

**I. COURSE INFORMATION**

- A. Biology 150 Biology I (cellular)
- B. 5 credit hours
- C. Freeman, Quillin, Allison, Black and Podgor. *Biological Science*. 7<sup>th</sup> ed. New York: Pearson, 2020
- D. Prerequisites: Eligible for COL101 English Composition I or completion of COL101
- E. KRSN: BIO 1020 Biology I for Majors with Lab

The learning outcomes and competencies detailed in this course outline or syllabus meet or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Groups project for this course as approved by the Kansas Board of Regents.

**II. COURSE DESCRIPTION**

Biology I (cellular) is an integrated lecture and laboratory course for students planning to take additional courses in biology or biology majors. The course covers the fundamental concepts of biology as they apply to all living things. The major areas include basic biochemistry, cell structure and physiology, cellular metabolism, and Mendelian and molecular genetics.

**III. LEARNING OUTCOMES**

- A. Demonstrate an understanding of the nature of science
  - a. Scientific processes
  - b. Scientific methods
- B. Demonstrate an understanding of the levels of organization and emergent properties of life
  - a. Basic biological chemistry
  - b. Structure and function of biological molecules
  - c. Cellular Structure and functions
- C. Demonstrate an understanding of bioenergetics
  - a. Enzyme activity
  - b. Cellular respiration
  - c. Photosynthesis
- D. Demonstrate an understanding of cellular reproduction
  - a. Binary fission
  - b. Mitosis
  - c. Meiosis
- E. Identify the basic principles of Mendelian and molecular genetics, and relate these to the basic principles of Natural Selection and evolution
  - a. Classical genetics
  - b. Molecular genetics
    - i. DNA replication
    - ii. Gene expression and regulation
- F. Design and perform experiments in a laboratory setting
  - a. Microscopy
  - b. Quantitative measurement skills incorporating the metric system
  - c. Analytical and statistical skills including presenting and/or interpreting graphs and tables
  - d. Experience with living organisms in the laboratory

**IV. MAJOR CONTENT AREAS**

- A. Scientific method
- B. Chemical basis of life
- C. The cell
- D. Bioenergetics
- E. Cellular reproduction
- F. Genetics

**V. ASSIGNMENTS** (may include but are not limited to)

- A. Assignments
- B. Laboratory activities
- C. Quizzes and exams

**VI. EVALUATION METHODS** (may include but are not limited to)

- A. Lecture and lab exams
- B. Projects and lab exercises
- C. Assignments
- D. Quizzes and exams