**EL CAMINO COLLEGE**
**COURSE OUTLINE OF RECORD – Approved**

**I. Course Information**

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| **Subject:** | **ANAT** |
| **Course Number:** | **30** |
| **Descriptive Title:** | **Essentials of Anatomy and Physiology** |
| **Division:** | **Natural Sciences** |
| **Department:** | **Anatomy/Physiology** |
| **Course Disciplines:** | **Biological Sciences** |

**Catalog Description:**
This course is the study of anatomy coupled with physiology. Students compare the structure and function of human organ systems to those of other vertebrates. The laboratory includes dissection of sheep brains and hearts, cow eyes and other vertebrates. Laboratory experiments reinforce principles of anatomy and the basic principles of chemistry, cell biology, histology, embryology, and genetics.

*Note: This course may satisfy the anatomy requirements for other health-related programs. It does not satisfy the requirements for the Bachelor of Science in Nursing.*

**Conditions of Enrollment:**
**Recommended Preparation:** English 1 or eligibility for English 1A or qualification by appropriate assessment

**Course Length: Full Term**

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| **Hours Lecture (per week):** | 2 |
| **Hours Laboratory (per week):** | 6 |
| **Outside Study Hours:** | 4 |
| **Total Hours:** | 144 |

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| **Course Units:** | 4 |

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| **Grading Method:** | Letter Grade only |
| **Credit Status:** | Credit, degree applicable |

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| **Transfer CSU:** | Yes | Effective Date: Prior to July 1992 |
| **Transfer UC:** | Yes | Effective Date: |

**General Education:**
**ECC:**
**Area 1 - Natural Sciences**
**Term:** **Other:**

**CSU GE:**
**Area B2 - Physical Universe and its Life Forms: Life Science, Area B3 - Physical Universe and its Life Forms: Laboratory Activity**
**Term:** **Other:**

**IGETC:**
**Area 5B - Biological Science**
**Term:** **Other:**

## II. Outcomes and Objectives

### A. Student Learning Outcomes (SLOs) (The course student learning outcomes are listed below.)

SLO #1 Language
Students will be able to use language appropriate to anatomy and physiology and the health sciences.

SLO #2 Instruments
Students will demonstrate the use of instruments for dissection, histology, and to gather data.

SLO #3 Structures
Students will be able to identify higher vertebrate body structures, and explain the functions of body systems.

### B. Course Objectives (The major learning objective for in this course are listed below)

1. Demonstrate proper use of the microscope.
2. Identify cellular structures, organelles and tissue types for all human systems.
3. Use appropriate terminology to describe anatomical and physiological concepts.
4. Identify all major anatomical structures for each major system, including integumentary, skeletal, muscular, nervous, special senses, endocrine, digestive, cardiovascular, respiratory, urinary and reproductive systems.
5. Compare and contrast all major human anatomical structures with those of non-human vertebrate species.
6. Demonstrate an understanding of the physiology of each system and how each system interacts to maintain homeostasis.
7. Identify clinical disorders and methods of treatment when given case studies that describe signs and symptoms.

## III. Outline of Subject Matter

**(Topics should be detailed enough to enable an instructor to determine the major areas that should be covered to ensure consistency from instructor to instructor and semester to semester.)**

**Major Topics**

**I. Introduction to Anatomy and Physiology (2 hours, lecture)**

A. Principles of Anatomy and Physiology
B. Chemistry
   1. Basic Principles of Chemistry
C. Chemical Basis of Life
   1. Basic Principles of Biochemistry

**II. Introduction (6 hours, lab)**

A. Lab Check-in
B. Use of Light Microscope
C. Body Organizations
D. Anatomical Terms

**III. Chemical Principles and Biochemical Molecules (2 hours, lecture)**

A. Atoms, Elements, Molecules
B. Types and Classification of Chemical Bonds
   1. Ionic Bonds
   2. Covalent Bonds
C. Hydrogen Bonds
D. Fundamental Elements of Life
E. Concepts of pH and pH Scale

