BIOL 115 Principles of Biology

Credit Hours: 4

Scheduled hours per week

Lecture: 3
Lab: 2
Field
Experience:

Catalog Course Description: An introductory biology course that presents basic principles of modern biology. In combination with the accompanying laboratory (BIOL 115L), the course represents the first in an integrated sequence required of biology major transfer students; students who elect biology as a minor in the Multidisciplinary studies BA degree program; or to fulfill the general education requirement in science. Students must register for both a lecture section and a laboratory section.

Pre-requisites: CHEM 115

Co-requisites: CHEM 115

Course Learning Outcomes (CLO):

1. Describe the scientific method. Design and execute experiments. Analyze data and draw conclusions
2. Describe the structure of atoms and molecules and how they interact in biological systems.
3. Identify the cell as an example of a biological system, its specific organelle structures and their respective functions.
4. Describe the structure and function of enzymes and their roles in biological systems.
5. Describe the pathways that produce energy in cellular respiration and fermentation.
6. Describe the pathways that capture energy and produce carbohydrates in photosynthesis.
7. Describe the structure and function of nucleic acids.
8. Characterize and compare the mitotic somatic cell cycle to that of the meiotic formation of gametes.
9. Describe inheritance patterns and be able to analyze and solve genetics problems.
10. Describe how modern biotechnological techniques are applied.
11. Explain why evolution is the central theme in biological science and shaped life on earth.

CLO Assessment Methods:

- Direct methods - Lab Activities, Tests, Quizzes, Written papers
- Indirect methods – course evaluations

Topics to be studied:

- Characteristics of living organisms
- The nature of science
- Basic chemistry and biochemistry
- Cell structure and function
- Energy flow from cells to ecosystems
- Cellular respiration and fermentation
- Photosynthesis
- Cellular and organismal reproduction
- Patterns of inheritance
- DNA structure and function
- Gene expression
- Biotechnology

- Evolution and biodiversity

Relationship of Course to Program Learning Outcomes (PLO) or Institutional Learning Outcomes:
Check if approved as: X Foundational Learning Course □ Reinforcement Learning Course

Special requirements of the course:

None

Additional information:

None

Prepared by: Joel Farkas

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