

HUMAN ANATOMY & PHYSIOLOGY II (BI 2120)  
SPRING 2013  
DR. FRED PRINCE

OFFICE: Boyd 220  
fprince@plymouth.edu

## COURSE DESCRIPTION

Textbook: Same text as Fall: *Hole's Anatomy & Physiology*; Shier, Butler & Lewis; 13<sup>th</sup> ed.

### Course Overview & Objectives

A & P II will resume where A & P I left off. In the fall we covered cell structure, metabolism, the skeletal system, articular system and muscular system. It would be good to review in depth **cell structure** (CH 3) and briefly the other areas as a basis for beginning A & P II.

A & P II will begin with **control** and **integrative systems**. Now that you have a solid knowledge of joints and the skeletal-muscular system, it is time to learn how this system is controlled. The first segment of A & P II will center on the **nervous system**. These topics will involve development of the nervous system, structure of the nervous system and neuromuscular interactions. Adaptation with exercise will also be considered.

The second segment of this course will involve the study of the **cardiovascular** and **respiratory systems**. You have studied the importance of cellular respiration in A & P I. Now we will look at the transport of oxygen, etc., at the organismal level. Topics in **exercise physiology** will be included in this part of the course.

During the latter part of the semester we will be covering diverse topics, including **endocrine, reproduction and development, immune function, and digestion**.

I will give daily outlines and specific page numbers for reading.

Grading: Four or five exams (of equal value) will be given (including the Final Exam).

The grades will be based on the following scale:

90% = A  
88% = A-  
85% = B+  
80% = B  
75% = B-  
72% = C+  
68% = C  
64% = C-  
60% = D+  
55% = D  
below 55% = F

### General Comments:

The exams will be based on **lecture** material. The chapters in the book should be read prior to, as well as after, lectures. Take time to get familiar with the **organization** of the chapters in the text. Don't hesitate to see me during office hours (or see me after class to arrange other times) to discuss course material.

The lectures will often cover material not in the text. I will hand out supplemental material prior to class to help on many topics. The text is for background reading.

Attendance is mandatory. The course will cover a great deal of material and a full effort on the part of the student is necessary. At this point, after having taken A & P I, you know what needs to be done to have success. Get off "on the right foot". Attend class; read the book; follow the study guide below and attend help sessions.

### Study Guide:

1. Read chapter before class to get familiar with topic (at least be on the same planet).
  2. Take notes in class. Use colored pencils. (**Again, exams are on lectures**).
  3. After class, reread through chapter and reorganize your notes (this way you will know what you understand and what you don't).
- \* **Note:** This really works! (If you do it!!)

### Help Sessions:

As in the Fall Semester, help sessions will be held each week. Days, times and rooms will be announced the first week of class. Tutors are also available via the PASS Office in Lamson Library.

### A note from the PASS Office:

Plymouth State University is committed to providing students with documented disabilities equal access to all university programs and facilities. If you think you have a disability requiring accommodations, you should immediately contact the PASS Office in Lamson Library (535-2270) to determine whether you are eligible for such accommodations. Academic accommodations will only be considered for students who have registered with the PASS Office. If you have a Letter of Accommodation for this course from the PASS Office, please provide the instructor with that information privately so that you and the instructor can review those accommodations.

### Reading Assignments:

As in the Fall Semester, I will give specific reading assignments daily. The following General Order of Topics will be "fine tuned" daily.

GENERAL ORDER OF TOPICS

**Segment 1 – Control and Integration**

THE NERVOUS SYSTEM – CELLULAR STRUCTURE AND FUNCTION (Chapters 10)

Neuron Structure: Review of Cell Organelles/Axons/Dendrites/Neuron Classification  
 Neurophysiology: Resting Membrane Potential/Action Potential/Graded Potentials  
 Neuroglial Cells/Myelin  
 Synapse: Structure and Function  
 Neurotransmitters: Classification/Actions/Neuromodulation

THE NERVOUS SYSTEM – REGIONS AND PHYSIOLOGY (Chapters 10 & 11)

Development of Brain and Spinal Cord  
 Spinal Cord Organization/Regional Anatomy  
 Peripheral Nerve/Spinal Nerve  
 Neuroanatomy: Brain Stem/Cerebellum/Cerebrum/etc.  
 Autonomic Nervous System  
 Brachial Plexus: Anatomy/Innervation of Specific Muscles/Injuries  
 Carpal Tunnel Syndrome  
 Spinal Reflexes  
 CNS Pathology

SPECIAL SENSES (Chapter 12)

Receptors/Receptor Potentials  
 Structure of Eye  
 Physiology of Vision  
 Inner Ear Physiology

**Segment 2 – Cardiovascular/Respiratory**

RESPIRATORY SYSTEM (Chapter 19)

Anatomy of Respiratory System  
 Respiratory Membrane/Gas Exchange  
 Static and Dynamic Lung Volumes  
 Dynamics – Tidal Volume, Vital Capacity, etc.  
 Topics in Exercise Physiology

CARDIOVASCULAR SYSTEM (Chapters 15)

Blood – Composition and Functions  
 Blood Typing  
 Oxyhemoglobin Dissociation Curve  
 Leukemia  
 Hemostasis  
 Heart Structure

Cardiac Cycle/Electrocardiogram/Blood Pressure  
Coronary Circulation

#### ENDOCRINE SYSTEM (Chapter 13)

Hormones: Steroid and Protein  
Hypothalamic: Pituitary Axis  
Specific Endocrine Glands  
Endocrine Disorders

### **Segment 3 – Digestive/Immune/Urinary**

#### DIGESTIVE SYSTEM (Chapter 17)

General Anatomy of Alimentary Tract  
Associated Exocrine Glands  
Carbohydrates, Lipids, Proteins

#### LYMPHATIC SYSTEM/IMMUNE SYSTEM (Chapter 16)

Structure of Lymph Nodes  
Antigen – Antibody  
Allergic Reactions  
Relation to AIDS

#### URINARY SYSTEM (Chapter 20)

Kidney Structure  
Glomerular Filtration

### **Segment 4 – Reproduction/Development** (Chapters 22, 23)

Male and Female Reproduction Anatomy

Development of Reproductive System

Hormonal Factors in Development

Hypothalamic – Pituitary – Gonadal Axis

Ovarian Cycle/Menstrual Cycle

Birth Control

I would add GOOD LUCK! BUT, LUCK IS NOT THE ANSWER –  
KEEP UP DAY BY DAY AND WORK HARD – The results will be worth it!