of cardiac output, blood pressure
   e. Basis for heart attack, hypertension, atherosclerosis
6. Respiratory System
   a. Mechanisms of ventilation, gas exchange, gas transport
   b. Regulation of respiratory rate
   c. Description of chronic obstructive pulmonary disease
7. Urinary System
   a. Mechanism of formation of urine
   b. Regulation of salt and water balance
   c. Regulation of acid - base balance
8. Digestive System
   a. Organs and enzymes of digestion
   b. Factors that affect absorption
9. Immune System
   a. Injury and infection
   b. Organs, cells, molecules and mechanisms that provide immune defense
10. Reproductive System
   a. Organs and hormones involved in sperm production
   b. Organs and hormones of menstrual cycle, pregnancy, parturition, lactation
11. Laboratory Exercises
   Acid base balance
   Blood chemistry
   Cardiac function
   Enzyme activity
   Glucose tolerance test
   Homeostasis

Muscle contraction
Pulmonary function
Reflex arc
Renal function
Senses

Assignment:

1. Weekly reading in text, 30-60 pages per week.
2. Lab experiments will be performed.
3. Lab reports which may include fill in and short answer questions, data calculation and graphing.
4. Research paper may be required, 5-10 pages long, includes library research.
5. Formal assessment: 3 to 4 midterm exams and a comprehensive final exam including objective and essay questions, 3 to 4 lab practical examinations; weekly quizzes may be required.

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.

Lab reports, research paper	Writing 10 - 20%

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

Lab practical exams	Problem solving 20 - 40%

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.

Quizzes, midterm exams: objective/essay questions	Exams 40 - 60%

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

None	Other Category 0 - 0%

Representative Textbooks and Materials:
HUMAN PHYSIOLOGY, by Stuart Ira Fox, 10th Edition, 2008.
HUMAN PHYSIOLOGY, FROM CELLS TO SYSTEMS, by Lauralee Sherwood, 6th

Edition, 2007.
PRINCIPLES OF HUMAN PHYSIOLOGY, by Cindy Stanfield and William Germann, 3rd edition,
2007.