

# Greenfield Community College

## BIO 194 Comprehensive Anatomy and Physiology (NC) 4 cr Fall 2014

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**Course Description:** A one semester survey of human anatomy and physiology. Students learn basic concepts of chemistry and cytology in order to understand human systems, as well as the structure and function of organs, organ systems and their interactions. This course may involve dissection.

NOTE: Students may receive credit for only one of the following: BIO 105 or BIO 107 or BIO117 or BIO 194 or BIO 195.

Students may receive credit for BIO 106 or BIO 196, but not both. (Offered: Every Fall, Every Spring)

*Prereq:* ENG 090 and ENG 094 (COL 090), or satisfactory placement test scores

**A student who successfully completes this course will be able to:**

Demonstrate skill in group interaction, critical assessment, independent thinking, analysis, self expression, and the integration of complex concepts.

Demonstrate a foundation of knowledge to be able to pursue upper level Human Biology topics and/or a program in some Allied Health occupations and apply the knowledge associated with anatomy and physiology.

**Course Objectives:** The objectives of this course include the following:

1. Describe structural organization of the human body
2. Distinguish body systems
3. Describe body planes, directional terms, quadrants, and cavities
4. Distinguish major organs in each body system
5. Describe the normal function of each body system and analyze the interaction that occurs between organ systems to produce a normally functioning body.
6. Describe examples of common pathology related to each body system
7. Explain the relationship between homeostasis and pathology.
8. Compare body structure and function of the human body across the life span

For topic specific learning outcomes, see page 3.

**Lecture time:** (Sec A & B) Mon / Wed 1:00 – 2:15 pm; Room S312

**Laboratory time:** (Sec B) Monday; (Sec A) Wednesday 2:30 – 4:20 pm; Room S406

**Attendance Policy:** Students are responsible for all material presented in class. Attendance is strongly recommended since it is linked to your success. The instructor must be notified in advance for any anticipated absence or as soon as possible if an emergency occurs. Students who miss more than three lectures or two laboratories during the semester may jeopardize their academic status and lower their grade. Please be on time for class as late arrivals and early departures are disruptive to the entire class.

**Make-up Policy:** Since it is not in the best interests of the student to get behind in this course, make-up tests are *strongly* discouraged. In the event of extreme or unusual need, ONE make-up test may be administered per student at the discretion of the instructor within one week of scheduled test date during the semester. The lowest lecture test score will be dropped. If you are unable to attend your regularly scheduled laboratory, you may make-up that class at another scheduled laboratory session with prior permission of the instructor. **There will be no make-up lab quizzes** as the two lowest scores or zeros are dropped.

**Grading Formula:** Your grade for this course is a composite of your performance on the following:

		<u>Grading Scale:</u>	
Lecture Test ( 6 @ 100 pts ea)	600 pts		
Laboratory Quizzes (12 @ 20 pts ea )	240 pts	930-1000 A	770-799 C+
Laboratory Worksheets (12 @ 10 pts ea)	120 pts	900-929 A-	730-769 C

Attendance and Class Participation	<u>40 pts</u>	870-899	B+	700-729	C-
Total	1000 pts	830-869	B	600-699	D
		800-829	B-	<600	F

\* If the total points for the semester differ from 1000, your grade will be reflected in the percentage of points actually offered.

**Please note: If you decide to withdraw from this course for any reason, you must complete a withdrawal form and submit it to the Student Services offices.**

### **Method of Testing:**

**Lecture** – Tests in lecture will be in an objective format and may include Multiple Choice, True/False, Matching and Short Answer questions. The last lecture test serves as the final exam.

**Laboratory** – Laboratory work will be evaluated by means of weekly quizzes given in the first 30 minutes of each class. The quizzes are constructed to be as comprehensive as time permits and will include “practical style” items. Quizzes may include a few questions from previous material. The two lowest lab quiz grades (including any zeros for absence) will be dropped, excluding the final quiz. The points earned for quizzes and lab worksheets will be used for computation into the final grade calculation for the course.

\*Students with disabilities should contact the instructor during the first week of class.

**Honesty Policy:** Any form of cheating will result in removal from the class with a failing grade. There will be zero tolerance.

**Method of Instruction:** The primary methods of instruction will include, but will not be limited to, lectures, assigned readings, discussions, demonstrations, and hands on laboratory experiences.

