Biology / Fitzgerald

Exam Review Guide: Trimester Two

Exam Format

Several types of questions will comprise the Biology Exam including multiple choice, matching, short-answer, and one long-answer. The exam will account for 20% of your trimester average. Students should respond to short-answer and long-answer questions with well-organized thoughts that are written in complete sentences.

Exam Study Strategies

Studying for an exam is much like studying for a test, but you must begin studying earlier for an exam than you might for a test. Organization is the foundation of good studying. Make sure that you collect all of your notes, labs, study guides, quizzes, and tests in an orderly fashion before you begin. You'll also want to make a list of pages from the text and your literature book as well (use the archived class pages).

*Create a focused study environment by turning off your cell phone, IM, email, Facebook, television, and other distracting factors.

*Read through your notes, starting with December 1st, and **rewrite** them. Leave out details that you know you don't need. Redraw diagrams – make them neater and bigger. Add new titles and subheadings to help you organize the information in your mind. Use colors to help separate different sections or kinds of information.

*Use flash cards that you've made for tests or make new ones.

*Study the study guides you've made for tests.

*Correct your quizzes and tests using your text or notes. Re-write questions that you missed, and respond to them again without help. Check yourself for accuracy.

*Keep a separate, running list of questions that you need to ask Mrs. Fitzgerald during the review session or in spare moments before/after school.

*Look for patterns in the material that we've studied. Use the Nine Themes of Biology to look for ways that the material is connected across the trimester. Try to make connections between concepts that we have not explicitly discussed in.

*Create concept maps and other study tools to help put together ideas from different parts of the trimester. There is a good tutorial on concept maps, etc. on p. 814-815 in your text.

*After (and only after) you have become familiar and comfortable with all of the material, meet with classmates in study groups and go through the concepts together, forcing each other to provide as much detail as possible. The process of verbalizing ideas is important in solidifying your understanding. However, meeting in study groups can be counter-productive if all members are not prepared before hand. Meeting over IM is not as effective as meeting in person (it may be worse than not meeting).

Test Date & Time

Thursday February 26, 2009 from 8:15 am – 10:15 am

Exam Topics

Below I have listed topics that you need to be intimately familiar with in preparation for the Biology exam. I have listed sections of the text that support the topics. You should look at the text as a source of detailed information, but focus your energy on the details in those sections that are explicitly listed in this guide.

Cellular Respiration: Chapter 7

- Forms of energy: chemical, thermal, kinetic, potential
- The ATP Cycle
- ATP synthase
- Electron carriers (NADH, NADPH)
- The parts of the mitochondria
- Electron Transport Chain – where does it take place, what happens, why?
- Glycolysis - where does it take place, what happens, why?
- Krebs Cycle - where does it take place, what happens, why?
- Cellular Respiration – what is the general purpose? Chemical formula?

Photosynthesis: Chapter 8

- The parts of a chloroplast
- Light Reactions
- Calvin Cycle
- Photosynthesis – what is the general purpose? Chemical formula?
- Carbon cycle

*Look in the Class Page Archives for links to helpful animations for this info.

Cell Cycle & Division: Chapter 9 (9.2 – 9.6)

- Stages of the cell cycle – what happens in each stage?
- Purpose of the cell cycle
- Purpose of mitosis
- Stages of mitosis
- Cancer basics
- Purpose of meiosis
- Stages of meiosis
- Similarities & differences between mitosis & meiosis

*Look in the Class Page Archives for links to helpful animations for this info.

Patterns of Inheritance: Chapter 10 (10.2 – 10.5)

- Gene v. allele
- Dominant and recessive alleles
- Finding probability of a particular phenotype from known parents
- Crossing over of chromosomes during meiosis – how does it happen? What is the influence on variety of offspring?
- Sex-linked genes

DNA: Ch 11 (11.2 – 11.6)

- Nucleotides and complementary base-pairing
- Transcription
- Translation
- Mutations

Pedigrees: Section 12.3

- Be able to draw a family's pedigree
- Be able to recognize dominant inheritance and recessive inheritance in a family

Biotechnology: Dolan DNA Learning Center slideshows online

- DNA extraction technique
- Cycle sequencing technique
- Polymerase Chain Reaction
- Mitochondrial DNA & the search for human origins

Island Biogeography: *Song of the Dodo* p. 17 - 105

- Why are islands good places to study evolution & natural selection?
- What is speciation?
- What is adaptive radiation?
- What is the relationship between island size and evolution?
- What was Darwin's background & personality?
- What was Wallace's background & personality?
- How did upbringing influence each of these scientists' work?
- Choose several prime examples of species that demonstrate adaptive radiation and study them.