

**J. Sargeant Reynolds Community College
Course Content Summary**

Course Prefix and Number: BIO 101

Credits: 4

Course Title: General Biology I

Course Description: Focuses on foundations in cellular structure, metabolism, and genetics in an evolutionary context. Explores the core concepts of evolution; structure and function; information flow, storage, and exchange; pathways and transformations of energy and matter; and systems biology. Emphasizes process of science, interdisciplinary approach, and relevance of biology to society. Part I of a two-course sequence. Prerequisite: Completion of ENF 2 and MTH 1-3, if required by placement test. Lecture 3 hours. Recitation and Laboratory 3 hours. Total 6 hours per week.

General Course Purpose: This course is designed to meet the requirements of a transfer course in a science major's curriculum at a four-year college or university.

Course Prerequisites and Co-requisites:

Prerequisite: Completion of ENF 2 and MTH 1-3, if required by placement test

Student Learning Outcomes:

Upon completing the course, the student will be able to

- a. List characteristics of life and give examples of each;
- b. List the major kingdoms into which we group organisms;
- c. Define evolution and briefly state Darwin's contribution to this theory;
- d. Define and be able to apply the following terms: observation, theory, law, controlled experiment, hypothesis, facts, and scientific method;
- e. Explain the limitations of science;
- f. Demonstrate the proper use of a microscope;
- g. Name the standard metric units for length, mass, volume, and temperature;
- h. Describe the central role of carbon and the importance of its bonding characteristics to living organisms;
- i. Describe the origin of the earth and how the early environment led to the beginning of living organisms; and
- j. List three sources of inheritable variation.

Major Topics to Be Included:

- a. Introduction to chemistry
- b. Cell morphology, physiology, and reproduction
- c. Introduction to metabolism, cellular respiration, and photosynthesis
- d. Genetics and the Central Dogma
- e. Evolution

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