

BIOL 115 Principles of Biology**Credit Hours:** 4**Scheduled hours per week**

Lecture: 3

Lab: 2

Other: 0

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:**

- Describe the structure of atoms and molecules and how they interact in biological systems.
- Identify the cell as an example of a biological system, its specific organelle structure and their respective functions.
- Describe the structure and function of enzymes and their roles in biological systems.
- Explain the processes of cellular respiration and photosynthesis.
- Describe the structure and function of nucleic acids.
- Characterize and compare the mitotic somatic cell cycle to that of the meiotic formation of gametes.
- Describe inheritance patterns and be able to analyze and solve genetics problems.
- Describe how modern biotechnological techniques are applied.
- Critically read and evaluate scientific literature
- Write a scientific paper in the standard format

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 or Discipline Learning Outcomes:

Relationship of Course to Science Learning Outcomes:	
Students will learn the process and reasoning behind the Scientific Method and be able to conduct experiments that meet the requirements of the model.	X
Students exhibit the basic safety-related rules and regulations of working in the lab.	X
Students be able to recount the basic safety tenants associated with a specific scientific discipline.	X
Students will become proficient at Science Writing.	X
Students will recognize and identify the applications of their specific discipline in the 'real world.'	X
Students will accurately recount important milestones in the history of scientific inquiry in their discipline.	
5/3/2016	

Relationship of Course to General Education Learning Outcomes:	
Composition and Rhetoric Students illustrate a fundamental understanding of the best practices of communicating in English and meet the writing standards of their college or program-based communication requirements.	X
Science & Technology Students successfully apply systematic methods of analysis to the natural and physical world, understand scientific knowledge as empirical, and refer to data as a basis for conclusions.	X
Mathematics & Quantitative Skills Students effectively use quantitative techniques and the practical application of numerical, symbolic, or spatial concepts.	X
Society, Diversity, & Connections Students demonstrate understanding of and a logical ability to successfully analyze human behavior, societal and political organization, or communication.	
Human Inquiry & the Past Students interpret historical events or philosophical perspectives by identifying patterns, applying analytical reasoning, employing methods of critical inquiry, or expanding problem-solving skills.	
The Arts & Creativity Students successfully articulate and apply methods and principles of critical and creative inquiry to the production or analysis of works of art.	
5/3/2016	

Special requirements of the course:

None

Additional information:

None

Prepared by: Joel Farkas

Date: 10/20/2017