

Biology 251 Fall 2009 Study Guide for Exam 1

Exam I is on Tuesday 15 September from Noon to 1:15. The exam will consist of multiple choice questions. Questions will cover the first 5 Topics of the course:

Topic 1: Organization of the Body and Homeostasis

Topic 2: The Cell

Topic 3: Cell Membrane (Including membrane potentials)

Topic 4: Neuronal Physiology: Graded & Action Potentials

Topic 5: Neuronal Physiology: Synapses & Neuronal Integration

Questions will be to the level of detail presented in lecture; therefore, you will not be held responsible for detail presented in the book but not covered in lecture. About 10% of the questions will focus on the special clinical and applied examples given in class but that are not in the printed lecture notes.

Make sure you understand the major themes of the course: organization of the body, and homeostasis. You should know the names and functions of the major cellular structures, and understand cellular energetics to the level we discussed it. You should know membrane structure and the functions of each of the major components of the membrane.

You can count on questions about membrane potentials, action potentials and graded potentials. These subjects will be emphasized on the exam because understanding them is essential for understanding function of the nervous system and, later in the course, for understanding how muscles and the heart work. You should be able to describe what is occurring at the cellular level during resting membrane potentials and during each phase of an action potential. You should also be able to interpret graphs of changes in membrane potential over time. You should also be able to explain how action potentials move down a neuron and the special properties of action potentials. You should understand the structure and function of a synapse, and how EPSP and IPSP can contribute to the GPSP.

I hope that you have been studying as the semester progresses; the best way to do well in this course is to spend time studying the material as soon as possible after lecture. Because of the large amount of material that we must cover in this class, I estimate that on average you should be spending at least 6 hours per week outside of class reviewing notes and reading. To prepare for this exam, I suggest studying the lecture notes thoroughly making simultaneous use of the figures from the book and the animations from the cd. If some concepts do not make sense, then read those sections in the book. In addition, make good use the practice exam posted on the web; these are actual exam questions from previous years. Finally, if you have time, write your own exam questions, find a friend to do the same, and exchange them for practice.