

General Physiology – Biology 115, Fall 2010

Instructors: Profs. H. Bernheim and D. Cochrane

Prof. Bernheim's Office Hours: Tuesday and Thursday 10-11 AM, and by appointment, Office Barnum 105

Prof. Cochrane's Office Hours: Wednesday 9:30-10:30 AM and by appointment- Office Barnum 117B

Textbook: Principles of Human Physiology- Stanfield and Germann -Fourth Edition

Class Meets: Block G+: M&W 1:30-2:45 PM Barnum 104

Exams: Midterms: 10/4 and 11/10, Final Exam: Thursday Dec 16 12:00-2:00 PM; each exam is worth 100 points

Core Competencies Covered in Bio 115

Be able analyze data, and to draw appropriate conclusions based on trends and/or supported by statistics, and to formulate new questions based on presented findings

Be able to examine and interpret data presented in figures and tables, and to evaluate conclusions based on the data presented

Be able to understand how to pursue scientific inquiry through formulating hypotheses

Be able to understand techniques and methods described in class

Be able to make connections between concepts in biology and the foundations of physical sciences and computational methods

Be mindful of ethical considerations and societal outcomes in research and in technological advancement

Knowledge Base Competencies Covered in Bio 115

An understanding of the major paradigms in biology, including evolution, cell theory, genetic inheritance, the central dogma and integration of living systems

Appreciation of the morphological and physiological diversity of life, and the importance of that diversity

Recognition that biological processes are based on chemical and physical principles, and that biology informs medicine and community health

Subject Specific Competencies Covered in Bio 115

Understanding of homeostatic principles

Application of feedback analysis via proportional control systems to the respiration, cardiovascular and renal systems

<u>Date</u>	<u>Topic</u>	<u>Readings</u>
9/8	Introduction/Homeostasis/ Diffusion	Chapter 1+4
9/13	Diffusion, Transport, Cell Signaling	Chapter 4+5
9/15	Cell Signaling+ Respiration (Ventilation)	Chapter 5+16
9/20	Respiration: Ventilation- Mechanics	Chapter 16
9/22	Respiration: Ventilation-Mechanics	Chapter 16
9/27	Respiration: Gas Exchange: O2 and CO2 Transport	Chapter 17
9/29	Respiration: Gas Exchange: O2 and CO2 Transport	Chapter 17
10/4	First Exam	
10/6	Heart as a Pump	Chapter 13;322-343;354-356
10/11	Heart as a pump	“ “ “ “ “
10/13	Heart as a pump	“ “ “ “ “
10/18		
10/20	Heart- Electrical Activity	Chapter 13 + 173-190
10/25	Heart- Electrical Activity	Chapter 13+173-190
10/27	Heart- Electrical Activity	Chapter 13 + 173-190
11/1	ECG + Smooth Muscle+ Vasculature	Chapter 14 + 351-354
11/3	Control of Local Blood Flow	Chapter 14 + 351-354
11/8	Lymphatics + Venous Return +Coronary Circulation	Chapter 14
11/10	Second Exam	
11/15	Renal Anatomy	Chapter 18
11/17	GFR + Reabsorption	Chapter 18
11/22	Reabsorption + Osmolarity Control	Chapter 18 + 19
11/24	Osmolarity + Volume Control	Chapter 19
11/29	Osmolarity + Volume Control	Chapter 19
12/1	No Class- Thanksgiving Break	
12/6	Potassium Balance + Acid/Base Balance	Chapter 19
12/8	Acid/Base Balance	Chapter 19

Final Exam is Thursday December 16 from 12-2:00 PM