



BIOL 2402 wmccowan
Anatomy & Physiology I
Course Syllabus: Fall 2018

“Northeast Texas Community College exists to provide responsible, exemplary learning opportunities.”

Dr. Winston C. McCowan
Office:UHS 161
Phone: 903-434-8263
Email:wmccowan@ntcc.edu

Office Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Online
	11:00am-12:30 pm	11:00am-12:30 pm	11:00am-12:30 pm	11:00am-12:30 pm	Insert hours	Insert hours

The information contained in this syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.

Course Description: Anatomy & Physiology I is intended for students entering field of study in allied health sciences, social work, physical therapy, physical education or any student who needs a basic understanding of the structure and function of the human body. This course is the first semester of a two semester sequence and includes a study of the nervous, cardiovascular, immune, digestive, excretory, respiratory, endocrine, and reproductive systems. Three hours of lecture and three hours of lab each week.

Prerequisite:

Required Textbook(s): Hole’s Human Anatomy & Physiology 14th ed. Shier/Butler/Lewis

Publisher: McGraw-Hill Publishers
ISBN Number: 978-1-259-86456-8

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Recommended Reading(s): Assigned Text Book

Student Learning Outcomes:

- Outcomes Upon successful completion of this course, students will:
1. Use anatomical terminology to identify and describe locations of major organs of each system covered.
 2. Explain interrelationships among molecular, cellular, tissue, and organ functions in each system.
 3. Describe the interdependency and interactions of the systems.
 4. Explain contributions of organs and systems to the maintenance of homeostasis.
 5. Identify causes and effects of homeostatic imbalances.
 6. Describe modern technology and tools used to study anatomy and physiology.

1. Apply appropriate safety and ethical standards.
2. Locate and identify anatomical structures.
3. Appropriately utilize laboratory equipment, such as microscopes, dissection tools, general lab ware, physiology data acquisition systems, and virtual simulations.
4. Work collaboratively to perform experiments.
5. Demonstrate the steps involved in the scientific method.
6. Communicate results of scientific investigations, analyze data and formulate conclusions.
7. Use critical thinking and scientific problem-solving skills, including, but not limited to, inferring, integrating, synthesizing, and summarizing, to make decision

Exemplary Educational Objectives:

The objective of the study of a natural sciences component of a core curriculum is to enable the student to understand, construct, and evaluate relationships in the natural sciences, and to enable the student to understand the basis for building and testing theories.

The exemplary educational core objectives for natural sciences are:

- 3.1 to understand and apply method and appropriate technology to the study of natural sciences;
- 3.2 to recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing;
- 3.3 to identify and recognize the differences among competing scientific theories;
- 3.4 to demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies;
- 3.5 to demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.

SLO

1. Endocrine System.
2. Distinguish between endocrine and exocrine gland and general characteristics of the endocrine system. Name the major endocrine glands and their hormones.
3. Describe the characteristics of blood and discuss its major functions.
4. Discuss the functions of the organs of the cardiovascular system.
8. Describe the major structures and general functions of the lymphatic system.
5. Name the major organs of the digestive system and describe the general functions.
6. Name the major organs of the respiratory system and describe the general functions.
7. Name the major organs of the urinary system and describe the general functions. Explain the importance of water, electrolyte and acid/base balance.
8. Name the major organs of the male and female reproductive systems and describe the general functions of each organ.
9. Demonstrate knowledge of pregnancy and distinguish between growth

Core Curriculum Purpose and Objectives:

Through the core curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world; develop principles of personal and social responsibility for living in a diverse world; and advance intellectual and practical skills that are essential for all learning.

Courses in the foundation area of **life and physical sciences** focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.

College Student Learning Outcomes:

Critical Thinking Skills

CT.1

Students will demonstrate the ability to 1) analyze complex issues, 2) synthesize information, and 3) evaluate the logic, validity, and relevance of data.

Communication Skills

CS.1

Students will effectively develop, interpret and express ideas through written communication.

Empirical and Quantitative Skills

EQS.1

Students will manipulate numerical data or observable facts by organizing and converting relevant information into mathematical or empirical form.

EQS.2

Students will analyze numerical data or observable facts by processing information with correct calculations, explicit notations, and appropriate technology.

