Syllabus

BS 107 Introduction to Environmental Science
4 Credit Hours (Lecture and Lab)
Prerequisites: None
C&I Revision Date: 11/17/2025

Department:

Biology

Course Description:

This interdisciplinary science course is designed to stimulate interest in environmental science, increase awareness of environmental problems, and improve understanding of environmental issues. The focus is on contemporary issues relating to biodiversity and sustainability. Topics include air and water quality, global climate change, environmental toxicants, energy resources, deforestation, overfishing, and endangered species. The course will also examine political and ethical concerns, sociological consequences, and economic impacts. A weekly lab session will offer a variety of experiences that demonstrate the principles, processes, techniques, and technologies of natural environmental systems and solutions.

Course Competencies:

The learning outcomes and competencies detailed in this syllabus meet or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Groups for this course as approved by the Kansas Board of Regents. **(Kansas Regents Shared Number Course and Title: KRSN Course BIO 1040 Environmental Science Lecture and Lab.)**

Upon completion of the course, the student should be able to:

1. Utilize scientific inquiry to make data-informed decisions
2. Explain physical and biological processes that shape the earth
3. Evaluate interconnections between organisms and the environment
4. Examine human interactions and impacts on the environment and natural resources
5. Discuss policies, ethics, and economics in environmental decision making
6. Propose components of a sustainable future
7. Utilize lab and/or field safety practices and proper instrumentation
8. Demonstrate data collection, interpretation, and reporting skills

Course Content:

A. Introduction to Environmental Science
    1. Nature of Environmental Science
    2. Environmental Ethics
B. Environmental Economics and Policy
    1. Approaches and Environmental Implications
    2. U.S. and International Environmental Policy
C. Environmental Systems, Energy, Ecosystems
    1. How Environmental Systems Work
    2. Ecosystems and Biomes
D. Ecology and Evolution
    1. Evolution and Biodiversity
    2. Population and Community Ecology
E. Human Population

    1. Demography
    2. Population and Society
F. Soils, Agriculture, and Food
    1. Soil Degradation and Conservation
    2. Pests and Pollination
    3. Biotechnology, Food and Sustainable Agriculture
G. Toxicology and Environmental Health
    1. Toxic Agents in the Environment and Effects
    2. Hazards to Environmental Health
    3. Risk Assessment and Management
H. Atmosphere, Air Pollution, and Global Climate Change
    1. Atmosphere
    2. Outdoor and Indoor Air Pollution
    3. Global Climate Change and Reducing Emissions
I. Freshwater and Marine Resources
    1. Freshwater Systems, Depletion, and Pollution
    2. Marine Systems, Human Use and Impact
    3. Overfishing and Marine Conservation
J. Biodiversity and Conservation Biology
    1. Global Biodiversity and Benefits
    2. Species Extinction
    3. Conservation Biology and Solutions
K. Land Use, Forestry, Resource Management
    1. Agricultural Land Use
    2. Parks, Reserves, and Wildlands
    3. Cities
L. Nonrenewable Energy Sources and Environmental Impacts
    1. Environmental Impacts of Fossil Fuel Use
    2. Nuclear Power
M. Renewable Energy
    1. Biomass, Hydroelectric, Solar, Wind, Geothermal, Ocean, Hydrogen
    2. Energy Conservation
N. Waste Management
    1. Municipal Solid Waste and Industrial Waste
    2. Hazardous Waste and Wastewater Treatment

Learning Assessments:

Course competencies will be assessed by the use of quizzes, exams, lab reports, assignments, presentations, discussion participation, written summaries, article reviews, and reaction papers.

Instructional Materials:

Textbook: Withgott, J. H. & Laposata, M. (2015). Essential Environment: The Science behind the Stories, (5th ed.). Pearson. ISBN-13: 978-0-321-98457-9

Guidelines for Requesting Accommodations Based on Documented Disability or Medical Condition

It is the intention of Highland Community College to work toward full compliance with the Americans with Disabilities Act, to make instructional programs accessible to all people, and to provide reasonable accommodations according to the law.

Students should understand that it is their responsibility to self-identify their need(s) for accommodation and that they must provide current, comprehensive diagnosis of a specific disability or medical condition from a qualified professional in order to receive services. Documentation must include specific recommendations for accommodation(s). Documentation should be

provided in a timely manner prior to or early in the semester so that the requested accommodation can be considered and, if warranted, arranged.

In order to begin the process all students **must** complete the "Disabilities Self-Identification Form" on our Disability Services website.

This form can also be accessed at the Highland Community College homepage under Students Services/Student Resources/Disability Service or by contacting the Disabilities Coordinator.

A Note on Harassment, Discrimination and Sexual Misconduct

Highland Community College seeks to assure all community members learn and work in a welcoming and inclusive environment. Title VII, Title IX, and College policy prohibit harassment, discrimination and sexual misconduct. Highland Community College encourages anyone experiencing harassment, discrimination or sexual misconduct to talk to report to the Vice President for Student Services, the Human Resources Director or complete an online report about what happened so that they can get the support they need and Highland Community College can respond appropriately.

There are both confidential and non-confidential resources and reporting options available to you. Highland Community College is legally obligated to respond to reports of sexual misconduct, and therefore we cannot guarantee the confidentiality of a report, unless made to a confidential resource. Responses may vary from support services to formal investigations. As a faculty member, I am required to report incidents of sexual misconduct and thus cannot guarantee confidentiality. I must provide our Title IX coordinator with relevant details such as the names of those involved in the incident. For more information about policies and resources or reporting options, please review our Equity Grievance Policy.