COMMON COURSE OUTLINE: Course discipline/number/title: BIOL 1216: Anatomy and Physiology of the Nervous and Respiratory Systems

A. CATALOG DESCRIPTION
1. Credits: 2
2. Hours/Week: 3 hours of lecture and 2 hours of lab per week
3. Prerequisites (Course discipline/number): BIOL 1110, CHEM 1101
4. Co-requisites (Course discipline/number): None

This course will cover in detail the anatomy and physiology of the nervous & respiratory systems.

B. DATE LAST REVISED (Month, year): April, 2007

C. OUTLINE OF MAJOR CONTENT AREAS:
1. Nervous System
   a) Organization
   b) Neurophysiology
   c) Spinal Cord - Structure, Tracts, Reflexes
   d) Spinal Nerves - Branching, Divisions
   e) Brain - Development, Coverings, C.C. Fluid, Divisions
   f) Cerebrum - Cortical Areas of Function, Cerebral Nuclei
   g) Diencephalon - Function of Thalamus and Hypothalamus
   h) Brain Stem - Functions of Midbrain, Pons and Medulla
   i) Cerebellum and Reticular Mechanism
   j) Cranial Nerves - Distribution and Function
   k) Autonomic System - Structure and Function
   l) General Considerations in Characteristics of Sensation and Receptors
   m) Gustation and Olfaction
   n) Visual Sensation - Anatomy and Physiology of the Eye
   o) Audition and Equilibrium - Anatomy and Physiology of the Ear

2. Respiratory System
   a) Respiratory anatomy, histology and physiology
   b) Gas laws
   c) Buffer systems and pH balance
   d) Gas exchange, transport
   e) Control
   f) Disorders

Laboratory activities are designed to enhance the study of the course's major topic areas. Students will perform dissections to explore the nervous & respiratory systems, view tissues through the microscope, and follow experimental procedures to explore physiological processes.

Specific labs include dissections of sheep brains and eyes, and fetal pigs and testing of nervous and respiratory system physiology.

D. LEARNING OUTCOMES (GENERAL):
Students will learn common definitions of terms found in anatomy and physiology. Students will be able to explain and apply basic anatomy and physiology principles to their everyday lives. Students will use critical thinking and problem solving skills to explore physiological principles. The student will learn:
1. Vocabulary
2. Anatomy and histology of the nervous system
3. Physiological principles
4. Complementarity of anatomy and physiology of the nervous & respiratory systems
5. Application of the knowledge to human conditions
6. Understanding how the basic knowledge of anatomy
LEARNING OUTCOMES (MNTC):
Goal 2/Critical Thinking: The student will be able to:
1. Gather factual information and apply it to a given problem in a manner that is relevant, clear, comprehensive and conscious of possible bias in the information selected.
2. Imagine and seek out a variety of possible goals, assumptions, interpretations, or perspectives which can give alternative meanings or solutions to given situations or problems.
3. Analyze the logical connections among the facts, goals and implicit assumptions relevant to a problem or claim; generate and evaluate implications that follow from them.
4. Recognize and articulate the value assumptions, which underlie and affect decisions, interpretations, analyses and evaluations made by ourselves and others.

Goal 3/Natural Sciences: The student will be able to:
1. Demonstrate understanding of scientific theories.
2. Formulate and test hypotheses by performing laboratory experiments requiring the collection of data, its statistical and graphical analysis and an appreciation of its sources of error and uncertainty.
3. Communicate their experimental findings, analyses and interpretations both orally and in writing.
4. Evaluate societal issues from a natural science perspective, ask questions about the evidence presented and make informed judgments about science-related topics and policies.

METHODS FOR EVALUATION OF STUDENT LEARNING:
Evaluation methods may include any or all of the following:
1. Laboratory reports and/or quizzes
2. Objective and/or subjective tests
3. Laboratory practical tests
4. Assignments
5. Essay tasks
6. Group work/projects
7. Attendance (especially laboratory attendance)

SPECIAL INFORMATION (if any):
Included in the initial lab session is a discussion on general safety hazards and safety equipment. During the pre-lab instruction of labs involving hazardous materials or equipment, students are given information pertaining to the use, safety precautions, and disposal of these materials or equipment. In addition, if the lab involves any potentially infectious material, the students will be instructed on the proper use and disposal. The instructor directs all students to wear the necessary protective equipment while working with any hazardous chemicals. A copy of the Material Safety Data Sheets for chemicals used is available in the lab.