

**Hagerstown Community College  
MASTER SYLLABUS DOCUMENT**

**COURSE:** ENV 201

**TITLE:** Fundamentals of Environmental Science I

**INSTRUCTOR:** Dr. Rebecca Beecroft, Dr. Rosemary Nickerson

**SEMESTER/YEAR:** Fall/2017

**COURSE DESCRIPTION:**

ENV 201 is the first semester of an interdisciplinary course in Environmental Science that focuses on the interdependent relationships between the natural world and humans and how those interactions impact and influence the environment and intimately the health and well-being of humans and all living species. It is required for all Environmental Studies majors. This course introduces fundamental concepts in environmental studies, with specific focus on the impact of human society on ecosystem function and biotic interactions. Students explore interactions between humans and earth's biotic resources, examining topics such as ecology and ecosystem conservation, population growth and regulation, sustainable agricultural practices in food production and pest control. Anthropogenic environmental issues such as biodiversity decline, soil degradation and environmental toxicology, and related governmental policies will be explored within a social framework that considers the environmental impacts, the social construct of environmental issues and different points of view.

**Prerequisites:** BIO 113 or CHEM 101 (Successful completion of high school chemistry within the past 5 years is an acceptable substitution for CHM-101).

**TEXTBOOK:** ENVIRONMENTAL SCIENCE: GLOBAL CONCERN

**AUTHOR:** CUNNINGHAM

**ISBN:**

**EDITION:** 13

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**STUDENT LEARNING OUTCOMES:**

1. Exhibit the ability to use core content in the Environmental Science curriculum.
2. Appreciate that Science is a process, a method of learning about the world and that as science changes, the way we understand the world changes too.
3. Demonstrate transfer of information from diagrams and research models to real world settings.
4. General Education: Demonstrate the ability to access, process, analyze and synthesize scientific information.
  - a. Relate a basic core of scientific principles to an open-ended framework
  - b. Demonstrate observational and analytic skills in a structured situation.
  - c. Formulate conclusions based on observations and information.
  - d. Use technology to access scientific information, generate and analyze empirical data, and solve problems.

**COURSE CONTENT OBJECTIVES (at least):**

1. Know that energy conversions underlie all ecological processes.
2. Understand basic chemical and physical processes: Laws of Thermodynamics, Conservation of Mass, etc.
3. Be able to describe the essential components of the rock cycle, the hydrologic cycle and other biogeochemical cycles: Nitrogen, phosphorus, sulfur, carbon, oxygen
4. Recognize that the Earth is one interconnected system that can be divided into major subsystems: Biosphere, hydrosphere, atmosphere, and lithosphere.
5. Be able to identify the defining characteristics of each of the major Biomes of the Biosphere.
6. Be able to describe the unique characteristics of different types of ecosystems.
7. Analyze the interrelationships in ecosystems: Food chains, food webs, predator-prey interactions, competition, symbiosis (mutualism, commensalism, amensalism, and parasitism).
8. Discriminate between hierarchical levels within ecosystems: Individuals, populations, and communities.
9. Explain the growth of populations and the factors that influence them.
10. Be able to analyze trends in human population growth.
11. Develop an in depth understanding of the human-environment connection.
12. Acknowledge that humans alter the natural environment.
13. Explain the effect of human influences on land, including agriculture, urbanization, mining, logging, etc.
14. Recognize the different types of land pollution: Soil degradation (depletion, contamination, erosion), solid waste pollution (non-biodegradable wastes, landfills, etc.), oil spills, radiation leaks, etc.

15. Understand the harmful effects of various chemical, biological and physical agents on living organisms and be able to conduct and draw conclusions from a risk-benefit analysis.
16. Understand the role of sustainable agriculture in promoting food security for a growing human population.
17. Realize that environmental problems have a cultural and social context.
18. Recognize that human survival depends on developing sustainable practices that preserve the natural world.
19. Be able to cite government regulatory policies and environmental legislation related to specific types of pollution and land use.

#### **TOTAL HOURS OF COURSEWORK FOR ONLINE CLASSES:**

To earn one academic credit at HCC, students are required to complete a minimum of 37.5 clock hours (45 fifty-minute “academic” hours) of coursework per semester per credit. Those hours of coursework may be completed through a combination of hours within the classroom and hours outside the classroom. Certain courses may require more than the 37.5 minimum hours of coursework per credit. For this particular class, a 15-week 3 credit class the average student would expect to work 9 fifty-minute “academic” hours per week (or 7.5 hours per week). Some students may need more and some students may need less for this online course.

#### **MINIMUM CLOCK HOURS REQUIRED FOR THIS COURSE**

<b>Component of Course</b>	<b>DIRECT Faculty Instruction In Class/Lab</b>	<b>Student Work Out of Classroom</b>	<b>Total Hours/Semester Outside of Class</b>
<b><i>Lecture</i></b>	<b>37.5 hours</b>		
Quizzes		2 hours/lecture	<b>60 hours/semester</b>
Unit Exams - 4		10 hours/exam	<b>40 hours/semester</b>
Cumulative exam		7 hours/exam	<b>7 hours/semester</b>
Online Assignments		2 hours/week	<b>30 hours/semester</b>
Case Studies - 5		3 hours/case	<b>15 hours/semester</b>
<b><i>Laboratory</i></b>	<b>37.5 hours</b>		
Pre-lab Preparation		1 hour/lab	<b>15 hours/semester</b>
Post-lab Reports		1 hour/lab	<b>15 hours/semester</b>
Unit laboratory quizzes - 4		2.5 hours/quiz	<b>10 hours/semester</b>
Laboratory Final Exam		10 hours/lab exam	<b>10 hours/lab exam</b>
<b>Total</b>	<b>75 hours</b>		<b>202 hours</b>

**Services for students with disabilities:** Students may receive reasonable accommodations if they have a diagnosed disability and present appropriate documentation. Students seeking accommodations are required to contact the Disability Support Services (DSS) office as early as possible. Students may contact a DSS staff member for an appointment at [dss@hagerstowncc.edu](mailto:dss@hagerstowncc.edu) or at 240-500-2530.