BIOLOGY 217
HUMAN ANATOMY & PHYSIOLOGY I

EXAM 3 REVIEW SHEET

Material Covered on Exam: Chapters 6-10

For this exam, you will be expected to . . .

- List and describe five important functions of bones.
- Discuss the various classifications of bones with respect to location, shape, and consistency.
- Define the scientific terms for the various bone markings associated with articulation sites, muscle attachment sites, and openings or depressions.
- Describe the gross anatomy of long bones including: diaphysis, epiphysis, metaphysis, trabeculae, periosteum, endosteum, medullary cavity, epiphyseal line/plate, etc.
- Describe the histology of compact bone including: central canal, lacunae, canaliculi, lamellae, circumferential lamellae, interstitial lamellae, perforating canals, and osteons.
- Name and describe the 4 different cell types associated with bone.
- Discuss the organic and inorganic compositions of bone.
- Compare and contrast the mechanisms for the formation of long bones versus flat bones.
- Describe the process of bone growth in terms of length and width.
- Describe bone remodeling and repair processes.
- Name and explain how 2 hormones regulate a person's blood-calcium levels relative to bone deposition and resorption.
- Describe the characteristics of the various bone disorders discussed in class.
- Discuss the different types of fractures and how they are classified.
- Name the major bones associated with axial versus the appendicular skeleton.
- Be able to indicate the number of bones in the adult skeleton and within various regions/structures of the body such as: skull, hands, feet, ribs, vertebrae, etc.
- Identify the bones and parts of bones that participate in articulations about the body.
- Name, describe, and identify the important markings associated with each of the major bones of the body.
- Define fontanels and indicate their significance in the fetal skull.
- Define joint or articulation.
- Define the following terms: synarthrotic, diarthrotic, and amphiarthrotic.
- Describe the structural and functional classification of joints.
- Describe the general structure of a fibrous joints.
- Give an example of the three types of fibrous joints and determine their functional classification.
- Describe the general structure of a cartilaginous joint.
- Give an example of the two types of cartilaginous joints and determine their functional classification.

- Name and describe the components associated with the general structure of a synovial joint.
- Describe the importance of synovial fluid and discuss its origins.
- Name and describe the common body movements provided by synovial joints such as flexion, extension, abduction, adductions, protraction, retraction, rotation, circumduction, etc.
- Name and provide specific examples of the six types of synovial joints and give an example of each.
- Describe the 4 types of axial movements and give an example of a joint that exhibits each type.
- Name the most common joint injuries and discuss the symptoms associated with each.
- Be able to list the basic characteristics and functions of muscle tissue.
- Be able to compare and contrast the 3 basic types of muscle tissue.
- Describe the gross structure of a skeletal muscle including its arrangement, connective tissue coverings, vascularization, and innervations.
- Describe the microscopic structure and functional roles of the various components of a muscle fiber (cell).
- Describe the design of a sarcomere with relation to the overlapping of actin and myosin fibers.
- Be able to describe the basic components of an actin and myosin myofilament.
- Describe the activity at the neuromuscular junction and the role of Ca+ and neurotransmitters.
- Describe the stimulation of a muscle cell from the resting membrane potential through depolarization, formation and propagation of an action potential, and repolarization.
- Explain the sliding filament theory being sure to discuss the role of Ca+, ADP+P, and ATP.
- Define a muscle twitch and describe the events occurring during its three phases.
- Differentiate between various types of muscle twitches discussed in class.
- Differentiate between isometric and isotonic contractions.
- Briefly describe three ways in which ATP is regenerated during skeletal muscle contraction.
- Define oxygen debt and muscle fatigue.
- Describe the characteristics of the muscle diseases/disorders described in class.
- Describe the function of a prime mover, antagonist, synergist, and fixator.
- List the criteria used in naming muscles and provide an example to illustrate each.
- Name the common patterns of muscle fascicle arrangement and provide an example to illustrate each.
- Name and describe the components of a lever system.
- Differentiate between a lever designed for speed versus power.
- Differentiate between a first class, second class, and third class lever and give an example of each.
- What 4 muscles make up the quadriceps?

- What 3 muscles make up the hamstring?
- What muscles are involved in chewing?
- What muscles are involved in inspiration? Expiration?
- What muscles flex the elbow? What muscles extend the elbow?
- What is the function of the following forearm muscles; extensor carpi ulnaris, flexor carpi ulnaris, flexor carpi radialis, extensor carpi radialis, pronator teres, & palmaris longus.
- What muscles control the voluntary movement of the eyeball?
- What are the 2 main superficial back muscles?
- What is the anatomical name for the calf muscle?
- What 4 muscles are found in the abdominal wall?
- What muscle is responsible for closing the mouth? Closing the eyelids? Sucking and whistling?

Additionally, you should be reviewing the following items . . .

- Course Textbook; Chapters 6-10
- Course Supplement; Modules 7-12
- A & P Labs 5-8
- Hole's Anatomy & Physiology; Chapters 7-9
- Anatomy & Physiology (McKinley text); Chapters 7-11
- Principles of Anatomy & Physiology (Tortora text); Chapters 6-11
- Seeley's Anatomy & Physiology; Chapters 6-10

Also, be sure to take a look at the links and resources on Canvas and my lecture and laboratory webpage. ***This study guide covers the majority of information on the lecture exam, but possibly not all of it. You are still responsible for any information that was covered but not put on this study guide (intentionally or unintentionally). Good Luck and Study Hard!!!***