



## COURSE OUTLINE

<b>Course Number</b> <b>BIO 106</b>	<b>Course Title</b> <b>Human Anatomy</b>	<b>Credits</b> <b>4</b>
<b>Hours:</b> <b>Lecture/Lab/Other</b> <b>3 lecture/2 lab</b>	<b>Co- or Pre-requisite</b> MAT 042	<b>Implementation</b> <b>Semester &amp; Year</b> <b>Spring 2022</b>

### **Catalog description**

Introduction to the human body with emphasis of terminology and body organization from the cellular level to organ systems. Topics include histology and skeletal, muscular, nervous, integumentary, digestive, respiratory, urinary, reproductive, circulatory, and endocrine systems. (Designed for programs requiring a one-semester human anatomy course; does not satisfy requirements in biology or health programs.)

### **General Education Category:**

Goal 3: Science

### **Course coordinator:**

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### **Required texts & Other Materials:**

Hole's Essentials of Human Anatomy and Physiology, 14<sup>th</sup> Edition Walsh (with Connect access or Smartbook – etext)

McGraw Hill Education

ISBN10: 1260251349

ISBN13: 9781260251340

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~OR~

Customized edition from MCCC bookstore, Genovesi

McGraw Hill Education

ISBN: 9781307596557

### **Course Student Learning Outcomes (SLO):**

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

1. Identify, describe, and distinguish different body organizations (e.g. organ systems, organs, tissues, cells, and body cavities). [Supports ILG #1, 3, 4, 10 & 11]
2. Integrate anatomy at the cellular, histological and gross levels. [Supports ILG #1, 3, 4, 10 & 11]
3. Analyze structures and functions of the organ systems of the human body. [Supports ILG #1, 3, 4, 8, 10 & 11]
4. Examine chemical, metabolic, and regulatory processes as related to anatomy and physiology. [Supports ILG #1, 3, 4, 10 & 11]
5. Utilize simulated cadaver dissections and/or anatomical models to investigate anatomical structures. [Supports ILG #1, 3, 4, 10 & 11]

### **Course-specific Institutional Learning Goals (ILG):**

**Institutional Learning Goal 1. Written and Oral Communication in English:** Students will communicate effectively in both speech and writing.

**Institutional Learning Goal 3 Science:** Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.

**Institutional Learning Goal 4 Technology:** Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.

**Institutional Learning Goal 8. Diversity and Global Perspective:** Students will understand the importance of a global perspective and culturally diverse peoples.

**Institutional Learning Goal 10. Information Literacy:** Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.

**Institutional Learning Goal 11. Critical Thinking:** Students will use critical thinking skills, understand, analyze, or apply information or solve problems.

### **Units of study in detail – Unit Student Learning Outcomes:**

#### **Unit I Levels of Organization & Integument [Supports Course SLO # 1, 2, 3, 4, 5]**

##### **Learning Objectives**

*The student will be able to:*

- Explain how anatomy and physiology are related.
- Identify and describe the levels of organization in the human body and the major characteristics and requirements of life, and how they pertain to metabolism and homeostasis.
- Identify the major body cavities including their subdivisions & membranes and the major organ systems including their components and functions.
- Use anatomical positional terms to describe relative positions, body sections, and body regions.
- Describe the locations, functions, structure and distinguishing characteristics of the four major tissue types: epithelial, connective, muscle, and nervous.
- Describe the functions, structures, and organization of the integument of the skin as it pertains to regions, layers, and cell types.
- Describe the anatomy and physiology of the accessory structures of the skin.
- Summarize the factors that contribute to skin color recognizing that different shades of human skin are an evolutionary adaptation to varying intensities of UV light, the processes involved in wound healing, prevention of skin cancer, and how the skin helps regulate body temperature.

## **Unit II Support and Movement [Supports Course SLOs # 1, 2, 3, 4 & 5]**

### **Learning Objectives**

*The student will be able to:*

- Describe the functions of the bone and classify them according to shape including contrasting the macroscopic and microscopic structure of long bones.
- Distinguish between intramembranous and endochondral ossification and explain how bones grow and develop and the effects of cultural practices and aging on bone tissue.
- Identify and locate bones and their major features.
- Distinguish between components of the axial and appendicular skeleton
- Classify joints according to the degree of movement and type of tissues binding the bones together, and explain how skeletal muscle produce movement.
- Identify the organization and microanatomy of skeletal muscle and describe the components of the sarcomere.
- Describe the neuromuscular junction and explain how muscular contraction moves body parts and helps maintain posture and muscle tone.
- Compare the contraction mechanism and histology of skeletal, smooth, and cardiac muscle fibers.
- Identify major skeletal muscles of the human body and describe their origin, action, and insertions.

