BIOLOGY 218
HUMAN ANATOMY & PHYSIOLOGY II

EXAM 4 REVIEW SHEET

Material Covered on Exam: Chapters 26-28

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

- List the factors that determine body water content, and describe the effect of each factor.
- Indicate the relative fluid volume and solute composition of the fluid compartments of the body.
- Explain the differences of the overall osmotic effects of electrolytes and nonelectrolytes.
- Describe factors that determine fluid shifts in the body.
- List the routes by which water enters and leaves the body.
- Describe feedback mechanisms that regulate water intake and hormonal controls of water output in urine.
- Explain the importance of obligatory water losses.
- Describe the possible causes and consequences of dehydration, hypotonic hydration, and edema.
- Indicate routes of electrolyte entrance and loss from the body.
- Explain the importance of sodium in the body's fluid and electrolyte balance, and indicate its relationship to normal cardiovascular system functioning.
- Describe mechanisms involved in regulating sodium balance, blood volume, and blood pressure.
- Explain the importance and regulation of potassium, calcium, and anion balances in plasma.
- List important sources of acids in the body.
- List the three major chemical buffer systems of the body and how they resist pH changes.
- Explain how the kidneys regulate hydrogen and bicarbonate ion concentrations in the blood.
- Distinguish between acidosis and alkalosis resulting from respiratory and metabolic factors. Describe the importance of respiratory and renal compensations to acid-base balance.
- Describe the components of the testes and outline their embryological and fetal development.
- Summarize the events of meiosis in the production of spermatozoa, and describe the functional anatomy of a mature spermatozoon.
- Explain meiosis and early spermiogenesis within the seminiferous tubules.
- Explain the roles played by the male reproductive tract and accessory glands in the functional maturation, nourishment, storage, and transport of spermatozoa.
- Describe the structures and functions of the penis.
- Explain the roles of regulatory hormones and testosterone in the establishment and maintenance of male sexual function.

- Describe the anatomy of the ovaries, uterus, and associated structures.
- Outline the processes of meiosis and oogenesis in the ovaries.
- Describe the structure, histology, and functions of the uterine tubes and uterus.
- Identify the phases and events of the uterine cycle.
- Describe the structure, histology, and functions of the vagina.
- Discuss the structure and function of the mammary glands.
- Summarize the hormonal regulation of the female reproductive cycles.
- Discuss various birth control strategies and their associated risks.
- Discuss several common reproductive disorders.
- Describe the process of fertilization, and explain the significance of multiple sperm to ensuring its success.
- Discuss cleavage, morula formation, blastocyst formation, and implantation of the blastocyst in the uterine wall.
- Describe gastrulation and the formation of the three germ layers.
- Identify and describe the formation, location, and functions of the four extra-embryonic membranes.
- Discuss the roles of the extra-embryonic membranes in embryological development and placenta formation.
- Discuss the importance of the placenta both to the fetus and as an endocrine organ.
- Describe organogenesis and its role in the developing fetus.
- Describe the interplay between maternal organ systems and the developing fetus.
- List and discuss the events that occur during labor and delivery.
- Identify the features of and the functions associated with the various life stages.
- Explain the roles of hormones in males and females at puberty.
- Relate the basic principles of genetics to the inheritance of human traits.
- Describe the relationships among the various forms of inheritance, and give examples of representative phenotypic characters, both normal and abnormal.
- Perform Punnett Squares for strict dominant-recessive inheritance, multiple allele and codominant inheritance, and x-linked inheritance patterns. From the results of a Punnett Square, be able to identify the probability of a given phenotype or genotype.
- Identify several chromosomal disorders, and describe the human genome.

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

- Course Textbook; Chapters 26-28
- Course Supplement; Modules 10-12
- Human A & P Labs 7-9
- Hole's Anatomy & Physiology; Chapters 21-24
- Anatomy & Physiology (McKinley text); Chapters 25, 28, and 29
- Principles of Anatomy & Physiology (Tortora text); Chapters 27-29
- Seeley's Anatomy & Physiology; Chapters 27-29

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!!!***