Course Acronym:	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.*
Prerequisite:	
Co-requisite:	
Recommended Preparation:	eligibility for English 1A
Enrollment Limitation:	
Hours Lecture (per week):	2
Hours Laboratory (per week):	6
Outside Study Hours:	4
Total Course Hours:	144
Course Units:	4
Grading Method:	Letter Grade only
Credit Status:	Credit, degree applicable
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: Laborator Activity
Term:	
Other:	
IGETC:	Area 5B - Biological Science
Term:	
Other:	
Student Learning Outcomes:	**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.
Course Objectives:	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.
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
Total Lecture Hours:	36
Total Laboratory Hours:	108
Total Hours:	144
Primary Method of Evaluation:	2) Problem solving demonstrations (computational or non-computational)
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.
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.

Other Evaluation Methods:	Class Performance, Completion, Homework Problems, Laboratory Reports, Matching Items, Multiple Choice, Other Exams, Quizzes, True/False, Written Homework
Instructional Methods:	Discussion, Group Activities, Lab, Lecture, Multimedia presentations
If other:	
Work Outside of Class:	Answer questions, Problem solving activity, Required reading, Skill practice, Study
If Other:	
Up-To-Date Representative Textbooks:	Elaine N. Marieb. Human Anatomy and Physiology. 11th ed. Pearson, 2019. Elaine N. Marieb. Human Anatomy and Physiology Laboratory Manual. 13th ed. Pearson, 2019.
Alternative Textbooks:	
Required Supplementary Readings:	
Other Required Materials:	Colored pencils Gloves
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).	
Requisite Skill:	
Requisite Skill and Matching Skill(s): Bold the requisite skill(s). If applicable	
Requisite course:	
Requisite and Matching skill(s):Bold the requisite skill. List the corresponding course objective under each skill(s).	
Requisite Skill:	eligibility for English 1A
Requisite Skill and Matching skill(s): Bold the requisite skill. List the corresponding course objective under	**This course has assignments relative to reading and writing. Having these skills which will enhance the student's success.**

each skill(s). If applicable	**Ability to compose a written report.** Write a well-reasoned, well-supported expository essay that demonstrates application of the academic writing process. **Ability to read and interpret a college-level textbook.** Summarize, analyze, evaluate, and synthesize college-level texts.
Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	Charles Lockhart and Robert Stephens
Date:	03/01/1989
Original Board Approval Date:	
Last Reviewed and/or Revised by:	Thanh-Thuy Bui
Date:	03/28/2022
Last Board Approval Date:	06/20/2022