Prepared by the Department of Natural Sciences & Life Fitness
Date of Departmental Approval: October 7, 2007
Date approved by Curriculum and Programs: September 22, 2008 Effective: Fall 2009

1. **Course Number: ENV122**
   Course Title: The Process of Environmental Management and Decision Making

2. **Description:** This course is an introduction to the process of environmental management and decision-making. It incorporates a modular approach to issues of environmental protection throughout Cape Cod by focusing on wetlands, habitat, land-use planning and conservation. Students explore watershed management and remediation, focusing on wastewater, water supply and storm water issues. Students also learn about environmental, health and safety, focusing on prevention, compliance and environmental mediation and zoning issues.

3. **Student Learning Outcomes (instructional objectives; intellectual skills):**
   Upon successful completion of this course, students are able to:
   - Define environmental management and its complexities.
   - Describe and discuss the environmental decision-making process.
   - Define natural resource protection.
   - List the elements of an ecosystem, including coastal and inland ecosystems and describe the human impact on ecosystems.
   - Explain the role of land in environmental management, including the political, physical, wetland, land use planning and conservation roles.
   - Identify watershed issues including both biological as well as regulatory.
   - Define and list environmental health and safety issues.
   - Explain the role of environmental mediation.
   - Discuss zoning and planning, including the regulatory components as well as planning information and land use planning.
   - Participate in an integrated group exercise on environmental issues.

4. **Credits:** 3 credits

5. **Satisfies General Education Requirement:** No

6. **Prerequisite:** None

7. **Semester(s) Offered:** Fall, Spring

8. **Suggested General Guidelines for Evaluation:** Course grading procedures are detailed on a student handout. In summary, grades will be based on research papers, notebook/journal, and exams.

9. **General Topical Outline (Optional):** See attached.

ENV122. The Process of Environmental Management and Decision Making
Content Outline

A. Introduction/Overview of course, including a demonstration of tools needed to complete the course

B. Natural Resource Protection

Ecosystems

- Elements of ecosystems
- Coastal Ecosystems
- Inland Ecosystems
- Human Impact on Ecosystems
- Examples of Ecosystem modification
- Natural Habitats

The Role of Land

- Political
  - Environmental policies
  - Environmental inventories
  - Environmental laws
  - Environmental analysis
- Physical
  - Topography and slope
  - Land cover
  - Flood planes and wetlands
- Wetlands
  - Introduction to Massachusetts State Wetlands Act
  - Wetland Identification
  - Wetland Interests
- Land use planning and conservation
  - Land Planning and development markets
  - Land Planning and Special Interests
  - Pressures on local planners
  - Managing land use change
  - Land use values
  - Integrating land use values

C. Watershed Management Module

Watershed approach evaluations, hydrologic balances, and nutrient balances, including fecal coliform and pathogen sources

Management roles and interaction of various Town boards, Town departments, regional planning and regulatory agencies, state regulatory agencies, federal regulatory agencies, consultants, environmental advocacy groups, and funding agencies (stakeholders).

Determining regulatory thresholds and limits, and an overview of regulatory statutes and guidance in Massachusetts and on Cape Cod.

Evaluating management and mitigation strategies for:

- Water supplies
- Wastewater treatment
- Stormwater management

Gaining public and regulatory acceptance and approval of feasible solutions

Case studies on Cape Cod and in Massachusetts

Environmental and discharge monitoring, and long-term regulatory compliance

D. Environmental Health and Safety (EHS) Module -

Basic Concepts of EHS
Intro to concepts of integrated facility compliance through EHS
Introduction to the concepts and evolution of Pollution Prevention (P2) and Toxic Use Reduction (TUR)
Introduction to Environmental Management Systems (EMS) approach to facility operation
Environmental Decision-making - a critical thinking approach
Case studies in EHS
Introduction and concepts of team-based facility audits
Audit process
Problem identification and solutions
Compliance and sustainability Issues

Environmental Mediation

Discussion of basic concepts
Mediation vs. Enforcement and Litigation
Group Exercise

E. Zoning and Planning

Local Government Land Use Planning

Four functions of land use planning
Massachusetts State Zoning Enabling Legislation
Zoning Laws
Subdivision Regulations
Town Bylaws

Planning Information

Planning Information Systems
Population
Economy
Land Use
Infrastructure

Land Use Planning

Role of Planners
Role of Elected Officials
Role of Appointed Officials
Interest Groups and other stakeholders
Brownfields Case Study

F. Integrated Group Exercise on Environmental Issues