Overview

Molecular and Cellular Biology provides undergraduate students seeking initial licensure or endorsement in secondary science education with an introduction to the area of molecular and cellular biology. This course examines the cell as an organism, emphasizing molecular basis of cell structure and functions of biological macromolecules, subcellular organelles, intracellular transport, cell division, and biological reactions. A prerequisite for this course is Introduction to Biology.

Competencies

- **Biological Laboratory Techniques**
  The graduate applies basic laboratory techniques to examine biological processes and reactions.

- **mRNA and Protein Synthesis**
  The graduate distinguishes the steps involved in the synthesis and processing of mRNA and protein to analyze their purpose in cell function.

- **Biological Macromolecules**
  The graduate analyzes the structure of biological macromolecules to determine their function within a cell.

- **Metabolism**
  The graduate examines chemical principles, enzymes, biochemical pathways, energy flow, and cellular environments to analyze cellular metabolism.

- **Cell Cycle**
  The graduate examines the processes within the cell cycle in order to recognize their impact on growth and development.

- **Cell and Virus Structure and Function**
  The graduate examines cells, organelles, viruses, and vaccines to analyze their structure and function in biological systems.

Learning

**Getting Started**

Welcome to Molecular and Cellular Biology! This course uses the Cengage MindTap platform, which involves reading and problem solving. In MindTap are textbook readings, articles, videos, and activities, which provide
Feedback and additional resources to concepts you need to know in order to be successful in this course.

Additionally, you will complete laboratory experiments from Hands-On Labs, which gives you the opportunity to examine and practice concepts learned. Course instructors are available to answer questions and discuss concepts covered in the course. Competency will be demonstrated by the successful completion of both an objective assessment and a performance assessment.

If you have not done so within a previous course, you will need to order your Biological Science LabPaq from Hands-On Labs. This LabPaq is a physical shipment and contains equipment and supplies needed to complete science experiments at home. The experiments reinforce the science content and teach laboratory techniques. The cost of the LabPaq is covered by your program lab fee.

Follow these instructions to order the Biological Science LabPaq. If you have ordered and received this LabPaq within a previous course, then there is no need to order another. Delivery of your LabPaq takes about 5–7 business days, so please order your LabPaq 1–2 weeks before starting your course to ensure you will have the supplies you need to complete the experiments. The contents of this LabPaq are used in four courses within your program: Molecular and Cellular Biology, Heredity and Genetics, Zoology, and Ecology and Environmental Science.

Assessments

- **Preassessment: Molecular and Cellular Biology**
  - Status: Not Attempted
  - # of Items: 46
  - Time Alotted: 150 minutes
  - Code: PKZO

- **Objective Assessment: Molecular and Cellular Biology**
  - Status: Not Attempted
  - # of Items: 46
  - Time Alotted: 150 minutes
  - Code: KZO1

- **Performance Assessment: Molecular and Cellular Biology**
  - Status: Not Attempted
  - Code: KPP1
A score of Competent or Exemplary is required to pass all assessments. Passing a preassessment does not guarantee you will pass the high stakes assessment.

On objective assessments, you will be charged a retake fee for the third attempt and every attempt thereafter. For more information click here.

Course Information

Teaching Dispositions Statement
Pacing Guide

Course Instructor

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