COMMON COURSE OUTLINE: Course discipline/number/title: BIOL 1128: Principles of Anatomy and Physiology II

A. CATALOG DESCRIPTION
1. Credits: 3
2. Hours/Week: 2 hours lecture and 2 hours lab per week
3. Prerequisites (Course discipline/number): BIOL 1127, College-level reading and writing skills and working knowledge of elementary algebra
4. Co-requisites (Course discipline/number): None

This course is part 2 of the 2-semester anatomy and physiology sequence covers the autonomic nervous system, special senses, endocrine system, digestive system, respiratory system, cardiovascular system, lymphatic system, urinary system and reproductive system. This course meets the requirements for the Minnesota Transfer Curriculum in CT (Critical Thinking) and NS (Natural Sciences).

B. DATE LAST REVISED (Month, year): May, 2008

C. OUTLINE OF MAJOR CONTENT AREAS:
1. Somatic and Special Senses
   a) Receptors and sensations
   b) Somatic senses
   c) Special senses
      1. Sense of smell
      2. Sense of taste
      3. Sense of hearing
      4. Sense of equilibrium
      5. Sense of sight
   d) Clinical applications

2. Endocrine System
   a) General characteristics
   b) Hormones and actions
   c) Control of hormonal secretions - feedback systems
   d) Pituitary gland
   e) Thyroid gland
   f) Parathyroid gland
   g) Adrenal glands
   h) Pancreas
   i) Other endocrine glands
   j) Stress and its effects
   k) Clinical applications

3. Digestive System
   a) General characteristics of alimentary canal
   b) Structure, function, movements, secretions and hormones related to each division
      1. Mouth
      2. Salivary glands
      3. Pharynx and esophagus
      4. Stomach
      5. Pancreas
      6. Liver
      7. Small intestine
      8. Large intestine
   c) Clinical applications
C. OUTLINE OF MAJOR CONTENT AREAS: Continued...

4. Nutrition and Metabolism
   a) Introduction
   b) Carbohydrates
   c) Lipids
   d) Proteins
   e) Energy expenditures
   f) Vitamins
   g) Minerals
   h) Adequate diets
   i) Clinical applications

5. Respiratory System
   a) Organs of respiratory system
   b) Breathing mechanisms
   c) Control of breathing
   d) Alveolar gas exchanges
   e) Transport of gases
   f) Utilization of oxygen
   g) Clinical terms
   h) Clinical applications

6. Blood
   a) Blood and blood cells
   b) Blood plasma
   c) Hemostasis - clotting mechanism
   d) Blood groups - ABO and Rh
   e) Clinical terms
   f) Clinical applications

7. Cardiovascular System
   a) Structure of heart
   b) Actions of heart
   c) Blood vessels
   d) Blood pressure
   e) Paths of circulation
   f) Arterial system
   g) Venous system
   h) Clinical terms
   i) Clinical applications

8. Lymphatic System and Immunity
   a) Lymphatic pathways
   b) Tissue fluid and lymph
   c) Movement of lymph
   d) Lymph nodes
   e) Thymus and spleen
   f) Body defenses against infection
   g) Nonspecific immunity
   h) Specific immunity
   i) Clinical terms
   j) Clinical applications

9. Urinary System
   a) Kidneys - structure and function
   b) Urine formation
   c) Regulation of urine concentration and volume
C. OUTLINE OF MAJOR CONTENT AREAS: Continued.
   d) Urine composition
   e) Elimination of urine
   f) Urinary bladder
   g) Clinical terms
   h) Clinical applications

10. Water, Electrolyte and Acid-Base Balance
   a) Distribution of body fluids
   b) Water balance
   c) Electrolyte balance
   d) Acid-base balance
   e) Clinical terms
   f) Clinical applications

11. Reproductive Systems
   a) Organs of male reproductive system
   b) Testes
   c) Male accessory organs, internal
   d) Male external reproductive organs
   e) Hormonal control of male system
   f) Organs of female reproductive system
   g) Ovaries
   h) Female internal accessory organs
   i) Female external reproductive organs
   j) Hormonal control of female system
   k) Pregnancy
   l) Mammary glands
   m) Birth control
   n) Clinical terms
   o) Clinical applications

12. Human Growth and Development
   a) Prenatal period
   b) Postnatal period
   c) Clinical terms
   d) Clinical applications

Students are introduced to dissection of the fetal pig in relation to the respiratory, digestive, circulatory and urogenital systems. A laboratory on special senses and dissection of the sheep brain and heart are included in this semester. A special exercise on joints is conducted on the hip, shoulder, elbow and knee. Students are introduced to additional skeletal identifications and radiographs on the skeleton pertinent to the radiography program.

D. LEARNING OUTCOMES (GENERAL): The student will learn:
   1. Vocabulary.
   2. Anatomy and histology of these body systems.
   3. Physiological principles.
   4. Complementarily of anatomy and physiology of the systems studied.
   5. Application of the knowledge to human conditions.
   6. Application of their basic knowledge of the skeletal system as applied to X-rays for their future careers.

E. 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, analysis and interpretations both orally and in writing.
4. Evaluate society issues from a natural science perspective, ask questions about the evidence presented and make informed judgments about science-related topics and policies.

F. METHODS FOR EVALUATION OF STUDENT LEARNING:
1. Objective and short answer tests
2. Essay Tests
3. Small Projects
4. Short Papers
5. Group Work
6. Skill performance

G. SPECIAL INFORMATION (if any):
The initial lab session explains and familiarizes the student with general safety hazards and safety equipment in the lab. During the pre-lab discussion, the hazardous characteristics of any materials used during the lab are discussed. In addition, if the lab involves any potentially infectious material, the students will be instructed on the proper use and disposal. The instructor will direct all students to wear necessary protective equipment while working with any hazardous chemicals. A copy of Material Safety Data Sheets for chemicals used is available in the lab.