

Biol 111
Fall 2018
Exam 3 Topics List

** Use the chapter objectives as a guide, redraw figures, re-write notes. Use the studying you have done since last exam as a resource!

- **Topics come from the last part of chapter 5, and primarily from chapters 6 and 7 as covered in lectures 15-19.**
- **If we get to chapter 8 in lecture 19, there could be some questions about cellular reproduction.**
- **Be sure to read the paper about the possibility of using photosynthesis to treat heart attack.**

Chapter 5—

Review enzymes and feedback inhibition

Potential energy as it relates to concepts in chapter 6

Chapter 6—Energy for life

- Considers the flow of energy through the universe.
 - Who are producers? Consumers?
 - What are the processes that convert solar energy into chemical energy and then into useful energy for cells?
 - Know the basic chemical reactions for photosynthesis and respiration
 - Know how they are intimately connected
 - Photosynthesis
 - General description
 - 2 basic sets of chemical reactions
 - Splitting of water---What are the products?
 - Calvin cycle---what are the products?
What is G3P? Why did we spend some time discussing it?

Chapter 7-Energy for cells

- Respiration—define it. How is cellular respiration connected to the respiration we do as breathing?
- What goes into cellular respiration (reactants) What comes out? (products)
- Where in the cell does cellular respiration occur?

- What kinds of reactions occur? Oxidation and Reduction---define, know/recognize examples.
- Summarize respiration---4 main steps.
- Where do they occur?
- The 4 main steps. Major reactants (starting molecules)? Major products (ending molecules)?
- What's the danger of CO (Carbon monoxide)? Explain in terms of respiration!
- What's a glucose worth?
- Trick question...Which is "better"? Aerobic respiration? Anaerobic respiration?
- What do you get from anaerobic respiration? (feel the burn? yum?)
- What about fats, and proteins? Do they provide energy? What do I get from pizza?
- Respiration in prokaryotes---no mitochondria! Importance of membranes!
- Review endosymbiotic theory.

Chapter 8—cellular reproduction

- Explain the purpose
- What is binary fission? How is it similar to mitosis? What is the difference?
- It's all about copying and distributing DNA
 - What happens to a chromosome as it prepares for cell division?
 - Copying a chromosome
 - Condensation---what are the major levels of chromosome shortening and thickening?

Cell cycle

Interphase

Mitosis

Interphase

G1, S, G2---What occurs in each sub-phase?

Mitosis

What occurs in each sub-phase?

Cell cycle control—

Define

How does it work? Checkpoints—describe

Apoptosis---what is it? What is its use?

Cell cycle control and cancer