

**Common Course Outline**  
**ENVS141**  
**Solid and Hazardous Waste/Material Management**  
**3 Semester Hours**

**The Community College of Baltimore County**

**Description**

Solid and Hazardous Waste/Material Management

Examines current practices, laws and regulations pertaining to solid and hazardous waste management; reviews waste classifications, explores waste generation and treatment technologies, problems in waste management and auditing, and evaluates waste minimization and recycling programs.

Prerequisite: ENVS 101, or permission of program coordinator

**Overall Course Objectives**

Upon successful completion of ENVS 141, a student will be able to:

1. Describe the problems associated with solid and hazardous wastes and land disposal.
2. Define the terms: solid waste, hazardous waste, as they are given in law and the EPA regulations.
3. Describe the similarities and differences in the construction and operation of municipal landfills and a hazardous waste landfills.
4. Analyze and evaluate a waste stream of an organization based on the inputs, processes and outputs.
5. Describe some of the chemistry associated with hazardous materials/wastes. This includes classifying wastes into various hazard categories.
6. Describe the basic theories of movement, mobility, dispersion and natural breakdown mechanisms of organic and inorganic wastes placed in the environment.
7. Describe the responsibilities which generators, transporters and facilities have under the Resource Conservation Recovery Act (RCRA).
8. Describe current treatment and disposal methods and practices for hazardous wastes.
9. Describe issues of waste minimization, reuse, and recycling.
10. Describe the basic outline of the RCRA permitting process of Treatment Storage and Disposal facilities (TSD).
11. Give the distinction biological treatment and bioremediation of contaminated sites.
12. Explain the underground storage tank management system requirements under the UST program of RCRA.
13. Describe the basic OSHA rule with regard to worker health and safety.

**Major Topics**

Municipal Solid Waste Streams and Definitions

Hazardous Materials/Waste Definitions

Industrial Waste Streams

Medical, Biomedical, and Infectious Waste

Chemistry and Toxicology of Hazardous Waste

Laws and Regulatory Framework

Worker Health and Safety

Waste Generation, Pathways, Fates, and Disposition

Waste Treatment Technologies and Methods

Physical Treatments

Chemical Treatment

Waste Water Treatment

Incineration, Landfills, and Recycling

## Waste Auditing and Minimization

### **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 141 serves as an elective in the A.A.S. degree and certificate programs in Environmental Science and Technology. ENVS 141 is offered in both lecture and self-paced formats.

Date Revised: 9/15//00