## **Unit III Integration, Coordination, and Transportation [Supports Course SLOs # 1, 2, 3, 4, & 5]**

### **Learning Objectives**

*The student will be able to:*

- Describe the functions and organs of the central and peripheral nervous system, including the brain, spinal cord, cranial, and peripheral nerves and their interrelationship.
- Compare the structure and function of neurons and neuroglia cells.
- Describe the synapse and the sequence of events in synaptic transmission including the function of neurotransmitters.
- Identify the important components, major functions, and characteristics of blood.
- Summarize the control of red blood cell production.
- Explain the mechanisms involved in hemostasis.
- Analyze the relationship between blood type and Rh status in blood transfusions.
- Describe the structure and function of the components of the cardiovascular system including the major parts of the heart.
- Describe the cardiac cycle and cardiac conduction system
- Explain how blood pressure is produced, controlled, and how gender effects cardiovascular disease.
- Identify, locate, and describe the structure of blood vessels, including the major arteries and veins.

## **Unit IV Absorption and Respiration [Supports Course SLOs # 1, 2, 3, 4, & 5]**

### **Learning Objectives**

*The student will be able to:*

- Describe the structures and function of the digestive system including the histology of the stomach and small intestine.
- Describe and evaluate the components of an adequate diet including major sources of carbohydrates, lipids, and proteins, vitamins, major minerals and trace elements.
- Identify the general structure and functions of organs in the respiratory system.
- Compare external and internal respiration in terms of their functions, processes, and interdependency in the body.

- Explain the mechanisms of inspiration and expiration and define each of the respiratory volumes and capacities.
- Describe the structure and function of the respiratory membrane, including the importance of the exchange of gases between the air and blood.

**Unit V Integration, Coordination, and Transportation [Supports Course SLOs # 1, 2, 3, 4, & 5]**

**Learning Objectives**

*The student will be able to:*

- Describe the structures and function of the urinary system including the components of the nephron.
- Describe the formation, composition, and elimination of urine, including the micturation reflex, and the analyze factors that affect the regulation of urine concentration and volume.
- Identify the structures and function of the male and female reproductive system.
- Describe the process of spermatogenesis and the structure of sperm, and analyze factors that affect the production and pathway of sperm and semen.
- Describe the process of oogenesis, the major events in the female reproductive cycle and how race and ethnicity effect overall reproductive health.

**Evaluation of student learning:**

Questions on exams are from lecture, lecture assignments, reading assignments, handouts, or other material presented. It is the student's responsibility to be present and on time for all exams. There are NO MAKEUP EXAMS. If you miss a lecture exam for any reason, your final exam grade will be counted twice. If you miss a second lecture exam, you will receive a zero for that exam. Students will complete a Connect LearnSmart Assignment for each chapter of study. Additional lecture assignments such as discussion boards or essays may be added as per instructor discretion.

The laboratory grade consists of lab practical exams and weekly APR module assignments. The laboratory grade is approximately 35% of the final grade for the course.

Assignment	Number @ point value	Total Point Value
SmartBook Assignment	10 @ 10 points (drop lowest 2)	100 points
APR Lab Assignments	11 @ 10 points each (drop lowest 1)	100 points
Lab Practical Exams	3 @ 100 points each	300 points
Lecture Exams	5 @ 100 points each	<u>500 points</u>
TOTAL POINTS		1000 points
Final Grade	(total points / 10)	

<b>A</b>	<b>93-100%</b>	<b>B+</b>	<b>87-89%</b>	<b>C+</b>	<b>77-79%</b>	<b>D</b>	<b>60-69%</b>
<b>A-</b>	<b>90-92</b>	<b>B</b>	<b>83-86</b>	<b>C</b>	<b>70-76</b>	<b>F</b>	<b>&lt;60%</b>
		<b>B-</b>	<b>80-82</b>				