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**BIOLOGY 244**

**HUMAN ANATOMY AND PHYSIOLOGY II**

**BULLETIN INFORMATION**

BIOL 244: Human Anatomy and Physiology II (3 credit hours)
**Course Description:**
Functional anatomy and physiology of the human body, including the cardiovascular, endocrine, excretory, reproductive, digestive, and respiratory systems. Not available for biology major credit.
Prerequisites: BIOL 243
Note: Three lecture hours per week.

**SAMPLE COURSE OVERVIEW**

BIOL 244, Human Anatomy and Physiology II, is the first part of a two-part sequence covering Human Anatomy and Physiology.  The first part of the sequence is BIOL 243, Human Anatomy and Physiology I.  Separate syllabi will be issued for the laboratory sections that accompany these courses.  BIOL 244 is designed for pre-pharmacy and pre-nursing students and others seeking a human anatomy and physiology course.  BIOL 244 is not available for major credit.  The following topics will be covered in BIOL 244: the digestive, respiratory, circulatory, immune, endocrine, renal, and reproductive systems.  Students will also learn the societal implications of recent advances in biomedical research including sequencing the human genome on human disease and the treatment of human disease.  The scientific method will also be addressed as it relates to understanding the function of various body parts.

**ITEMIZED LEARNING OUTCOMES**

**Upon successful completion of Biology 244, students will be able to:**

1. Define and employ correctly anatomical and physiological terminology.
2. Explain the structure and function of the digestive, respiratory, circulatory, immune, endocrine, renal, and reproductive systems and apply this information to new medical and therapeutic issues, questions, and advances in these areas.
3. Explain how foods are broken down in the body and the interrelationships among the different energy sources, and apply this knowledge to evaluate questions and issues in human disease and physiology, such as type 2 diabetes.
4. Explain how gases (oxygen and carbon dioxide) are carried in the blood and exchanged in the lungs and tissues, and apply this knowledge to evaluate questions and issues in human disease and physiology, such as COPD.
5. Explain how the heart functions, what regulates blood pressure, and how blood distribution is controlled, and apply this knowledge to evaluate questions and issues in human disease and physiology, such as atherosclerosis and heart disease.
6. Explain innate and acquired immunity and how the body uses this to defend itself, and apply this knowledge to evaluate questions and issues in human disease and physiology, such as AIDS and organ transplantation.
7. Explain how the body uses hormones to coordinate various functions, and apply this knowledge to evaluate questions and issues in human disease and physiology, such as type 2 diabetes and other endocrine diseases.
8. Explain how the kidneys remove waste products and regulate water and mineral metabolism, and apply this knowledge to evaluate questions and issues in human disease and physiology, such as kidney failure.
9. Explain how gametes are produced and trace early development from the fertilized ovum to the formation of the early embryo, and apply this knowledge to evaluate questions and issues in human disease and physiology, such as birth control and assisted reproduction
10. Construct hypotheses concerning the function of various body parts and evaluate these hypotheses by closely analyzing the morphology of these structures.
11. Discuss the societal implications of recent advances in biomedical research related to these systems.

**SAMPLE REQUIRED TEXTS/SUGGESTED READINGS/MATERIALS**

1. Human Anatomy and Physiology by E.N. Marieb, Second, Third, Fourth, Fifth, Sixth, Seventh or Eighth Edition

**SAMPLE ASSIGNMENTS AND/OR EXAMS**

1. **Exams:**  There will be **four exams**, each covering one-fourth of the material.
2. **Student Evaluation**: Exams will include questions that will test students’ ability to apply the basic knowledge of the digestive, respiratory, circulatory, immune, endocrine, renal, and reproductive systems to normal functioning of organs/tissues and under conditions of human diseases. In particular, students’ understanding about organ structure and morphology as required for its function in human body will be tested via specific questions that will focus on how the organ function would dictate its anatomical structure to ensure efficient functioning in human body. Exam questions will also evaluate students’ understanding of recent technical advances in treating human disease and the societal implications of these advances pertaining to specific organs and their disease states.

**SAMPLE COURSE OUTLINE WITH TIMELINE OF TOPICS, READINGS/ASSIGNMENTS, EXAMS/PROJECTS**

**Week 1:** Introduction, Digestive System I

**Week 2:** Digestive System I, Digestive System II

**Week 3:** Metabolism

**Week 4:** Respiratory System I

**Week 5:** EXAM 1 on Digestion & Metabolism

Respiratory System II

**Week 6:** Blood and Heart I

**Week 7:** Blood and Heart II

**Week 8:** Blood Vessels

**Week 9:** EXAM 2 on Respiration, Blood & Heart

Lymphatics

**Week 10:** Immunity

**Week 11:** Endocrine System I, II

**Week 12:** EXAM 3 on Blood Vessels & Endocrine System

Urinary System

**Week 13:** Fluid, Electrolyte & Acid-Base Balance

**Week 14:** Male Reproductive System

Female Reproductive System

**Week 15:** Pregnancy

EXAM 4 on Urinary & Reproductive Systems

**Final Exam according to University exam schedule**