Team Work

TW2. Students will work with others to support and accomplish a shared goal.

Assignments:

s Lectures & Discussions:

Course Outline:

CHAPTER 13 - ENDOCRINE SYSTEM

Chapter Concepts: In studying Chapter 13, the student should gain mastery of the following concepts:

1. Glands can be classified structurally and functionally as endocrine or exocrine. Endocrine glands are ductless glands that secrete specific hormones directly into the blood. Exocrine secrete into ducts.
2. Hormones are transported by the blood to specific sites (target cells), where they perform precise functions.

3. Both the endocrine and nervous system regulates body activities. The actions of hormones and neurotransmitters are very similar, although neurotransmitters do not travel in the blood but instead diffuse only a very short distance across a synapse. The effects of hormones are relatively slow to occur but are generally prolonged, whereas neurological responses are measured in milliseconds.
4. There are three types of hormones: amines, proteins, and steroids.
5. Elaborate feedback mechanics ensure homeostasis within the organ systems served by the endocrine system.
6. Alterations in the delicate hormonal balance may result in serious clinical manifestations.

CHAPTER 14 - BLOOD

Chapter Concepts: In studying Chapter 14, the student should gain mastery of the following concepts:

1. The trillions of cells within the body all need a continuous link to the blood within the circulatory system if they are to survive.
2. The circulatory system has a close functional relationship with the respiratory, urinary, digestive, endocrine, and integumentary system in maintaining homeostasis.
3. Blood transports oxygen and nutritive molecules to the tissue cells and carbon dioxide and other waste away from the cells; it also carries hormones and other regulatory molecules to the target organs.
4. Leukocytes and their products serve to protect the body from infection.
5. Trauma to a blood vessel initiates a sequence of events that leads to the formation of a blood clot. Platelets play an important role in blood clotting.

CHAPTER 15 - CARDIOVASCULAR SYSTEM

Chapter Concepts: In studying Chapter 15, the student should gain mastery of the following concepts:

1. The microscopic capillaries are the basic functional units of the circulatory system because it is at the level that exchange between the blood and fluids surrounding cells occur.
2. Cardiac muscle is specialized for involuntary rhythmic contractions that can be regulated by the autonomic nervous system.
3. Arteries are vessels that transport blood away from the heart. Veins are vessels that return blood to the heart. Capillaries directly serve cellular needs by permitting exchange between the blood and tissue cells.
4. The hepatic portal system function to filter all of the blood from digestive organs through the liver.

5. The circulatory system of a fetus has specialized structural adaptations to obtain oxygen and nutrients from the placenta.
6. Because heart attacks are the leading cause of death in the United States, students should be advised of the importance of maintaining a healthy circulatory system.
7. Blood pressure is the force exerted by the blood against the walls surrounding the lumina of the blood vessels. The main factors that influence blood pressure are cardiac output, peripheral resistance, and blood volume. The kidneys regulate blood pressure by controlling blood volume.
8. During exercise, aerobic requirements of the heart increases, as does blood pressure.
9. The baroreceptors reflex and other reflexes help to maintain blood pressure within normal limits.
10. Hypertension is the condition of elevated blood pressure.

CHAPTER 16 - LYMPHATIC SYSTEM AND IMMUNITY

Chapter Concepts: In studying Chapter 16, the student should gain mastery of the following concepts:

1. Lymph capillaries drain tissue fluids, which is called lymph.
2. Lymph filters through lymph nodes that contain phagocytic cells and through lymphatic nodules that produce lymphocytes.
3. The spleen, tonsils, and thymus are lymphoid organs.
4. The lymphatic system functions to protect the body from disease, return tissue fluid to the venous system and transport absorbed fat to the blood.
5. Immune system defenses can be specific or nonspecific. Specific immunity is a function of lymphocytes.
6. Specific immunity may be naturally or artificially acquired and may be active or passive immunity.

CHAPTER 17 - DIGESTIVE SYSTEM

Chapter Concepts: In studying Chapter 17, the student should gain mastery of the following concepts:

1. The digestive system is divided into a gastrointestinal (GI) tract and accessory organs.
2. The organs of the digestive system are specialized for digestion and absorption of food.
3. Both the histological and gross structural aspects of each region of the GI tract determine its physiological function.