### **Required Text:**

**Lecture / Lab:** Martini, Frederic H. and Bartholomew, Edwin F., Essentials of Anatomy and Physiology, Sixth Edition, 2013, Pearson

### **Topic Specific Learning Outcomes:**

Summarize some of the basic concepts in inorganic chemistry and biochemistry.

Explain the structure and function of the cell membrane and cytoplasm.

Explain the major concepts involved in cell life, division, and protein synthesis.

Explain the functions and components of epithelial, connective, muscle, and nerve tissues.

Explain the structure and function of the integumentary system.

Distinguish the bones and major bony landmarks of the axial and appendicular skeletons, major articulations, and the basic processes of ossification.

Explain the major concepts of muscle contraction theory, and the major (mostly superficial) skeletal muscles of the body.

Explain the major concepts of neurophysiology, the structure of neurons and glial tissue, the organization of the central and peripheral nervous systems, the functional and structural areas of the brain and cord, and the structure and location of the major peripheral nerves.

Distinguish the structure and location of the endocrine glands and know their hormones, regulation, target organs, and some pathologies involved with hyper / hypo secretion.

Distinguish the components of blood, the mechanism of blood clotting, the function of red and white cells and of platelets, and the diagnostic significance of some blood tests.

Explain the major points in the process of nonspecific and specific immunity.

Explain the structure of the lymphatic organs, the formation and function of lymph, and the concept of tissue edema.

Distinguish the structure and location of the heart and major blood vessels, and understand the major points of capillary dynamics, cardiovascular regulation, and vascular regulation.

Distinguish the structure of the respiratory organs, their function, basic gas laws, the dynamics of pulmonary ventilation, external and internal respiration, and the major points of respiratory regulation.

Explain the structure and function of the alimentary canal organs and accessory organs of the digestive tract, the dynamics of absorption, and the macro- and micro nutrients.

Explain the basic concepts of both anaerobic and aerobic metabolic events in the cell, the chemical significance of fuel substrates, and the concept of energy balance.

Explain the structure and function of the renal organs and basic concepts of urine formation and pressure regulation by the kidneys.

Explain the basic points of the major buffer systems, the dynamics of respiratory and metabolic acidosis/alkalosis, the dynamics of fluid and electrolyte balance, and the role of electrolytes in the body.

Explain the structure and function of male and female reproductive organs.

**Bio 194 Sec 2 -Comprehensive Anatomy and Physiology Laboratory Schedule**  
 GCC, Spring 2014, Tues. , 6:00 – 7:50 PM, Room S406  
 Instructor: Joy Eck

<u>Week #</u>	<u>Dates</u>	<u>Laboratory Topic</u>
1	1-28-14	Course Introduction; Lab Safety
2	2-4-14	Introduction to the Human Body <b>No Quiz</b>
3	2-11-14	Microscopy and The Cell <b>Quiz #1 - introduction to the human body</b>
4	2-18-14	Histology, The Skin <b>Quiz#2 – , microscopy and the cell</b>
5	2-25-14	The Skeleton and Joints <b>Quiz #3 – histology and the skin</b>
6	3-4-14	Muscles <b>Quiz #4 – skeleton and joints</b>
7	3-11-14	Brain and Nervous System <b>Quiz #5 – muscles</b>
8	<b>3-18-14</b>	<b>Spring Break – No Lab</b>
9	3-25-14	<b>Endocrine System</b> <b>Quiz #6 – brain and nervous system</b>
10	4-1-14	Blood and Blood Typing <b>Quiz #7 – endocrine system</b>
11	4-8-14	Heart and Blood Vessels <b>Quiz #8 – blood and blood typing</b>
12	4-15-14	Lymphatic and Respiratory Systems <b>Quiz #9 – heart and blood vessels</b>
13	4-22-14	Digestive System <b>Quiz #10 – lymphatic and respiratory systems</b>
14	4-29-14	Urinary and Reproductive Systems <b>Quiz #11 – digestive system</b>
15	5-6-14	Review <b>Quiz #12 – urinary and reproductive systems</b>
16	5-13-14	<b>Final Lab Test – Comprehensive Practical</b> <b>(will be weighted as two quizzes)</b>

Note: This schedule reflects the instructor's best approximation of the time sequence for the lab component of the course. Some changes may occur as needed.