Summer Course 2015

Human Physiology (Biol 170) 4 Semester Hour Credits

Offered: June 13-August 8, 2015

Instructor: Jerome Garcia, Ph.D.

Course Description

This course is designed for any student interested in entering the health professions. A study of human organ and tissue functions. This class is a survey of the fundamental principles of human physiology and will delve into molecular mechanisms within the cells to the actions of tissues, organs, organ-systems, and how the organism as a whole adapts to certain phenomenon. Laboratories emphasize inquiry and the use of instrumentation in physiological studies. Human physiology is recommended for Biology, Chemistry, and Movement and Sports Sciences majors interested in a Health Science Career. This course includes eight laboratory sessions. Prerequisite: One semester of college biology. Credits are transferable, however please check with the institution you wish to transfer credits to prior to taking this course.

Course Goals

At the conclusion of this course, students will be able to:

- Discuss physiological processes in the human organism at the cellular, tissue, and organismic level
- Link basic concepts of introductory biology and human anatomy courses and reveal how those fundamental ideas play a crucial role in understanding molecular mechanisms
- Discuss the interdisciplinary nature of the natural sciences and how mathematics provides the foundation for Physics → Chemistry → Biology → Human Anatomy
- Identify how laws of thermodynamics and energy are crucial to the human body’s complex architecture (shape/organization)
- Recognize how anatomical “shape/organization confers function”
- Define a basic foundation of signaling cascades.
- Identify the basic hierarchy, function, and different diseases emanating from each organ system within the human body
Topics Covered

- The Study of Body Function and Chemical Composition Cells and Enzymes
- Heart and Circulation
- Regulation of Metabolism
- Metabolism/Interactions
- Cardiac Output
- Digestive System
- Respiratory Physiology
- Excretory System Physiology
- Nervous System Physiology
- Muscle Physiology
- Sensory Physiology
- Immune System
- Endocrine Physiology
- Reproductive Physiology

Physiology Laboratory Topics

- Protein Determination
- Enzyme Activity
- Senses
- Cell Viability
- Blood Workshop
- EKG Workshop
- Urinalysis
- Amylase Workshop

Course Delivery

Lectures will be delivered asynchronously and are recorded by faculty to be accessible on-line by students through Google Drive at Keck Graduate Institute at their convenience. Additional course materials including readings, grades, and assignment will be made available through the Learning Management System Sakai. Students are responsible for watching video lectures during the week at their own pace. Students are required to come to KGI on Saturdays for discussion of the week’s topic(s) as well as to participate in Physiology Lab.

Exams and quizzes will be given electronically at the discretion of the instructor. Laboratory periods will be conducted for 4 hours on Saturday’s for 8 weeks over the summer session excluding the July 4th holiday.