TIPS FOR THIS EXAM: There are a lot of definitions and vocabulary. My advice is to study hard and study often.

1. I strongly recommend that you MAKE FLASHCARDS to study the vocabulary.

2. DRAW PICTURES/DIAGRAMS for everything you can!!!

Prokaryotes and Viruses

1. Review what you learned previously about prokaryotic cells (size, structure, etc). Flagella, cell walls, chromosomes, plasmids, etc.

2. What is the difference between eubacteria and archaea? Where, in general, do you find each type of cell? Give some examples.

3. Describe prokaryotic cell morphology (coccus, bacillus, spirochete, spirillium, vibrio, pleomorphic).

4. What is a sex-pilus and what is bacterial conjugation? What is prokaryotic binary fission? How is it different from mitosis?

5. What is a biofilm and how is it formed? Define glycocalyx, capsules, slime layers. Give examples of where you might find a biofilm.

6. What is normal flora? How is that different from obligate pathogens and opportunistic pathogens? Give an example for each.

7. What are viruses? Describe their overall structure. Describe their morphology (draw a picture) of helical (rod), polyhedral and bacteriaphage viruses.

8. What is a viral envelope? Where does it come from? How does an envelope help a virus gain entry into host cells?

9. Describe, in general, a viral life cycle, including how it gets into the body of the host and how it recognizes, gets into the cells, gets it's genome inside and how it replicates.

10. What is a prion? How is it different form a virus? What diseases are caused by prions?

Protozoans and Fungi

1. Describe the general characteristics of protists. Where do they fit in the domain/kingdom systems? Describe and give some examples of organisms that are protists.

2. Describe and give examples of flagellates, euglenoids, amoeboids, ciliates and algae. What are "red-tide", Giant kelp and diatoms?

3. Describe the general characteristics of fungi. Where do they fit in the domain/kingdom systems? Describe and give some examples of organisms that are fungi.

4. How do fungi obtain nutrients? What are hyphae, mycelium and spores?

5. What are yeast and how do they reproduce? What industrial uses are there for yeast?

6. What do athlete's foot, jock itch and ring worm have in common? What is thrush?

Plants

1. What were the major adaptations made by aquatic plants that allowed them to colonize land and when did this occur?

2. Describe/diagram the evolutionary trends in plants. Describe the extant members of each group including bryophytes, lycophytes, horsetails, ferns, gymnosperms (conifers, ginkos) and angiosperms.

3. Describe or use labeled drawings to show the following structures: Roots, shoots, xylem, phloem, cuticle, stomata, vascular bundles, cotyledons.

4. What is the difference between monocots and dicots? Draw a diagram. Give an example from common vegetables of each.

5. Draw a diagram of a flower and label the carpel, stigma, style ovary, ovule, stamen, anther, pollen, filament, petal, sepal and receptacle.

6. What is a pollinator? Give an example. What is co-evolution in the context of plants and their pollinators?

Parasites – it's a good idea to make flashcards for these…

1. Define each of the following terms: symbiosis, parasitism, mutualism, host, vector and reservoir. Give one example for each term each using the parasites we studied in class.

2. For each of the three general groups of parasites (protozoans, helminthes, ectoparasites), describe their main characteristics and give an example for each.

3. Be able to recognize names of the three protozoan parasites discussed in class. For each describe its method of infection/vector and outstanding characteristics (i.e. pathologies/associated diseases or special needs). *Trypanosomes, Plasmodium, Entamoeba.*

4. What are the three main groups of helminths? Be able to recognize the names the four helminths discussed in class. For each, describe the methods of infection/vector and any special information about the parasite, such as location of infection, symptoms, how it's transmitted, etc. *Enterobius, Ascaris, Fasciolopsis, Echinococcus*

5. Describe the primary characteristics of the ectoparasites discussed in class and give an example of one along with its mode of transmission and associated pathologies. How are infestations of ectoparasites treated?

Metabolism:

1. What is the difference between anabolism and catabolism? Between photosynthesis and cellular respiration, which on is which?

2. A. What is cellular respiration? B. Where does it occur? C. What is the general formula for cellular respiration? What does ATP have to do with cellular respiration?

3. Describe *in general terms* (five or six steps) the process of cellular respiration from glycolysis to the ETC. Focus on the starting materials, the waste generated, the carrier molecules involved and the end products. Be sure to include what happens to glucose, pyruvate, NADH/FADH, H2O, CO2, Oxygen, ATP, electrons, H+ ions.

4. What is fermentation? Under what conditions does it occur?

5. 4. A. What is photosynthesis? B. Where does it occur? C. What is the general formula for photosynthesis?

6. Describe *in general terms* (five or six steps) the process of photosynthesis from the ETC to the Calvin Benson Cycle. Focus on the starting materials, the waste generated, the carrier molecules involved and the end products. Be sure to include what happens to sunlight, NADH/FADH, H2O, CO2, Oxygen, ATP, electrons, H+ ions.

7. What is the difference between the so-called "light reactions" and the "dark reactions" of photosynthesis?

Animals: This part of the study guide should be written on flashcards.

Echinoderms – Porifera – Cnidarians – Mollusca – Nematoda – Platyhelminthes – Chordata – Arthropoda – Annelida

1. List the 9 major phyla of animals studied in class. For each give a brief description of the phyla and a couple examples of the animals found with it.

Some examples of the type of questions you will find on the exam are belew? Answer each one

2. Which phyla:

a. are all marine? (3)
b. are the roundworms?
c. has the most species?
d. has a foot and a mantle?
e. has the flatworms?
f. is the sponges?
g. has polyps, medusa and stingers?
f. includes the spiders and scorpions
g. has 5-point radial symmetry and bony plates
h. eats by filtering water through collar cells
i. has a endoskeleton
j. includes the octopus and nautilus
k. includes earthworms and leeches
l. includes the flukes and tapeworms