**BARTON COMMUNITY COLLEGE**

**COURSE SYLLABUS**

**I.    GENERAL COURSE INFORMATION**

 Course Number:          HZMT 1903

 Course Title:               Introduction to Environmental Management

 Credit Hours:              3

 Prerequisites:              None

 Division/Discipline:    Environmental Technology

Course Description: Introduction to Environmental Management provides an overview of the impact of industrial operations on the environment, government regulations controlling industrial activities, and cost-effective business strategies that meet environmental guidelines. In addition, the following topics will be discussed: “green” chemistry and engineering; sustainability; indoor air quality; energy conservation; communicating environment management risks to the public; environmental implications of nanotechnology, environmental ethnics and environmental justice.

**II. INSTRUCTOR INFORMATION**

**III. COLLEGE POLICIES**

Students and faculty of Barton Community College constitute a special community engaged in the process of education. The College assumes that its students and faculty will demonstrate a code of personal honor that is based upon courtesy, integrity, common sense, and respect for others both within and outside the classroom.

Plagiarism on any academic endeavors at Barton Community College will not be tolerated.   The student is responsible for learning the rules of, and avoiding instances of, intentional or unintentional plagiarism. Information about academic integrity is located in the Student Handbook.

The College reserves the right to suspend a student for conduct that is determined to be detrimental to the College educational endeavors as outlined in the College Catalog, Student Handbook, and College Policy & Procedure Manual. (Most up-to-date documents are available on the College webpage.)

Any student seeking an accommodation under the provisions of the Americans with Disability Act (ADA) is to notify Student Support Services via email at disabilityservices@bartonccc.edu.

 **IV. COURSE AS VIEWED IN THE TOTAL CURRICULUM**

This course is a structured learning experience designed for the student who is currently employed in or planning to enter the Environmental Health and Safety field or other related occupation. It is a required course for the Hazardous Materials Management Degree program. Course completion will provide the student with a basic understanding of the Clean Air and Clean Water laws, regulations, and their associated compliance issues.

**V.  ASSESSMENT OF STUDENT LEARNING**
Barton Community College is committed to the assessment of student learning and to quality education. Assessment activities provide a means to develop an understanding of how students learn, what they know, and what they can do with their knowledge. Results from these various activities guide Barton, as a learning college, in finding ways to improve student learning.

Course Outcomes, Competencies, and Supplemental Competencies:

1. Trace the evolution of modern environmental legislation.
2. Outline the creation and history of the EPA, environmental legislation enforced by the EPA and the recent efforts to eliminate the EPA.
3. Outline the provisions and objectives of the Resource Conservation Recovery Act, Clean Water Act, Safe Drinking Water Act, Clean Air Act/Amendments, Water pollution control Act, Emergency Planning and Community Right to Know and Occupational Safety and Health Act.
4. Explain the provisions for attainment and maintenance of the National Ambient Air Quality Standards.
5. Define the term hazardous waste pertaining to the Resource Conservation Recovery Act.
6. Trace the effects of pollutants, air pollution effects on humans, plants and animals; water pollution effects on drinking water and surface water as well as land pollution effects on humans, plants and animals.
7. Trace the causes of ozone depletion in the stratosphere.
8. Detail the Greenhouse effects.
9. Outline the acid rain concerns for Europe and North America.
10. Classify the various sources of pollutants including air, indoor, water and land pollutants.
11. List the air pollution control equipment for particulates and gaseous pollution.
12. Outline the factors to consider when selecting various air pollution control equipment.
13. Explain atmospheric dispersion modeling.
14. Outline the greenhouse effect and the global warming debate.
15. List and explain the classification, causes, impacts and response to air toxics.
16. Outline indoor air quality pollutants such as radon, formaldehyde, volatile organic compounds, combustion gases, particulates and biological contaminants as well as various monitoring methods involved with indoor air quality.
17. Define vapor intrusion (VI).
18. Trace the health effects from chemical VI.
19. Conduct the methods to perform environmental due diligence to evaluate potential VI from soil and ground water contamination.
20. Explain the regulations, sources, health concerns, control measures involved with asbestos.
21. List the factors pushing environmental concerns into international arena.

1. Explain the history of International Organization for Standardization (ISO); its standards development, and how an organization implements ISO 14001 standards.

2. Compare ISO 9000 standards with ISO 14000 standards.

1. Detail the multimedia approach to and application process of Environmental Management.
2. Outline the education and training aspects of the multimedia approach.
3. Outline the major “Water” management issues.
4. Outline the physical and chemical composition of natural water including dissolved minerals and gasses, heavy metals, organic constituents and nutrients.
5. Explain the hydrologic cycle.
6. List the organic, inorganic and microbiological contaminants, radionuclides and disinfectants found in drinking water.
7. List the physical, chemical, biological characteristics of municipal wastewater.
8. Explain the wastewater treatment process including the sources, characteristics and various treatment technologies.
9. Define the term sustainability, its historical perspectives, sustainable development and design considerations, sustainable benchmarking.
10. Define, explain and compare “green chemistry and “green” engineering.
11. Outline the environmental implications of nanotechnology.
12. Explain the positive and negative effects of nanotechnology on the environment.
13. Outline environmental ethics and environmental justice.
14. Explain the effects of inequities of federal environmental legislation.
15. Trace the evolution of modern mainstream environmentalism.
16. Explain the EPA’s Risk Management program.
17. Explain environmental, health and hazard risk assessments.
18. Explain communicating risk to the public.
19. Outline the major “Solid Waste” management issues, including listing the treatment and disposal methods for municipal, medical and radioactive wastes, as well as outlining programs to reduce and dispose of waste and used oil.
20. Explain the techniques with recycling used oil as well as pertinent facts and regulations about used oil.
21. Explain the important procedures with opening and operating a landfill.
22. Explain industrial, hospital and nuclear waste management.
23. List the important steps involved with operating underground storage tanks.
24. Explain the pollution prevention assessment procedures and applications.
25. Explain the economics involved with environmental management.
26. Execute an economic evaluation of a proposed environmental project.
27. Explain how economics plays a role in the passing environmental regulations.
28. Apply energy conservation and applications.
29. Explain the general conservation practices in industry.
30. Conduct an environmental audit.
31. Explain the characteristics of an effective environmental audit.
32. List the elements of an effective auditing program.

**VI.** **INSTRUCTOR EXPECTATION OF STUDENTS IN CLASS**

**VII.** **TEXT AND SUPPLEMENTARY MATERIALS USED IN THE COURSE**

**VIII. REFERENCES**

**IX. METHODS OF INSTRUCTION AND EVALUATION**

**X**. **ATTENDANCE REQUIREMENTS**

**Xl. COURSE OUTLINE**