

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

Course Prefix and Number: BIO 270 **Credits:** 3

Course Title: General Ecology

Course Description:

Studies interrelationships between organisms and their natural and cultural environments with emphasis on populations, communities, and ecosystems. Prerequisites: Any two of the following prerequisites: BIO 101, BIO 102, BIO 110, BIO 120. Lecture 3 hours. Lab and recitation 3 hours. Total 6 hours per week. 4 credits.

General Course Purpose:

This is a one semester course designed to build upon the student's understanding of the basic principles and concepts of ecology attained in prerequisite courses. It serves as a lab science option. It is intended to prepare students for majors level coursework in ecology and evolution.

Course Prerequisites/Corequisites:

Any two of the following prerequisites: BIO 101, BIO 102, BIO 110, BIO 120

Quantitative reasoning

Perform accurate calculations, interpret scientific data and graphs, and use results to support conclusions.

Analyze data collected through experiments in lab. Present and discuss the findings and conclusions derived from data, with chart/spreadsheet and graphs.

Use mathematical models to simulate ecological interactions and make predictions.

Interpret graphs and tables generated by the models.

Critical thinking

Discriminate among degrees of credibility, accuracy, and reliability of inferences drawn from given data. Determine when conclusions are supported by the information provided.

Introduction to Ecology and Evolution

Explain science as a way of knowing about the world. Compare and contrast ecology, environmental science, and environmentalism.

Explain how ecologists using scientific methods to study the world at different levels of interaction.

Explain the general trends in the physical environment on Earth (e.g., latitude, elevation, seasons, convection currents).

Compare and contrast the major terrestrial and aquatic biomes found on Earth.

Explain the concept of a niche.

Compare and contrast different modes of evolution.
Explain how mathematical models can be used by ecologists.
Use the Hardy-Weinberg principle to determine whether a population is evolving

Physiological and Behavioral Ecology

Explain the difference between conformers and regulators, including advantages/disadvantages of each approach.
Compare and contrast the ways organisms deal with temperature.
Compare and contrast the ways organisms deal with water availability.
Compare and contrast the ways organisms deal with energy availability.
Compare and contrast the ways organisms deal with nutrient availability.
Compare and contrast the ways organisms interact socially.

Population Ecology

