**Course Description**

**Title:**
Introduction to Environmental Science

**Description:**

This course provides students with a comprehensive overview of environmental science from basic principles and concepts to current global environmental issues and conservation efforts. The natural environment impacts human life from basic sustenance (food, water, clothing and shelter) to resources for community and activity (infrastructure, economic growth etc.) A negative impact upon the environment affects the well being of both human beings and other living organisms. This course aims to educate students to understand how natural earth system cycles (biological, geological and chemical) are connected and how human activity has an impact on these cycles at the atmospheric, aquatic and terrestrial levels. This course also educates students on the known causes of environmental problems and strategies that have been implemented to mitigate or solve these problems. Topics discussed include various ecosystems, the importance of biodiversity and sustainable agriculture and water conservation. The impact of human population growth, urbanization and energy consumption in both developed and developing countries is also studied, taking into consideration effects such as air and water pollution. Both national and international laws and programs are also assessed and discussed. This comprehensive introductory course provides a strong foundation in the fundamentals of environmental science. This course can help students determine areas of specialization within the environmental science major or fulfill a physical science requirement at the undergraduate level.

**Learning Objectives:**After completing this course, students will be able to:

* Understand common environmental terms and summarize environmental concerns today caused by human activity.
* Assess different methods used to understand natural environments and human impacts on them, and analyze steps taken to safeguard the environment.
* Explain chemical cycles and their importance in natural selection and evolution.
* Distinguish between different ecosystems and explain how organisms are interdependent in an ecosystem and how changes to the environment affect ecosystems.
* Assess the impact of civilization on forests and grasslands and evaluate how conservation efforts are useful in preserving species and restoration of habitats.
* Assess the factors used in determining species populations, understand why biodiversity is important to maintain and evaluate the reasons that lead to species extinction.
* Evaluate human population growth and demography and analyze its impact on the environment.
* Analyze the effects of urbanizations on the environment in both developed and developing countries.
* Assess techniques used in sustainable agriculture, the use of pesticides and IPM to manage pests and how pesticides can pollute the soil and harm the environment.
* Understand and explain the hydrologic cycle and list sources of water pollution, and evaluate techniques to conserve water.
* Analyze the effects of air pollution on the environment and on human beings, and evaluate methods used to reduce air pollution.
* Explain energy sources in use today and compare alternative sources of renewable energy with non-renewable fossil fuel energy sources, and assess energy conservation methods.
* Understand and describe the concept of waste management, looking at existing programs to reduce the impact of waste.
* Explain and analyze national and international laws and programs in effect to protect the environment, taking into consideration political and economic factors that affect the use of natural resources
* Critically evaluate information and data with scientific principles and to evaluate and debate articles and news on environmental issues.

[Additional Details]

**Course Notes:**
This course, when taken for a letter grade, meets the General Education requirement for Physical Sciences and serves as a core requirement for the Environmental Studies major.

**Recommended Prep:**

This course presumes basic knowledge in some fundamentals of biology, mathematics, earth sciences/physics and chemistry at the high school level.

**Textbooks:**

Environmental Science: Towards a Sustainable Future 12th Edition

by Richard T. Wright and Dorothy F. Boorse

**Department:** Environmental Studies

**Units/Credits:** 4

**Course Component:** Lecture with Powerpoint slides

**Course Level:** Undergraduate students

**General Education:** Physical Sciences

**Divisional/Major Distribution:** Applied Science, Environmental Studies, Ecology