

COURSE TITLE: Anatomy and Physiology Fall 2009
COURSE NUMBER: BIO 1255000
CREDIT HOURS: 5
INSTRUCTOR: Mr. Hudiburg
OFFICE LOCATION: A-105
OFFICE HOURS: as posted
OFFICE PHONE: (620) 223-2700 x.311
E-MAIL ADDRESS: kennyh@fortscott.edu
DISCUSSION BOARD: N/A
BLACKBOARD ADDRESS: <http://homefortscott.edu>
PREREQUISITES: Completion of BIO 1215000 with a C
REQUIRED TEXT: Hole's Essentials of Human Anatomy and Physiology
10th edition and accompanying lab manual.

MATERIALS: Notebook, pencil, ruler, colored pencils
OPTIONAL TEXT: N/A
COURSE DESCRIPTION: This course is a survey of the structures of the human body and their functions.

Method of Instruction:

This course will be presented through the use of lecture, power point presentations, labs, group discussions, Current events in science and demonstrations. Students will have weekly chapter reading assignments, Each student will be required to take a comprehensive Pre-test and Post –test. The Post-test will be used as a comprehensive final. The instructor will conduct an assessment of outcomes through the use of daily quizzes, chapter/unit tests, weekly labs, lab drawings, current events and a comprehensive final. The additional use of lab projects and/or field trips may also be assigned at the discretion of the instructor.

Course Objectives:

This course will:

- A. Provide the student with an understanding of the levels of organization of the human body.
- B. Provide the student with an understanding of the systems involved with support and movement of the human body.
- C. Provide the student with an understanding of the how the systems of the body work together through the processes of integration and coordination.
- D. Provide the student with an understanding of the various ways different materials are transported through the body.
- E. Provide the student with an understanding of the different systems of the body that are involved with absorption and excretion.
- F. Provide the student with an understanding of the human life cycle.

Course Topics:

Chapter 1: Introduction to Human Anatomy and Physiology

- Anatomy and Physiology
- Levels of Organization
- Characteristics of Life
- Maintenance of Life
- Organization of the Human Body
- Anatomical Terminology

Chapter 2: Chemical Basis of Life

- Structure of Matter
- Chemical Constituents of Cells

Chapter 3: Cells

- Composite Cell
- Movements Through Cell Membranes
- The Cell Cycle

Chapter 4: Cellular Metabolism

- Metabolic Reactions
- Control of Metabolic Reactions
- Energy for Metabolic Reactions
- Metabolic Pathways
- Nucleic Acids
- DNA Replication
- Protein Synthesis

Chapter 5: Tissues

- Epithelial Tissues
- Connective Tissues
- Muscle Tissues
- Nervous Tissues
- Types of Membranes

Chapter 6: Skin and the Integumentary System

- Skin and Its Tissues
- Accessory Organs of the Skin
- Regulation of Body Temperature
- Healing of Wounds

Chapter 7: Skeletal System

- Bone Structure
- Bone Development and Growth
- Bone Function
- Skeletal Organization
- Joints

Chapter 8: Muscular System

- Structure of a Skeletal Muscle
- Skeletal Muscle Contraction
- Muscular Responses
- Smooth Muscle
- Cardiac Muscle
- Skeletal Muscle Actions
- Major Skeletal Muscles

Chapter 9: Nervous System

- General Functions of the Nervous System
- Neuroglial Cells
- Neurons
- Cell Membrane Potential
- Nerve Impulses
- The Synapse
- Types of Nerves
- Nerve Pathways
- Meninges
- Spinal Cord
- Brain
- Peripheral Nervous System
- Autonomic Nervous System

Chapter 10: Somatic and Special Senses

- Receptors and Sensations
- Somatic Senses
- Special Senses
- Sense of Smell
- Sense of Taste
- Sense of Hearing
- Sense of Equilibrium
- Sense of Sight

Chapter 11: Endocrine System

- General Characteristics of the Endocrine System
- Hormone Action
- Control of Hormonal Secretions
- Pituitary Gland
- Thyroid Gland
- Parathyroid Gland
- Adrenal Glands
- Pancreas
- Stress and Health

Chapter 12: Blood

- Blood and Blood Cells
- Blood Plasma
- Hemostasis
- Blood Groups and Transfusions

Chapter 13: Cardiovascular System

- Structure of the Heart
- Heart Actions
- Blood Vessels
- Blood Pressure
- Paths of Circulation
- Arterial System
- Venous System

Chapter 14: Lymphatic System and Immunity

- Lymphatic Pathways
- Tissue Fluid and Lymph
- Lymph and Movement
- Lymph Nodes
- Thymus and Spleen
- Body Defenses Against Infection
- Immunity