**IV. Cell Division (Mitosis) (6 hours, lab)**

A. Cell Transport Mechanisms

**V. Cell Anatomy (2 hours, lecture)**

A. Structures, Organelles and Functions
B. Cell Division (Mitosis and Meiosis)
C. Cell Transport Mechanisms

**VI. The Cell (9 hours, lab)**

A. Cell Anatomy and Physiology
B. Cell Structures, Organelles and Their Functions

**VII. Tissues (2 hours, lecture)**

A. Structure and Function of Tissues

**VIII. Tissue Slides (6 hours, lecture)**

A. Epithelial Tissues
B. Connective Tissue
C. Muscle Tissue
D. Nervous Tissue

**IX. Skin and Integumentary System ( 1 hour, lecture)**

**X. Integumentary System (5 hours, lab)**

A. Skin Models and Slides

**XI. Skeletal System (3 hours, lecture)**

A. Macroscopic and Microscopic Anatomy
B. Axial Skeleton
C. Appendicular Skeleton
D. Joint Types

**XII. Overview of Skeletal System (14 hours, lab)**

A. Axial Skeleton
B. Appendicular Skeleton
C. Synovial Joint
D. Bone Tissue

**XIII. Muscular System (4 hours, lecture)**

A. Skeletal, Smooth and Cardiac
B. Muscle Cell Anatomy and Physiology
C. Muscles and Function

**XIV. Muscular System (8 hours, lab)**

A. Muscle Tissues
B. Muscular System
C. Pre-dissected Cats - Muscle Demonstrations

**XV. Nervous System (3 hours, lecture)**

A. Nervous Tissue
B. Action Potential - Neurophysiology

C. Central Nervous System
D. Peripheral Nervous System
E. Autonomic Nervous System

**XVI. Nervous System (8 hours, lab)**

A. Nervous Tissue
B. Nervous System Models
C. Sheep Brain Dissection

**XVII. Special Senses - Anatomy and Physiology of Eye and Ear (1 hour, lecture)**

A. Eye
B. Ear

**XVIII. Special Senses (8 hours, lab)**

A. Eye and Ear
B. Cow Eye Dissection

**XIX. Endocrine System (3 hours, lecture)**

A. General Function of Endocrine System
B. Hormones
   1. Functions
   2. Control Mechanisms
C. Endocrine Glands
   1. Functions
   2. Control Mechanisms

**XX. Digestive System (3 hours, lecture)**

A. Anatomy and Physiology
B. True Digestive Organs
   1. Functions
   2. Regulation
C. Accessory Digestive Organs
   1. Functions
   2. Regulation

**XXI. Digestive System (8 hours, lab)**

A. Tissues
B. Digestive System Models
C. Dissection of Fetal Pig

**XXII. Cardiovascular System (4 hours, lecture)**

A. Cardiac Tissue
B. Heart
   1. Anatomy
   2. Blood Flow
   3. Physiology
C. Conductive System
D. Cardiac Cycle
E. Blood Vessels
F. Lymphatic System
   1. Functions
   2. Anatomy
   3. Physiology

G. Blood
   1. Types
   2. Rh Factor
H. Blood Agglutination
I. Fetal Heart and Circulation

**XXIII. Dissection of Sheep Heart (9 hours, lab)**

**XXIV. Respiratory System (2 hours, lecture)**
A. Respiratory Process
B. Organs of Respiratory System
C. Respiratory Diseases
D. Respiratory Volumes and Capacities

**XXV. Respiratory System (9 hours, lab)**
A. Respiratory System Models
B. Respiratory Volumes and Capacities
C. Fetal Pig Dissection

**XXVI. Urinary System (2 hours, lecture)**
A. Urinary System Overview and Functions
B. Stages of Urine Production
C. Kidney Anatomy
D. Nephron Anatomy
E. Regulation of Glomerular Filtration Rate

**XXVII. Urinary System (6 hours, lab)**
A. Urinary System Models
B. Fetal Pig Dissection

**XXVIII. Reproductive System (2 hours, lecture)**
A. Gross Anatomy of Male and Female Reproductive Systems
B. Reproductive Hormones
   1. Functions
   2. Control
C. Pregnancy
   1. Development of Embryo Fetus

**XXIX. Reproductive System (6 hours, lab)**
A. General Functions of Male and Female Reproductive Systems
B. Gross and Microscopic Anatomy of Female and Male Systems
C. Fetal Pig Dissection

**XXIX. Lab Activities (0 hours)**
Greater than 80% of the labs are based on hands-on activities supporting the course outcomes.

