**ENVIRONMENTAL SCIENCE FINAL EXAM STUDY GUIDE**

The final exam is worth 20% of your grade.

Study tips:

1. Review all quizzes, tests and labs. Multiple choice and fill in the blank problems will be similar.
2. Review the Chapters listed, looking specifically at the *Key Terms* and *Main Ideas* in the *Highlight* sections found at the very end of each chapter. The page numbers for the location of each *key term* are listed next them. Look these up if you cannot immediately come up with a general description/definition.

**Part 1:**

 The first part of the exam is *42 multiple choice questions* on the following topics:

**Population Dynamics**  9 questions **Chapters 8+9**

-Graphs, how does a population look if it exponentially grows? What if there is a sudden death or drop in the population?

* What are limiting factors that keep a population from growing or enable it to grow?
* When main factors contributed to the rapid population growth in the United States in the past 200 years?
* How is population growth calculated? (Birth rate-death rate)

**Environmental Quality** 19 questions **Chapters 12-13,19 Trash(Ch 14)**

 climate change

 -Global warming? What are main causes?

 - Greenhouse effect? How does it work? Which gases are “greenhouse gases”?

 - What are some effects of global warming?

 acid rain

 -pH?

 - What are the main causes of acid rain?

eutrophication

* What causes poor water quality in lakes and ponds? (specific chemicals)

 air pollution

 -Smog (how does it form?)

 -Ozone depletion

 -How does it affect human health?

 biomagnification

 -How do chemicals end up in large amounts further up the food chain?

 -What are some of the chemicals that tend to bioaccumulate and cause problems for

 humans?

**Biogeochemical Cycles** 8 questions

 hydrologic (water) cycle **Chapter 11**

* How does water recycle itself?
* What are the top three uses of water by humans
* What are some of the ways that we conserve or make more water more available?

carbon cycle **chapter 5**

* Where does the CO2 in the air come from?
* What causes CO2 levels to increase and/or decrease?

**Energy Production** 7 questions  **chapters 17-18**

 fossil fuels,

* What are some types?
* What are the main uses of fossil fuels?
* What are the products of *complete* and *incomplete combustion*?
* Advantages and disadvantages over “green” or renewable energy?

 renewable energy,

* What are considered renewable sources of energy?
* Advantages and disadvantages for wind, solar, hydro and geothermal?

Nuclear

* Pros and Cons?
* How is electricity produced from it?

Electricity

* What are the main components (parts) of an energy plant?

**Part 2:**  Lab questions. This will be very similar to the CAPT-style lab assessments that you took for the Populations (Yeast), Acid-Rain and Solar Cooker labs.

-Be familiar with each of these labs.

**Part 3: Fill in the blank (vocabulary) and Essays**

-I am giving you the free-response questions early (turn sheet over) so that you can prepare responses for your essays ahead of time. **Your final answers to the free-response questions, however, need to be written by you during the exam period.**

*What I am giving you*: **Five** free-response questions to prepare for. Review the relevant material, jot down key points, and then write a response in complete sentences. You might want to put the main ideas on your 3x5 card.

*Exam day*: I will choose **three** of these five to put on your exam. You will answer these three questions on the day of the exam. You can bring a 3x5 notecard with notes that you have written to help write your essays.

**Be prepared to answer three questions from the list below. Answer in complete sentence paragraphs as fully as possible. Each of them will be worth 9 points.**

**1**. Describe the growth of the human population. What type of growth is our population undergoing? Why has our population increased this way? (what ‘advances’ have allowed population growth). What are the consequences of this expanding human population? What countries – developed or developing – exhibit high rates of population growth? Why?

**2**. Describe the greenhouse effect. Is it a natural and necessary process? How is it related to climate change? What human action is causing climate change? What gases contribute to climate change? Provide at least 3 consequences of climate change.

**3.** Describe 3 types of nonrenewable energy and explain how each provides electricity. (yes, turbines and all!)

**4.** Describe 3 types of renewable energy and explain how each provides electricity.

**5**. What do you think the energy policy of the United States should be? In other words, which energy source(s) should the United States focus on to provide electricity to citizens? Explain your reasoning and give examples.