Chapter 8 Study Guide

# Important Ideas

* Cell division plays important roles in all three domains. (Modules 8.1-8.2)
* The cell cycle of eukaryotes produces two genetically identical cells and when out of control, can result in cancer. (Modules 8.3-8.10)
* Eukaryotes can use sexual methods of reproduction. (Chapter 8 Modules 8.11-8.23)

Learning Objectives

***NOTE: Most of Chapter 8 will be covered in laboratory, not lecture, but you will be responsible for this material on the lecture exam.***

Upon successful completion of **Chapter 8** you will be able to

1. Briefly describe three functions of mitotic cell division.
2. Compare and contrast cell division in prokaryotes and eukaryotes.
3. Name two main biochemicals that comprise chromosomes and state the function of each.
4. Define and recognize examples of the following terms: chromatin, sister chromatids, centromere, and duplicated chromosome.
5. Describe, draw, or label a diagram of the structure of an unduplicated and duplicated eukaryotic chromosome.
6. Describe the stages of the eukaryotic cell cycle and recognize drawings or micrographs of each. Include interphase (G1, S, and G2), mitosis (prophase, metaphase, anaphase, and telophase), and cytokinesis, and indicate in which stages the chromosomes are unduplicated and those in which they have been duplicated.
7. Given the chromosome number of cell, diagram and label mitotic division including prophase, metaphase, anaphase, and telophase.
8. Compare and contrast the process of cytokinesis in typical animal and plant cells.
9. Describe a model of the mechanism that cell controls division.
10. Predict the possible consequences of errors that occur in the cell cycle.
11. Compare and contrast sexual and asexual reproduction and indicate which two processes are found in all sexual life cycles.
12. Define and recognize examples of the following terms: homologous chromosomes, haploid, diploid