

Common Course Outline

ENVS 126

“Hydrospheric Science and Water Quality Management”

3 semester hours

the Community College of Baltimore County

Description

Hydrospheric Science and Water Quality Management

Examines how the global hydrosphere functions and investigates topics such as water composition, dynamics, supply, pollution, legislation, and treatment technologies.

Prerequisite: ENVS 101 or permission of program coordinator

Overall Course Objectives

Upon successful completion of ENVS 126, a student will be able to:

1. Apply the fundamental theory and concepts of hydrospheric composition and dynamics.
2. Demonstrate an understanding of water supply issues, diseases characteristics, pollutants and sources.
3. Comprehend basic water supply, treatment, and water quality assessment technologies and protocols.
4. Interpret physical data as it relates to hydrologic issues.
5. Integrate relevant public policy and economic concerns in problem solving.
6. Evaluate the dynamics of activities within a watershed and anticipate impacts.
7. Express hydrologic conditions in both qualitative and quantitative terms.
8. Explain the ecological processes of the hydrologic cycle.
9. Describe the relationships between regional politics and public policy and water.
10. Contrast the value and effectiveness of hydrologic engineering approaches and relevant public policy.
11. Identify water sources and the management strategies applied to protect raw water resources.
12. Express concepts using the nomenclature of the field.
13. Design problem solving activities.

Major topics

Fundamental Theory and Concepts of the Hydrosphere

Groundwater, Wells, Well Development, Sole Source Aquifer and Well Head Protection

Graded Streams, Stream Dynamics, Channel Hydraulics

Effects of Urbanization, Wetland Functions and Protection

Stormwater Management, Flood Plains, Erosion and Sediment Control

Types of Pollutants and Water Born Diseases

Federal and State Laws and Regulations Governing Water Quality

Water Treatment Technology with an Emphasis on Process Chemistry

Waste Water Treatment Technology with an Emphasis on Process Chemistry

Pollution Protection Practices Including Nonpoint Source Strategies

Alternative Treatment Technologies

Water Quality Assessment Procedures

Course Requirements

Grading procedures will be determined by the individual faculty member but may include written or oral exams, completion of written assignments or papers, and participation in class discussion and group activities.

Other Course Information

ENVS 126 serves as an elective in the A.A.S. degree and certificate programs in Environmental Science and

Technology.

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