Chapter 15: Digestion and Nutrition

- Mouth
- Salivary Glands
- Pharynx and Esophagus
- Stomach
- Pancreas
- Liver
- Small Intestine
- Large Intestine
- Nutrition

Chapter 16: Respiratory System

- Organs
- Breathing Mechanism
- Control of Breathing
- Alveolar Gas Exchanges
- Gas Transport

Chapter 17: Urinary System

- Kidneys
- Urine Formation
- Urine Elimination

Chapter 18: Water, Electrolyte, and Acid-Base Balance

- Distribution of Body Fluids
- Water Balance
- Electrolyte Balance
- Acid-Base Balance
- Acid-Base Imbalances

Chapter 19: Reproductive Systems

- Organs of the Male Reproductive System
- Organs of the Female Reproductive System
- Hormonal Control
- Mammary Glands
- Birth Control
- Sexually Transmitted Diseases

Chapter 20: Pregnancy, Growth, Development, and Genetics

- Pregnancy
- Prenatal Period
- Postnatal Period
- Genetics

Course Competencies:

Upon successful completion of Anatomy and Physiology, the student will be able to:

A: Use anatomical directions and location terms.

1. Label abdominopelvic regions
2. Use directions correctly

B: Identify the 4 main types of tissues

1. Identify tissue types using microscope and micrographs
2. Identify tissues based on location and characteristics

C: Gain understanding of the integumentary system

1. Describe the structure of the layers of the skin
2. List the general functions of each layer of the skin
3. Describe the accessory organs associated with the skin
4. Describe the process of wound healing

D: Gain understanding of the skeletal system

1. Describe the structure and function of skeletal tissue, spongy and compact
2. Describe osteogenesis and bone remodeling
3. Describe the general structure of a bone and list functions of its parts
4. Name the major parts of the axial and appendicular skeleton

E: Gain understanding of joints

1. Classify joints according to structure and function
2. List six types of synovial joints and name an example of each type
3. Describe the general structure of a synovial joint
4. Explain how skeletal muscles produce movements at joints
5. Use movement classification terms to describe motion at a joint

F: Gain understanding of the muscular system

1. Describe the tissues found in a skeletal muscle and their functions
2. Name the major parts of a skeletal muscle fiber and use them to describe the sliding filament theory of muscular contraction
3. Explain energy sources and fluctuations at the chemical and cellular levels within muscle tissue
4. Describe the cause and effect of hypertrophy and atrophy
5. Identify and locate the major skeletal muscles of each body region and describe the origin, insertion and action of each muscle

G: Gain understanding of the nervous system

1. Describe the major parts of the nervous system and functions
2. Describe the general structure of neurons and functions
3. Describe the events that lead to nerve impulse conduction
4. Explain synaptic conduction
5. Describe the structure and function of the meninges
6. Describe a reflex arc and define reflex behavior
7. Distinguish the major structures of the brain and their functions
8. Distinguish among motor, sensory and association areas of the cerebral cortex
9. Name the cranial nerves and list one major function of each
10. List the major parts of the spinal cord and peripheral nerves
11. Know select spinal nerves and their functions
12. Name types of receptors and explain the function of each
13. Name the parts of the eye and ear and explain their function
14. Know how smell and taste work, structures behind the functions

H: Gain understanding of the endocrine system

1. Distinguish between endocrine and exocrine glands
2. Explain how steroid and nonsteroid hormones affect target cells
3. Discuss how negative feedback mechanisms regulate hormonal secretion
4. Explain the control of the endocrine system
5. Name and describe the locations and structure of the major endocrine glands, and list the hormone they secrete
6. Describe the general functions of the various hormones

I: Gain understanding of the cardiovascular system

1. Describe the general characteristics of blood and discuss major functions
2. Review major steps involved in blood coagulation
3. Name the organs of the cardiovascular system and discuss functions
4. Name and describe locations of the major parts of the heart and discuss the function of each part
5. Trace the pathway of blood through the heart and major blood vessels
6. Compare and contrast the structures and functions of the major types of blood vessels
7. Describe the mechanisms that aid in returning venous blood to the heart
8. Describe selected cardiovascular abnormalities, cause and treatment

J: Gain understanding of the lymphatic and immune system

1. Describe the general functions and structures of the lymphatic system
2. Describe how interstitial fluid and lymph are formed and their function
3. Describe the function and structure of a lymph node, and location of lymph nodes in the body
4. Compare/contrast specific and non-specific immunity, describe structures and functions of each type
5. Distinguish between active and passive immunity, and between natural and artificial immunity, with examples

K: Gain understanding of the digestive system

1. Name and describe the locations and major parts of the organs of the digestive system
2. Describe the general functions of each digestive organ
3. Describe the structure of the wall of the alimentary canal
4. List the enzymes the digestive organs and glands secrete and describe the function of each
5. Describe movement and absorption of digested materials

