Crafton Hills College
Course Outline

1. **Discipline:** Biological Sciences (Anatomy)

2. **Department:** Biological Science

3. **Course Title:** Essentials of Human Anatomy and Physiology

4. **Course I.D.:** ANAT 101

5. **Prerequisite(s):** None

   Corequisite(s): None

   Departmental Recommendation(s): None

6. **Semester Units:** 4

7. **Minimum Semester Hours:**

   Lecture: 48 **Lab:** 48 **Clinical:** 0 **Field:** 0 **Independent:** 0

8. **Need for the Course:**
   A&P 101 is designed for Biology and non-Biology majors. This course applies to the general education requirement for graduation by providing for both lecture and lab sessions. A&P 101 meets the Anatomy and Physiology prerequisites for Allied Health training courses such as Respiratory Care, Paramedical training, LVN training, Medical Coding, Radiology, and Accredited Records Technician. This course does not meet the requirement for registered Nursing, Physician's Assistant, or Dental Hygiene training programs. These programs require the two-semester Human Anatomy & Physiology course.

9. **Goals for the Course:**
   A&P 101 provides the student with a basic survey of the structure and functions of the human body.The student is introduced to the organization of the eleven body systems from the cellular level to the systemic level. The student is also introduced to the concepts of homeostasis and maintenance of health, from basic biochemistry to the body's ability to protect itself from pathogenic invasion. These skills and concepts are essential for anyone entering any of the Allied Health professions. This course will provide a transfer level A&P for the CSU schools.

10. **Catalog Description:**
    Lecture and laboratory course emphasizing the basic structural, functional, and developmental stages of the human body. Introductory survey of the human body in one semester. Essentials of structure and function in each of the eleven body systems covered.

11. **Schedule Description:**
    Lecture and laboratory course emphasizing the basic structural, functional, and developmental stages of the human body. Introductory survey of the human body in one semester. Essentials of structure and function in each of the eleven body systems covered.

12. **Entrance Skills:**
    - **A. Requisite Skills:** None
    - **B. Recommended Skills:**
      None

13. **Student Learning Outcomes:**
    Upon satisfactory completion of the course, students will be able to:

14. Course Objectives:

Upon satisfactory completion of the course, students will be able to:

1. Explain how anatomy and physiology are related.
2. Explain how the study of the living body is dependent on chemistry and how this relates to homeostasis.
3. Discuss how pH and its effects on the body relate to physiology.
4. Describe how cell structure relates to function.
5. Compare and contrast the four main types of tissue in the body.
6. Discuss three factors that influence skin color.
7. Discuss the structure and functions of the glands of the skin.
8. Discuss the five functions of the skeletal system.
9. Distinguish between the axial and appendicular skeletons and state the number of bones in each.
10. Compare the structure and function of the three types of joints.
11. Compare skeletal muscle tissue with visceral and cardiac muscle tissue.
12. Describe and discuss the microscopic structure and function of the muscle cell.
13. Describe and discuss the neurological and physiological interaction of muscles.
14. Discuss the origin and insertion and action of major muscle groups.
15. Compare and contrast the CNS, PNS, and ANS.
16. Describe membrane potentials and the events of impulse conduction.
17. Compare and contrast the actions of the endocrine and nervous system.
18. Explain how the blood levels of hormones are regulated.
19. Describe the location, hormones, and functions of the endocrine glands.
20. Explain where and how blood is produced.
21. Compare and contrast WBC structure and function.
22. Describe mechanical and physiological functions of the heart.
23. Analyze the factors that affect heart rate.
24. Compare and contrast pulse rate and blood pressure.
25. Explain and describe the parts of the lymphatic system and their functions in maintaining homeostasis.
26. Compare and contrast the mechanisms of breathing and the exchange of gases.
27. Evaluate the processes of the digestive and cardiovascular systems and how they interface.
28. List the structure and functions of the organs of the urinary system and describe how they help to maintain homeostasis.
29. Outline the physiological processes of urine formation and urine elimination.
30. Define reproduction and explain its significance.
31. Compare and contrast the functions of the male and female sex hormones.
32. Identify histological slides of various cells and tissues in the body.

15. Representative Texts and Instructional Materials:

Seeley, Stephens, & Tate (2007). *Essentials of Human Anatomy and Physiology* (6/e). McGraw-Hill.

Shier, D. et al (2006). *HOLES Essentials of Human Anatomy & Physiology* (9/e). McGraw-Hill.

Shier, D., et. al. (2006). *Laboratory Manual for HOLES Essentials of Anatomy and Physiology* McGraw Hill.

Patton, K. (2007). *Laboratory Manual for Essentials of Anatomy and Physiology* McGraw Hill.

16. Course Content:

A. Introduction to anatomy and physiology including levels of organization, organ systems, life processes, homeostasis, and anatomical terminology
B. The biochemistry of life; matter and elements; chemical bonds, compounds and molecules; chemical reactions; mixtures, solutions and suspensions; acids, bases and buffers; and organic and inorganic compounds.
C. The anatomy and physiology and the eukaryotic cell.
D. Cellular metabolism and concepts of anabolism versus catabolism.
E. The structure and functions of the histology of tissues and membranes.
F. Histological study of the integumentary system including the structure and function of skin, skin

color, epidermal derivatives, dermis and subcutaneous tissues.

G. Osteological study of the skeletal system. The macroscopic and microscopic study of bone, both structure and function. This includes the axial skeleton, appendicular skeleton, joints, and articulations.
H. Myological study of the characteristics and functions of the muscular system. This includes the microscopic study of muscle cells and tissue, contraction of the muscle cell, skeletal, cardiac, and smooth. The macroscopic study of muscles and muscle groups, their structure and functions.
I. Neurological study of the structure and functions of the nervous system, its organization, nervous tissue, and nerve impulses.
J. The sensory system: its structure; functions of sensory receptors; sensations; both general and special senses.
K. The endocrine system: its glands and hormones; and characteristics of homeostatic control of metabolism.
L. The cardiovascular system: blood functions and characteristics; composition of blood; hemostasis; blood typing and transfusions; the heart, its structure and functions; the blood vessels, their classification, structure, and functions; physiology of circulation and circulatory pathways.
M. The lymphatic and immune systems: their structural and physiological components; and protective mechanisms for resistance to pathogenic organisms.
N. The respiratory system: functions and structural overview; basic gas laws and respiration; regulation of respiratory system; and transport of gases.
O. The digestive system: functions and overview of digestion; basic structure of the gastrointestinal tract; regions of digestive tract; accessory organs; mechanical and chemical digestion; absorption and nutrition.
P. The urinary system and body fluids: function and structural components; urine formation; characteristics of urine; fluid/electrolyte balance; and acid-base balance.
Q. The male and female reproductive systems: development, structure, and functions; sexual characteristics; sexual activity; and pregnancy.

17. Methods of Instruction:

A. Other: The course combines lectures, class discussions, audio-visual presentations, correlated laboratory sessions, laboratory reports, reading (textbooks and scientific journals). The students apply the skills learned during laboratory sessions for the laboratory practicum testing.
Students maybe required to pass quizzes and examinations in both objective and subjective formats, including essay, multiple choice, true/false, and complete oral recall and identification.

18. Assignments and Methods of Evaluation:

1. Objective examinations (lecture and laboratory).
2. Quizzes (lecture and laboratory)
3. Laboratory practicum
4. Lab reports

Exams 40-50%
Labs 10-20%
Lab Practicals 30-40%
Quizzes 0-10%

A = 90% B = 80% C = 70% D = 60%

Course Enrollment:
850