

## Preparing for the Snow College BIOL1010 Final

The final consists of 100 questions on the following:

1. Know all of the different phases of mitosis and meiosis. Be able to identify and label pictures of each phase in both mitosis and meiosis.
2. Know the major divisions of plants starting with the most primitive to the most advanced.
3. Know all of the divisions of the Kingdom Fungi.
4. Know specific characteristics all the Kingdoms.
5. Know the characteristics of animals (what makes something an animal?). Know the different body plans.
6. Know something about the old time scientists like Darwin, Malthus, Mendel, and Linnaeus.
7. Be able to do a heterozygous dihybrid cross.
8. Know basic genetic terms such as homozygous, heterozygous, law of segregation, recessive, dominant, alleles, genes, loci, etc.
9. Know photosynthesis and cell respiration inside and out. What goes in and what comes out of these two systems.
10. Know the steps of the HP method including null hypothesis (intervention has no effect).
11. Know basic chemistry and atomic theory.
12. Know about trophic levels and what happens to energy at each level.
13. Know about acids and bases and the log rhythmic scale.
14. Know the basic parts of a cell and be able to label internal parts.
15. Know the parts of a cross section of a leaf.
16. Know evolution terms including vestigial structures, directional selection, genetic bottleneck, genetic drift, natural selection, prezygotic, postzygotic, etc.
17. Know the characteristics of each of the major biomes.
18. Be able to explain and understand the process of translation and transcription. Be able to read and use the mRNA Table.
19. Answer an essay question (worth 10 points). Common topics include Abortion, AIDS vaccine, the use of DDT, ecosystem destruction, etc.
20. Know the difference between C3 and C4 plants.
21. Name the different types of macromolecules and examples of each.
22. Know the Hardy-Weinberg equation and how it works. Know the Hardy-Weinberg assumptions. Be able to calculate  $p^2$ ,  $2pq$ , and  $q^2$ .
23. Know how to build and read a dichotomous key and know the basics of Taxonomy including the different taxa. Understand the concept of phylogeny.
24. Know the three domains and how the six kingdoms fit under them. Know how the domains are related to each other (Archaea and Eukarya more closely related than Bacteria).
25. Know Koch's postulates and how they are applied in understanding disease.

From previous experience, the hard part of the final is not just the material presented, but the format of the test. It has several strange problems regarding how the multiple choice questions are laid out. Make sure students watch out for long answers (a-j), fragmented questions, and opposites (all of the following EXCEPT). Tell them to take the essay very seriously, because they could get below 60% on the multiple choice but still pass the exam if they get their 10% on their essay question. Tell them not to BS on the essay, but to write clear and concise statements. It is not necessary to write a novel. Usually just a few clear paragraphs will answer the question.