

Northwest Arkansas Community College
(Science and Mathematics Division)

Discipline Code

BIOL

Course Number

1544

Course Title

Principles of Biology I

Catalog Description

An introductory college-level course that surveys various levels of organization from atoms to biomes. The course introduces students to basic principles that provide a background for understanding biological issues in society and a foundation for further study. Topics of study include the scientific method; the chemistry of life; cell structure & function, metabolism, cell reproduction, genetics, DNA structure & function, evolution, basic ecological principles. Three hours lecture and three hours laboratory weekly.

Prerequisites

None

Credit Hours

4 credit hours

Contact hours

45 lecture contact hours; 45 lab contact hours

Load hours

5 load hours

Semesters Offered

Fall, Spring & Summer

ACTS Equivalent

BIOL1014 Biology for Majors

Grade Mode

A-F

Learning Outcomes

Students completing this course will:

- Demonstrate college-level knowledge of cell structure and function, and the chemistry of life.
- Demonstrate college-level knowledge of the inheritance of genetic traits, the relationship between

genetics and evolution, and genetic technology.

- Describe the interdependence of organisms and their environment.
- Describe connections between course content and personal, community and global issues.
- Develop a hypothesis, gather and analyze data, draw conclusions, and present findings in a written form.

General Education Outcomes Supported

- Students develop higher order thinking skills.

Standard Practices

Topics list

- Scope & Science of Biology
- Chemistry of Life
- Cell Structure & Function
- Metabolism: Photosynthesis & Cellular Respiration
- Reproduction & Genetics
- DNA & Gene Activity
- Basics of Evolution
- Principles of Ecology

Learning activities

- Courses must, at a minimum, cover the core learning outcomes for each topic.
- Lab safety orientation and enforcement of safety protocols is the responsibility of each faculty. Scoring 100% on a mandatory department-provided lab safety quiz is required before students may participate in lab.
- Laboratory exercises should include cellular building block and nutrients, microscopy and the cell, diffusion, osmosis, tonicity, functional proteins (enzymes), photosynthesis, mitosis, mendelian and human genetics, DNA isolation and fingerprinting, and population genetics and natural selection.

Assessments

- Student writing should be an element of student learning. Lab reports should be used as part of grading.
- Midsemester evaluation of scientific method proficiency.
- Course material proficiency assessment given at the conclusion of the semester.

Grading guidelines

- Lab activities/exams should comprise approximately 25% of the overall grade.

Revision Date

April 29, 2021