SECTION HEADING

BIOL 1110: Principles of Biology I

Description

Principles of Biology I investigates fundamental principles of biology with special emphasis on the composition of living things and living systems, the chemistry of living things, natural selection, cell biology, metabolism emphasizing bioenergetics and biosynthesis, the cell cycle, and genetics. This course includes a lab.

Credits

4

Prerequisite

STSK 0090 or placement by multiple measures

Corequisite

None

Topics to be Covered

1. Characteristics of Life
2. Chemistry of living things
3. Cell structure and function
4. Biological Membranes
5. Tissues form and function
6. Energy and Metabolism
7. Cellular respiration
8. Photosynthesis
9. DNA replication
10. Transcription and translation
11. Mitosis/meiosis
12. Patterns of inheritance
13. Mendelian genetics
14. Human Genetics/Genome
15. Evolution
16. Taxonomy

Learning Outcomes

1. Formulate and test hypotheses by performing experiments including collecting & analyzing data, identifying sources of error, and communicating results.
2. Identify organic molecules and their function.
3. Describe and illustrate different types of cells, list the organelles, and summarize their functions.
4. Diagram and explain cellular respiration and photosynthesis.
5. Summarize the processes of DNA replication, transcription and translation.
6. Compare and contrast the phases of mitosis and meiosis and outline the details of each phase.
7. Demonstrate various patterns of inheritance and apply that knowledge to the human genome.
8. Examine the theory of evolution.

Credit Details

Lecture: 3

Lab: 1

OJT: 0

MnTC Goal Area(s): Goal Area 03 - Natural Sciences

Minnesota Transfer Curriculum Goal Area(s) and Competencies

Goal Area 03: Natural Sciences

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.