4. Absorption is the key aspect of the digestive system. Although food is ingested, it is not technically within the body until absorption occurs. In fact, a large portion of consumed food remain undigested and passes through the large intestines as waste material.
5. The villi within the small intestine are the functional units for absorption of nutrients.
6. The liver performs numerous vital functions, including the processing of nutrients and the secretion of bile, which is stored and concentrated in the gallbladder. The pancreas has both important exocrine and endocrine functions.

CHAPTER 19 - RESPIRATORY SYSTEM

Chapter Concepts: In studying Chapter 19, the student should gain mastery of the following concepts:

1. Respiration refers not only to breathing, or ventilation, but also to the exchange of gases between the atmosphere, the blood, and individual cells.
2. The obvious function of the respiratory system is to provide oxygen to the bloodstream and remove carbon dioxide, but it also enables vocalization.
3. The metabolic needs for oxygen are great, and few reserves of oxygen exist within the body.
4. Inspired air must be warmed, cleaned, and moistened before it is suitable for diffusion at the alveoli. Structural adaptation of the conducting portion of the respiratory system perform these functions.
5. Neurons in the medulla oblongata establish the basic rhythm of breathing, but their activities can be influenced by input from other parts of the brain and from peripherally located receptors sensitive to the PCO₂, pH, and PO₂ of the arterial blood.
6. The respiratory system is constantly exposed to airborne particles and even pathogens. Extensive protective mechanisms within the respiratory system keep the alveoli healthy.

CHAPTER 20 - URINARY SYSTEM

Chapter Concepts: In studying Chapter 20, the student should gain mastery of the following concepts:

1. Metabolic waste are eliminated by several body systems, it is misleading to refer to the urinary system as the excretory system.
2. The histological structure of the organs of the urinary system determine their functions.
3. The nephron is the functional unit of the kidney.

CHAPTER 21 - WATER, ELECTROLYTE, AND ACID-BASE BALANCE

Chapter Concepts: In studying Chapter 21, the student should gain mastery of the following concepts:

1. Several types of fluid and molecular movements, including diffusion, osmosis, filtration, active transport, and pinocytosis, occur in the kidneys in the formation of urine.
2. Through the countercurrent multiplier system, the urine becomes more concentrated as it passes through the nephron.
3. Constant filtration of blood is essential for body sustenance, and interruption of the process by disease or physical impairment is generally life threatening.

CHAPTER 22 - REPRODUCTIVE SYSTEM

Chapter Concepts: In studying Chapter 22, the student should gain mastery of the following concepts:

1. It is through sexual reproduction that many species are propagated. The offspring then have genetic traits inherited from both parents.
2. Unlike the other body systems that sustain the organisms and maintain homeostasis, the reproductive system is specialized to perpetuate the species and pass genetic material from generation to generation.
3. Gametes are formed through a specialized form of cell division called meiosis.
4. The reproduction organs and their hormonal effects accounts for the major differences between males and females.
5. There are remarkable developmental similarities called homologies between the male and female reproductive system.
6. The reproductive system is unique because its latent development is under hormonal control.
7. Unlike the production of male sperm, which first occurs at puberty, female gametes are produced prenatally.
8. Cyclic ovulation occurs throughout the reproductive period of the female, which extends from puberty to menopause.
9. Hormonal concentrations determine the cyclic pattern of ovulation and menstruation.

10. Hormonal interaction also causes changes in the mammary gland during pregnancy and regulate lactation.

11. Although both males and females are susceptible to sexually transmitted disease, females are more prone to reproductive dysfunctions and diseases because of cyclic changes in reproductive events, problems associated with pregnancy, and the susceptibility of the breast to infections and neoplasms.

Evaluation/Grading Policy:

I. Lecture

Lecture will meet twice a week; meeting for one hour and twenty minutes per lecture.

- A. Four major tests will be given 50% of grade
 - B. One Comprehensive Final 25%
- 75%

II. Lab

Lab will meet once or twice a week depending on your schedule. Twice a week labs will meet for one hour and twenty minutes per day. Once a week labs will meet two hours and forty minutes. However, lab time, on certain days, will depend on the time needed to complete necessary lab assignments or procedures.