L: Gain understanding of the respiratory system

1. Name and describe the locations of the organs of the respiratory system
2. Describe the functions of each organ of the respiratory system
3. List the steps in the mechanisms of inspiration and expiration
4. Name and define each of the respiratory air volumes and capacities
5. Discuss voluntary and involuntary control of respiration
6. Explain how the blood transports oxygen and carbon dioxide

M: Gain understanding of the urinary system

1. Name the organs of the urinary system and list general functions
2. Describe a nephron and explain the functions and structure of its major parts
3. Explain how various factors affect the rate of glomerular filtration
4. Describe the structure of the ureters, urinary bladder and urethra
5. Discuss the process of micturation and explain how it is controlled

N: Gain understanding of the male and female reproductive systems, pregnancy, and birth

1. Name the parts of the male and female reproductive system and describe the general function of each
2. Explain hormonal control of the activities of the male and female reproductive organs and the development of male and female secondary sex characteristics
3. Describe the major events of the menstrual cycle
4. Describe physical and hormonal changes to the woman's body and the baby's body during pregnancy.
5. Describe the birth process and explain the role of hormones in this process

Grading Plan: Evaluation

Current Events in Science: Weekly report each worth 10 points

Exams: 16 chapter tests, each worth 100 points, and a comprehensive final (200 pts.)

Unit 1 – Anatomical directions, tissues, integumentary and skeletal systems, biology review questions (Chapters 1-7).

Unit 2 – Muscles and joints (Chapters 8-9)

Unit 3 – Nervous and endocrine systems (Chapters 10-13)

Unit 4 – Cardiovascular, lymphatic, immune, and respiratory systems (Chapters 14-16, 19)

Unit 5 – Digestive, urinary, and reproductive systems (Chapters 17-20)

Quizzes: Daily lecture quizzes, each worth 5-15 points

Lab quizzes, variable point values

Lab practicals: on human skeleton, pig muscles, pig cardiovascular systems and thoracic/abdominopelvic pig organs

Lab report: on lab activities and microscopic drawing of various tissues

Field trips: points are given based on attendance of scheduled field trips

Grading scale: A = 90 – 100%

B = 80 – 89%

C = 70 – 79%

D = 60 – 69%

F = below 60%

I use a total point system.

Attendance:

Every student is expected to be in class each day, ready to work on time.

Excessive absences make it difficult for you to learn the material to your potential.

Daily quizzes cannot be made up. Daily quizzes are given at the beginning of the hour, so if you are tardy or absent, you lose points.

If, at the end of the semester, you have no more than one unexcused absence and no more than 3 tardies, I will drop your lowest major exam score. The final exam may not be dropped. An excused absence is being absent to attend an FSCC sponsored function or hospitalization.

If you must be absent, you must contact me to schedule make-up labs and/or make-up tests ahead of time. The make-up tests may be in essay/fill in the blank format instead of multiple choice, at my discretion. Cell phones and P.D.A.'s should be turned off upon entering class and remain off while attending class.

Course Component Specifics:

Lab drawings and reports will be assigned on a daily basis.

Daily or pop quizzes can be given at anytime during the class period at the discretion of the instructor.

Chapter tests will follow the completion of the chapter(s) being studied.

Comprehensive final examination will be administered during Finals week at the designated time.

Research Project over a Sexually Transmitted Disease

Classroom Rules and Conduct:

Students are expected to attend and participate in all class activities. Students are expected to maintain a positive and respectful attitude towards their instructor and fellow students at all times. If a student becomes disruptive in class they will be asked to leave and may also be dropped from the class at the discretion of the instructor. Cell phones and P.D.A.'s should be turned off upon entering class and left off while attending class.

Academic Integrity:

Academic dishonesty will result in no credit given for the particular assignment, quiz, or exam, etc. Cell phones, P.D.A.'s, Ipods, etc. are to be turned off upon entering class and left off while in attendance especially during tests. Failure to comply during a test will result in the complete loss of credit for that exam.

Academic honesty:

Any student cheating on a quiz, test, lab report, paper, etc. will receive a zero for that assignment/test.

***The following policy will be implemented for all students seeking to enroll in Anatomy and Physiology at FSCC beginning with the Summer 2004 semester. **You must have passed General Biology at the college level with a C or Higher before enrolling in Anatomy and Physiology at FSCC.** Permission will not be granted to enroll in A&P unless you have passed General Biology with at least a C at the college level.

SIGN THIS PAGE, DETACH FROM THE SYLLABUS, AND RETURN TO INSTRUCTOR.

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10th Ed. By Shier
MATERIALS: Notebook, pencil, ruler, colored pencils

AFFIDAVIT:

My signature below indicates that I have read and understand this syllabus and have been given a copy of my own to keep.

Student Signature

Date

Name (Printed clearly)