

Learning Objectives

1. Synthesize material learned throughout this course and apply it to biological problems
2. Explain and understand the significance of systems biology, bioinformatics and the cooperative culture of modern biology
3. Apply the concepts of modern genetics to biological problems
4. Analyze questions related to cell cycle, mitosis and meiosis
5. Analyze and apply your knowledge of DNA transcription process, mRNA translation, and protein modifications
6. Apply concepts of descent with modification to biological problems
7. Demonstrate a knowledge of the components of a cell (organelles, membrane, extra-cellular matrix)
8. Demonstrate knowledge of basic general chemistry concepts and organic chemistry concepts
9. Apply knowledge of glycolysis, the citric acid cycle, the electron transport chain, the Calvin cycle and photosynthesis to biological problems
10. Demonstrate a knowledge of modern biological techniques used in laboratories

Ask Yourself

1. Do you know all of your roots and word definitions from the chapters covered in this course? If not you should either use Mastering Biology study section or make your own flash-cards to know and understand basic terminology.
2. Can you apply the concepts learned in this course to biological problems? Hint: try testing yourself by answering the Self Quiz questions at the back of each chapter and by taking the practice questions and tutorials available in Mastering Biology.
3. Can you look at DNA, or RNA triplets and determine which amino acids will be added? Do you understand DNA replication, how the direction of 5'→3' is important? Why are primers needed during DNA replication in the replication bubble? What proteins and enzymes are involved in DNA replication?
4. Do you know all of the organelles of the cell and their function/location? Do you know all of the steps of mitosis and meiosis? How they are similar and how they are different?
5. Do you know how the concepts learned in this course apply to human biology and health? Do you know the citric acid cycle, glycolysis, calvin cycle and photosynthesis steps by heart? Can you draw them or list the steps on a blank piece of paper? Can you answer multiple choice questions on these topics?

Good luck and keep studying!

**This study guide is a supplement to study guides previously distributed throughout this course.