LECTURE TOPIC(S)

WEEK/ LECTURE/ TOPIC(S)

Aug	27	Roll Call/Syllabus
Aug	29	Endocrine/Reproduction
Sept	5	Endocrine/Reproduction
Sept	10	Chapter 13/22 Endocrine/Reproduction
Sept	12	Chapter 13/22 Endocrine/Reproduction
Sept	17	Chapter 13/22 Endocrine/Reproduction
Sept	19	Chapter 14 Blood

Sept	24	Chapter 14	Heart Cardiovascular
Sept	26	Chapter 15	Heart Cardiovascular
Oct	1	Chapter 15	Heart Cardiovascular
Oct	3	Chapter 15	Heart/ Cardiovascular
Oct	8	Chapter 15	Heart/ Cardiovascular
Oct	10	Lecture Test	Chapters 14&15 Blood/ Heart/ Cardiovascular
Oct	15	CHAPTER 16 - LYMPHATIC SYSTEM AND IMMUNITYsystem	
Oct	17	CHAPNov 28	CHAPTER 17 - DIGESTIVE SYSTEMTER 16 - LYMPHATIC SYSTEM AND IMMUNITY
Oct	22	CHAPTER 16 - LYMPHATIC	
Oct	24	Thanksgiving Holiday	
Oct	29	CHAPTER 17 - DIGESTIVE SYSTEM	
Oct	31	CHAPTER 17 - DIGESTIVE SYSTEM	
Nov	5	C HAPTER 19 - RESPIRATORY SYSTEM/Chapter 20 urinary	
Nov	7	CHAPTER 19 - RESPIRATORY SYSTEM/Chapter 20 urinary	
Nov	12	Test	
Nov	14	CHAPTER 20 URINARY SYSTEM	
Nov	19	Urinary System	
Nov	26-28	WATER,ELECTROLYTE,AND ACID BASE BALANCE	
Dec	3	Test	
Dec	5 -10	Reproduction	
Dec	12	Test	

Other Course Requirements:

Student Responsibilities/Expectations:

Attendance Policy

Regular and punctual attendance at all scheduled classes is required by every student. Students absent, for any reason, are still responsible for lecture materials and any required assignments. There are no excused absences. Excessive absences will ultimately hinder your success in this course. Therefore, it is the responsibility of the student to withdraw from this course before the final withdrawal date to receive a "W". However, your failure to abide by this institutional rule will result in you receiving an "F" for this course.

NTCC Academic Honesty Statement:

"Students are expected to complete course work in an honest manner, using their intellects and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. NTCC upholds the highest standards of academic integrity. This course will follow the NTCC Academic Honesty policy stated in the Student Handbook."

Academic Ethics

The college expects all students to engage in academic pursuits in a manner that is beyond reproach. Students are expected to maintain complete honesty and integrity in their academic pursuit. Academic dishonesty such as cheating, plagiarism, and collusion is unacceptable and may result in disciplinary action. Refer to the student handbook for more information on this subject.

ADA Statement:

It is the policy of NTCC to provide reasonable accommodations for qualified individuals who are students with disabilities. This College will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to request accommodations. An appointment can be made with Shannin Garrett, Academic Advisor/Coordinator of Special Populations located in the College Connection. She can be reached at 903-434-8218. For more information and to obtain a copy of the Request for Accommodations, please refer to the [NTCC website - Special Populations](#).

Family Educational Rights And Privacy Act (FERPA):

The Family Educational Rights and Privacy Act (FERPA) is a federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. FERPA gives parents certain rights with respect to their children's educational records. These rights transfer to the student when he or she attends a school beyond the high school level. Students to whom the rights have transferred are considered "eligible students." In essence, a parent has no legal right to obtain information concerning the child's college records without the written consent of the student. In compliance with FERPA, information classified as "directory information" may be released to the general public without the written consent of the student unless the student makes a request in writing. Directory information is defined as: the student's name, permanent address and/or local address, telephone listing, dates of attendance, most recent previous education institution attended, other information including major, field of study, degrees, awards received, and participation in officially recognized activities/sports.

Other Course Policies:

All cell phones will be turned off during lecture and test. Students must obtain permission from instructor to place