Anoka-Ramsey Community College

BIOL 2208: Cell Biology

A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 3

Lab Hours/Week: 3

OJT Hours/Week: *.*

Prerequisites:
This course requires both of these prerequisite categories
1. One of these two
   BIOL 1106 - Principles of Biology I (Minimum grade: 2.0 GPA Equivalent)
   A score of 3 on test Advanced Placement Biology
   And
2. BIOL 1107 - Principles of Biology II (Minimum grade: 2.0 GPA Equivalent)

Corequisites: None

MnTC Goals: Goal 03 - Natural Science

(MnTC Goal 3)

Prerequisites: This course requires these prerequisites with a minimum grade of C: BIOL1106 or equivalent, AND BIOL 1107 (or consent of instructor)

Recommended Skills, Abilities, or Coursework: BIOL 2202 strongly recommended

Introduction to the fundamental molecular mechanisms that control cellular function. The course will focus on major aspects of cell biology including intracellular trafficking of proteins and membranes, cell signaling, the cytoskeleton, cell adhesion, cell cycle, stem cells and the role of oncogenes and tumor suppressor genes in cancer. This course has three lecture hours and three laboratory hours per week.

B. COURSE EFFECTIVE DATES: 08/25/2008 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Molecular level cytoplasmic physiology including membranes and their proteins, biomolecule trafficking within the cell, signaling mechanisms between cells, adhesion, matrix proteins, and motility
2. Cellular communication/signaling within and between cells
3. Structure, composition, and functions of the major organelles of the eukaryotic cell
4. Selection and application of microscopy methods
5. Tissue preparation for microscopic study and data collection
6. Structure and function of tissues and the cells that make them
7. Histopathology of tissues within organs
8. Apply scientific method to solving cell biology queries
9. Current issues in cellular biology

D. LEARNING OUTCOMES (General)

1. Explain and apply fundamental concepts found in General Biology I by explaining cellular life in terms of the biomolecules used by cells
2. Understand the underlying molecular and cellular mechanisms of cellular structure and function
3. Use critical thinking skills to understand, evaluate, and analyze processes of membrane structure and function, trafficking of molecules, the endomembrane system, signal transduction pathways, extracellular matrix, and the cell's cytoskeleton/motility
4. Formulate a hypothesis, and conduct and analyze an experiment
5. Organize, draft, edit, and revise formal scientific writing
6. Read, interpret, incorporate, and cite information and ideas from primary literature both orally and in writing
7. Utilize and understand the application of selected biotechnologies

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

Goal 03 - Natural Science

1. Demonstrate understanding of scientific theories.
2. Formulate and test hypotheses by performing laboratory, simulation, or field experiments in at least two of the natural science disciplines. One of these experimental components should develop, in greater depth, students' laboratory experience in the collection of data, its statistical and graphical analysis, and an appreciation of its sources of error and uncertainty.
3. Communicate their experimental findings, analyses, and interpretations both orally and in writing.
4. Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted