

JEFFERSON COLLEGE

COURSE SYLLABUS

BIO120

HUMAN ANATOMY AND PHYSIOLOGY

5 Credit Hours

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**Revised Date: November 18, 2005
by
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**Arts & Science Education
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BIO120 HUMAN ANATOMY AND PHYSIOLOGY

I. CATALOGUE DESCRIPTION

Prerequisite: One year each of high school biology and chemistry with a grade of C or better and within the previous five years of registration, or equivalent (e.g., BIO101 and CHM101)

5 semester hours credit

Human Anatomy and Physiology is a study of basic structure and function of the human body and covers fundamental concepts of all organ systems. Human Anatomy and Physiology involves four hours of lecture and two hours of laboratory a week. (F,S)

II. GENERAL COURSE OBJECTIVES

Upon completion of this course the student will be able to:

- A. Use descriptive medical terms related to planes, cavities and points of reference associated with anatomical position.
- B. Describe the organizational levels: organic molecules, cells, tissues, organelles, organs and organ systems.
- C. Explain homeostasis and give examples of mechanisms that maintain it.
- D. Identify the major bones and muscles; recognize the basic histology, anatomy, physiology, and interaction of the two systems.
- E. Understand the basic roles of the nervous system and the endocrine system in regulating the body.
- F. Identify basic anatomy associated with major organs and organ systems.
- G. Describe the primary functions of the major organs and organ systems.
- H. Discuss the basic composition of body fluids (e.g., CSF, urine and blood) and relate the diagnostic importance of basic clinical data regarding these fluids.
- I. Appreciate the complex integration of all systems for homeostasis.

III. COURSE OUTLINE (COURSE CONTENT WILL BE DRAWN FROM THIS)

- A. Organization of the Human Body
- B. Integumentary System

- C. Skeletal System
- D. Muscular System
- E. Nervous System
- F. Endocrine System
- G. Urinary System and Electrolytes
- H. Reproductive Systems
- I. Circulatory System
- J. Pulmonary System
- K. Digestive System

IV. UNIT OBJECTIVES

- A. Organization of the Human Body
 1. List the divisions of study.
 2. Classify organic molecules into four major categories.
 3. Know the primary cell structures and their function.
 4. Describe the meaning of epithelial membranes, glands, tissues, organs, organ systems and give examples of each.
- B. Integumentary System
 1. Compare the structures and functions of the layers of the skin.
 2. Describe how the integumentary system helps to maintain homeostasis.
 3. Explain how the skin repairs itself.
- C. Skeletal System
 1. List the primary functions of bones.
 2. Explain basic morphological and histological terminology.
 3. Describe basic disorders of joints and bones.
 4. Identify major bones and their substructures.
- D. Muscular System
 1. Identify and characterize the three types of muscle tissues.
 2. Explain the mechanism of muscle contraction.
 3. Describe the myoneural junction.
 4. Identify major skeletal muscles.
 5. Associate basic kinesiology with the primary muscles.
- E. Nervous System
 1. Describe the structure and functions of a neuron.

2. Describe the events that generate transmembrane potentials in the neurons.
3. List characteristics and describe primary function of the brain and spinal cord.
4. List characteristics and describe primary functions of the ANS.
5. Identify the cranial nerves.
6. Explain afferent and efferent pathways.
7. Identify the primary anatomy of all five senses (e.g., eye).
8. Describe basic function of these senses.
9. Explain vision and hearing tests.
10. Discuss common sensory disorders.

B. Endocrine System

1. Describe the mechanisms of hormonal action.
2. Locate and identify primary function of the endocrine glands.
3. Explain the basic role of each method of glandular regulation.
4. Discuss classical syndromes.

C. Urinary System and Electrolytes

1. Know basic nephron and kidney structure and function.
2. Explain metabolic waste, urea formation, GFR and urinalysis.
3. Discuss the composition of body fluids.
4. Explain regulation of total body water.
5. Explain acid-base balance.
6. Discuss acidosis and alkalosis.
7. Describe basic abnormal electrolytes (e.g., hyper/hyponatremia).

D. Reproductive System

1. Identify basic structure and function of the male and female reproductive organs.
2. Discuss the female gonadotrophic cycle.
3. Describe contraception, pregnancy and parturition.

E. Circulatory System

1. Characterize the composition of blood.
2. Explain coagulation, blood typing, WBC types and differential counts.
3. Identify the basic structure and function of the heart.
4. Describe pulmonary and systemic circulation.
5. Know characteristics of arteries, veins and capillaries.
6. Understand blood pressure, fetal circulation, and lymphatic circulation.

F. Pulmonary System

1. Identify the gross anatomy of respiration.
2. Discuss the relationship between ventilation and cellular respiration.

3. Understand lung volumes and capacities.
4. Describe normal and abnormal blood gas.
5. Explain respiratory regulation.

G. Digestive System

1. Understand basic nutrition.
2. Identify gross anatomy and histology of digestive organs.
3. Understand primary regions of secretion, and absorption.
4. Explain regulation of the digestive system, including local hormonal control.
5. Know the roles of accessory digestive organs.

V. METHOD(S) OF INSTRUCTION

- A. Lectures
- B. CD-ROM
- C. Classroom Discussion
- D. Group Work
- E. Textbook Reading
- F. Classroom and Laboratory Identification Drill Exercises
- G. Laboratory Exercises
- H. Hands-On Laboratory Work With Microscopes, Bones, Etc.
- I. Tutorial Computer Laboratory
- J. Course Web Site

VI. REQUIRED TEXTBOOK(S) WITH PUBLICATION INFORMATION

Gary A. Thibodeau and Kevin T. Patton, Anatomy and Physiology, 5th ed., Mosby, publisher.

Laboratory Manual, Jefferson College

VII. REQUIRED MATERIALS (STUDENT)

None.

VIII. SUPPLEMENTAL REFERENCES

- A. Student CD ROM (free with textbook)
- B. Anatomy & Physiology Coloring Book (available in bookstore)
- C. Course Web Site (STARS)

IX. METHOD OF EVALUATION (STUDENT)

- A. Written Exams
- B. Classroom Quizzes
- C. Group Activities
- D. Short Class Presentations
- E. Laboratory Exams
- F. Laboratory Quizzes and Worksheets
- G. Comprehensive Written Exam