



Syllabus

BIO 172 - Human Anatomy and Physiology II

General Information

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Author Christy Parker

Department Science and Technology

Course Prefix BIO

Course Number 172

Course Title Human Anatomy and Physiology II

Course Information

Catalog Description This course is a continuation of BIO 171, providing an in depth analysis of the systems not covered in Human A&P I (ie. cardiovascular, respiratory, digestive, urinary, reproductive and endocrine systems, along with genetics, fluid, electrolyte and pH balance). Students further develop their explanations of anatomical and physiological interrelationships and homeostatic mechanisms as they pertain to normal health and disease. The laboratory component will reinforce skills introduced in A&P I (eg. microscopic and macroscopic levels of analysis, and mammalian dissection) while adding additional physiological experiments (eg. cardiovascular, digestive, and hematological).

Credit Hours 4

Lecture Contact Hours 3

Lab Contact Hours 2

Other Contact Hours 1 (Seminar)

Grading Scheme Letter

Prerequisites

BIO 171

Co-requisites

None

First Year Experience/Capstone Designation

This course DOES NOT satisfy the outcomes applicable for status as a FYE or Capstone.

SUNY General Education

This course is designated as satisfying a requirement in the following SUNY Gen Ed category

Natural Sciences (and Scientific Reasoning)

FLCC Values

Institutional Learning Outcomes Addressed by the Course

Vitality, Inquiry, Perseverance, and Interconnectedness

Course Learning Outcomes

Course Learning Outcomes

1. Regularly incorporate fundamental anatomical and physiological language in written and oral communication.
2. Describe in depth the normal anatomy and physiology of major body divisions (ie. endocrine, cardiovascular, respiratory, lymphatic, digestive, urinary, fluid and pH balance, reproductive, and inheritance).
3. Analyze how body systems interact with one another incorporating the foundational concept of homeostatic regulation.
4. Demonstrate standardized anatomical and physiological laboratory techniques (eg. lab safety, tissue histology, cardiovascular monitoring, urinalysis, and organ dissection).

Outline of Topics Covered

- I. **Endocrine System**
 - a. **Structural classes of hormones**
 - b. **Mechanisms of hormone action**
 - c. **Signaling regulation by negative feedback**
 - d. **Major endocrine glands and organs**
 - e. **Physiology of major hormones**

- f. **General Adaptation Syndrome**
- II. Blood**
 - a. **Functions**
 - b. **Anatomy and physiology of the major blood fractions**
 - c. **Plasma**
 - d. **Formed elements**
 - e. **Blood typing**
 - f. **Hemostasis**
- III. Heart**
 - a. **Macroscopic and microscopic anatomy**
 - b. **Blood flow pattern**
 - c. **Electrical conduction system**
 - d. **EKG measurement**
 - e. **Cardiac cycle**
 - f. **Cardiac output**
 - i. **Contributing factors**
 - ii. **Regulation**
 - g. **Cardiovascular disease**
- IV. Blood vessels and Circulation**
 - a. **Vessel anatomy**
 - b. **Major blood circuits**
 - c. **Circulation physiology**
 - d. **Flow dynamics**
 - e. **Blood pressure regulation**
- V. Lymphatic system and immunity**
 - a. **Lymphatic system organization**
 - b. **Innate immunity**
 - c. **Adaptive immunity**
- VI. Respiratory System**
 - a. **Organization of the upper and lower respiratory tract divisions**
 - b. **Respiratory tract anatomy**
 - c. **Ventilation**
 - d. **Gas exchange**
 - e. **Gas transport**
 - f. **Regulatory mechanisms**
- VII. Digestive system**
 - a. **Macroscopic and microscopic organization of the GI tract**
 - b. **Major physiological processes**
 - c. **Accessory digestive organ anatomy and physiology**
- VIII. Urinary system**

- a. **Macroscopic organization**
- b. **Renal anatomy and physiology**
- IX. **Fluid, electrolyte and pH balance**
 - a. **Fluid compartments and composition**
 - b. **Mechanisms of water balance**
 - c. **Electrolyte homeostasis**
 - d. **pH homeostasis**
 - e. **Buffering systems**
 - f. **Acidosis and alkalosis**
 - i. **Causes**
 - ii. **Compensatory mechanisms**
- X. **Reproductive system**
 - a. **Organization of male and female reproductive tracts**
 - b. **Anatomy of major reproductive structures**
 - c. **Gametogenesis**
 - d. **Hormonal regulation of reproductive function**
 - e. **Development and inheritance**
 - f. **Embryonic and fetal development**
 - g. **Mendelian genetics**
 - i. **Terminology**
 - ii. **Patterns of inheritance**