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.


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:

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<th>Relationship of Course to Science Learning Outcomes:</th>
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<td>Students will learn the process and reasoning behind the Scientific Method and be able to conduct experiments that meet the requirements of the model.</td>
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<td>Students exhibit the basic safety-related rules and regulations of working in the lab.</td>
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Students be able to recount the basic safety tenants associated with a specific scientific discipline.

Students will become proficient at Science Writing.

Students will recognize and identify the applications of their specific discipline in the ‘real world.’

Students will accurately recount important milestones in the history of scientific inquiry in their discipline.

10/23/2017

**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.

**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.

**Mathematics & Quantitative Skills** Students effectively use quantitative techniques and the practical application of numerical, symbolic, or spatial concepts.

**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.

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**Special requirements of the course:**

None

**Additional information:**

None

**Prepared by:** Holly Martin

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