BIOLOGY 218
HUMAN ANATOMY & PHYSIOLOGY II

EXAM 2 REVIEW SHEET

Material Covered on Exam: Chapters 20, 21, 23, and 24

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

- Describe the structure and function of lymphatic system and its relationship to blood vessels and to the immune system.
- Identify the variety of lymph vessels, describe the areas of the body they drain, and explain lymphedema.
- Identify the classes of lymphocytes, discuss their importance, and describe their distribution in the body.
- Describe the structure and function of peyer's patches, MALT, the appendix, and tonsils.
- Describe the structure and function of the lymph nodes, thymus, and spleen.
- Trace the path of lymph through a lymph node.
- Explain how physical barriers and phagocytes play a role in innate or non-specific defenses.
- Describe the immunological surveillance and explain the role of NK cells.
- Describe the various types of interferons and their functions.
- Explain the alternate and classical pathways of complement activation.
- Explain the significance of inflammation and fever as innate defenses.
- Describe the differences between innate defenses and adaptive defenses.
- Explain how antigens trigger an immune response by way of MHC Class I and Class II proteins.
- Explain the events of antigen recognition and the roles of CD markers and cell differentiation.
- Explain the sensitization and activation of B cells and the role of plasma cells.
- Describe the structure of an antibody, discuss the types of antibodies in the body, and explain the primary and secondary responses to antigen exposure.
- Explain the many mechanisms by which antibodies destroy antigens.
- Describe the processes of clonal expansion of B-cells and T-cells.
- Compare and contrast the immune response against bacterial infections versus viral infections.
- Describe the disorders common to the lymphatic and immune systems.
- Name the organs of the gastrointestinal tract versus the accessory organs that assist the GI tract.
- Describe the functions of the digestive tract and explain how the digestive system works with other systems of the body to deliver important nutrients to body cells.
- Compare and contrast peristalsis and segmentation.
- Describe the histology of the digestive tract including the layers and the tissue types of each layer.
- Describe the functional and structural features of smooth muscle and how it compares to skeletal and cardiac muscle.

- Describe the anatomy of the oral cavity and discuss the functions of the major components and boundaries of the oral cavity.
- Discuss the structure and functions of the salivary glands.
- Identify the structure of the tongue and discuss its importance in digestion.
- Describe the various types of teeth and differentiate between the primary versus secondary dentition.
- Describe the anatomy of a typical tooth and account for the types and numbers of teeth in an adult.
- Describe the anatomy of the pharynx and esophagus and explain the process of deglutition.
- Describe the anatomy of the stomach and its histological features as they relate to the stomach's role in digestion and absorption.
- Name and describe the hormones and enzymes secreted by the stomach.
- Describe the anatomy and physiology of the small intestines. Be able to differentiate between the three regions of the small intestine.
- Describe the histological features of the small intestine as it relates to its role in digestion and absorption.
- Name and describe the hormones and enzymes secreted by the small intestine.
- Discuss the structure and function of the liver and gallbladder. Describe the function of bile relative to its role in digestion.
- Describe the structure, function, and histological features of the pancreas.
- Describe the gross and histological anatomy of the large intestine.
- Describe the large intestine's role in fecal compaction and explain the process of defecation.
- Describe the major disorders of the digestive system as discussed in class.
- Define metabolism, nutrient, anabolism, and catabolism.
- Describe the role of the nutrient pool in cellular metabolism.
- Describe carbohydrate digestion, absorption, and metabolism.
- Describe the fate of glucose in glycolysis.
- Describe the basic steps in the citric acid cycle and electron transport system.
- Describe lipid digestion and absorption.
- Describe the mechanism of lipid transport and distribution.
- Describe the fate of fatty acids in lipid metabolism.
- Summarize the main features of protein metabolism and the use of proteins as an energy source.
- Name the fat-soluble vitamins and explain the role of each fat-soluble vitamin in the body.
- Name the water-soluble vitamins and explain the role of each water-soluble vitamin in the body.
- Explain what constitutes a balanced diet and why such a diet is important.
- Describe the roles of the satiety and feeding centers in the regulation of food intake.
- Discuss the mechanisms involved in heat gain and heat loss.
- Discuss the mechanisms that maintain a constant body temperature.

- Describe the homeostatic imbalances of metabolism including eating disorders, nutritional disorders, and metabolic disorders.

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

- Course Textbook; Chapters 20, 21, 23, and 24
- Course Supplement; Modules 5, 7, and 8
- Human A & P Labs 4-5
- Hole's Anatomy & Physiology; Chapters 16-18
- Anatomy & Physiology (McKinley text); Chapters 21, 22, 26, and 27
- Principles of Anatomy & Physiology (Tortora text); Chapters 22, 24, and 25
- Seeley's Anatomy & Physiology; Chapters 22, 24, and 25

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!!!***