Biology 461 Principles of Evolution

Credit Hours: 3
Scheduled hours per week
Lecture: 3
Lab: 0
Other: 0

Catalog Course Description:
Introduction to biologic evolution, including genetic change, the history and diversity of life, natural selection and other mechanisms of evolution, population studies, speciation, extinction, co-evolution, group behavior, and human evolution.

Pre-requisites: Biol 371, Biol 115, Biol 117 or Biol 101/103/102/104, Chem 115, Chem 116

Co-requisites: none

Course Learning Outcomes:
Upon completion of this course, students will be able to:
- Demonstrate critical thinking skills.
- Use the scientific method to investigate a problem or idea.
- Discuss the importance of experimentation, observation, and accurate data collecting techniques.
- Engage in scientific analysis and interpretation of scientific data.
- Communicate concepts of modern biologic evolutionary theory.
- Analyze erroneous interpretations and misconceptions of evolutionary theory.

Topics to be studied:
- The evolution of the concept of biologic evolution.
- Geologic time and its importance to understanding biologic evolution.
- A review of the basic principles of genetics.
- The origin of life on earth.
- The diversity of life and how it has changed over time, systematics and the tree of life.
- The evidence for evolution of life on earth.
- The concept of natural selection and genetic drift.
- Speciation and the species concept.
- Coevolution – Symbiotic ecological relationships between two or more species.
- Life history strategies.
- The evolution of group behavior for the benefit of the species.
- Human evolution.

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.	

Students be able to recount the basic safety tenants associated with a specific scientific discipline.	
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.	X
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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.	X
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.	
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Special requirements of the course:

None

Additional information:

None

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