

# Student Learning Outcomes for Academic Programs

## A.S. in Environmental Science

Catalog Year 2017-18

### General Education Outcomes

1. Communicate effectively through written and oral forms
2. Use analytical reasoning to identify issues or problems and evaluate evidence in order to make informed decisions
3. Reason quantitatively as required in various fields of interest and in everyday life
4. Apply information management and digital technology skills useful for academic research and lifelong learning
5. Discipline specific outcomes: A robust general education is founded on the knowledge, concepts, methods and perspectives that students gain through study of the social sciences and history, the natural sciences, the arts and the humanities. These disciplinary studies stimulate intellectual inquiry, global awareness, and cultural and artistic appreciation; they equip students to make informed judgments and engage with life beyond the classroom.
  - a. Apply concepts and perspectives from history or the social sciences to examine the formation of ideas, human behavior, social institutions, or social processes and to make informed judgments
  - b. Apply concepts and methods of the natural and physical sciences to examine natural phenomena and to make informed decisions
  - c. Apply aesthetic and intellectual criteria to examine or create works in the humanities and the arts and to make informed judgments

### Program Outcomes

- A. Demonstrate understanding of key concepts related to environmental topics
  - a. Explain the causes and consequences of key environmental problems, including air pollution, water pollution, soil degradation, global climate change, and species extinctions.
  - b. Explain and evaluate efforts to solve environmental problems. (ex: bioremediation, restoration ecology, conservation biology)An
- B. Make ethical judgments while recognizing multiple perspectives, as appropriate in the program of study
- C. Work collaboratively to accomplish learning objectives
- D. Employ scientific methods to study the environment
  - a. Perform and evaluate tests for water, soil and air quality monitoring
  - b. Analyze the microbial ecology of terrestrial and aquatic systems
  - c. Collect and interpret data from a variety of field and laboratory studies
- E. Apply the process of science and scientific research
  - a. Formulate hypotheses
  - b. Design and implement scientifically valid experiments to answer authentic research questions
  - c. Perform accurate data analysis including statistics
  - d. Analyze, interpret and evaluate data and make valid scientific conclusions
- F. Communicate knowledge of Environmental Science topics effectively
  - a. Explain complex environmental science concepts effectively through written and oral communication methods
  - b. Understand and critically evaluate scientific literature
  - c. Understand and describe the role of the scientist in educating others about important topics related to critical environmental issues.
- G. Describe the many career options in Environmental Science and related fields

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