**Total Lecture Hours:** 36
**Total Laboratory Hours:** 108
**Total Hours:** 144

## IV. Primary Method of Evaluation and Sample Assignments

**A. Primary Method of Evaluation (choose one):**
2) Problem solving demonstrations (computational or non-computational)

**B. Typical Assignment Using Primary Method of Evaluation**
In the laboratory, perform a proper fetal pig dissection and identify with pins and labels all organs of the gastrointestinal and respiratory systems.

**C. College-level Critical Thinking Assignments**
**Critical Thinking Assignment 1:**
A seven-year-old boy was admitted to the hospital with a diagnosis of a spiral fracture of the radius. What laboratory tests would you order? In a one-paragraph essay, explain why you would order these tests. What might be the cause of this specific type of fracture?

**Critical Thinking Assignment 2:**
An adult female patient with a severe blow to the head following a traffic accident was admitted to the hospital. In a one-paragraph essay, describe the most severe neurological problem of concern to the physician.

**D. Other Typical Assessment and Evaluation Methods**
Class Performance, Completion, Homework Problems, Laboratory Reports, Matching Items, Multiple Choice, Other Exams, Quizzes, True/False, Written Homework

## V. Instructional Methods
Discussion, Group Activities, Lab, Lecture, Multimedia presentations

If other:

***Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instruction delivery shall provide access, full inclusion, and effective communication for students with disabilities.***

## VI. Work Outside of Class
Answer questions, Problem solving activity, Required reading, Skill practice, Study

If Other:

## VII. Texts and Materials

**A. Up-to-date Representative Textbooks: (Please use the following format: Author, Title, Edition, Publisher, Year. If you wish to list a text that is more than 5 years old, please annotate it as a "discipline standard".)**
Elaine N. Marieb. Human Anatomy and Physiology. 11th ed. Pearson, 2019.

Elaine N. Marieb. Human Anatomy and Physiology Laboratory Manual. 13th ed. Pearson, 2019.

**B. Alternative Textbooks: (Please use the following format: Author, Title, Edition, Publisher, Year. If you wish to list a text that is more than 5 years old, please annotate it as a "discipline standard".)**

**C. Required Supplementary Readings**

**D. Other Required Materials**

**VIII. Conditions of Enrollment**

**A. Requisites (Course Prerequisites and Corequisites) Skills needed without which a student would be highly unlikely to succeed.**

Requisite:
Category:

**Requisite course(s): List both prerequisites and corequisites in this box.**

**Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).**

**B. Requisite Skills: (Non-Course Prerequisite and Corequisites) Skills needed without which a student would be highly unlikely to succeed.**

**Requisite:**

**Requisite and Matching Skill(s): Bold the requisite skill(s). If applicable**

**C. Recommended Preparations (Course) (Skills with which a student's ability to succeed will be strongly enhanced.)**

**Requisite course:** English 1

**Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).**

**Students need well-developed reading skills in order to understand and interpret information in their textbooks and writing skills to develop essays and projects.**
ENGL 1- Summarize, analyze, evaluate, and synthesize college-level texts.
ENGL 1 -Write a well-reasoned, well-supported expository essay that demonstrates application of the academic writing process.

**D. Recommended Preparation (Non-Course) (Skills with which a student's ability to succeed will be strongly enhanced.)**

**Requisite:** Eligibility for English 1A or qualification by appropriate assessment

**Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s). If applicable**

**This course involves reading college level textbooks, developing projects, and answering essay questions. A student's success in this class will be enhanced if they have these skills.**

**Summarize, analyze, evaluate, and synthesize college-level texts.**

**Write a well-reasoned, well-supported expository essay that demonstrates application of the academic writing process.**

**E. Enrollment Limitations**
**Enrollment Limitations and Category:**
**Enrollment Limitations Impact:**

Course Created by: Charles Lockhart and Robert Stephens on 03/01/1989

Original Board Approval Date:

Last Reviewed and/or Revised by: Thanh-Thuy Bui Date: 05/24/2021

Last Board Approval Date: 06/21/2021