ENVIRONMENTAL SCIENCE ASSESSMENT PLAN

MISSION STATEMENT

Environmental Science provides an affordable and rigorous program to address the increasing awareness and interest in environmental issues and to meet the increasing demand for environmental scientists both in the Commonwealth and nationally. This is consistent with the Commonwealth's Higher Education mission to "provide accessible, affordable, relevant and rigorous academic programs that adapt to meet changing individual and societal needs for education and employment."

The Framingham State University Mission Statement calls for "…an environment that supports active, collaborative learning" where "… students work closely with faculty to engage significant bodies of knowledge and develop their ability to gather and evaluate information, communicate effectively, think critically, reason quantitatively, and apply information and emerging technologies." The Environmental Science program was developed consistent with this mission statement as well as the needs of the Commonwealth. The emphasis of combining the scientific method with critical thinking and communication skills provides the students with a background for managing natural resources, community planning, and addressing environmental issues in a sustainable manner allowing for responsible citizenship and an improved quality of life in the Commonwealth.

PROGRAM LEARNING OBJECTIVES AND OUTCOMES

Students who complete this program will be able to:

- Evaluate and present scientific data.

  Students will have a working knowledge of basic statistics and appropriate graphing techniques.

  Students will have the functional knowledge required to use Geographic Information Systems for data analysis.

- Understand and apply the scientific method:

  Students will develop testable hypotheses, learn the importance of careful experimental design, and carry out experiments.

- Integrate information across disciplines.

Students will be able to use information from their core courses to complete their advanced courses. They will apply information from a variety of core courses in their capstone experiences either through independent research or an internship.

- Develop familiarity with the scientific information underlying environmental issues.

  Students will learn basic principles of biology, ecology, chemistry, and geology that underlay environmental issues. They will learn to recognize ecosystem types and identify a variety of organisms found in New England.

- Understand how environmental policy is developed. Students will be able to apply legislations and regulations governing environmental policy in case studies used in advanced courses and in capstone experiences.

- Understand the planning and review process.

  Students be able to evaluate proposed residential and commercial developments and apply appropriate strategies necessary to achieve sustainability.

  Students will be able to interpret engineering plans and apply environmental regulations to proposals.

  Students will be able to demonstrate that they understand the planning cycle and develop skills in resource management and conservation.

- Communicate scientific and technical information to the public.

  Students will be able to write lab reports and summaries to develop technical writing skills. Students will be able to demonstrate writing and speaking skills necessary to translate scientific information to the public.

- Understand and apply geographical methodologies and techniques.

  Students will learn properties of geographical data, levels of measurement, measures of spatial distribution and analysis, and the interpretation and processing of aerial photographs and satellite images.

ASSESSMENT PLAN

- The assessment of the Environmental Science program has been the joint responsibility of the program coordinator and the Environmental Science Curriculum Committee. The Committee consists of two members from

the Biology faculty, two members from the Geography faculty, and one member from the Physics and Earth Science faculty.

- Each semester the Coordinator and Committee conduct a progressive review of curriculum and of course syllabi to ensure that program goals are met.

- Each Environmental Science major will be evaluated during each semester to ensure that the student is progressing in the interdisciplinary program and that the program is adapting to fulfill the needs of the students. This evaluation is measured by the Coordinator and the Committee through the series of methods discussed below and is evaluated on a scale of 1 to 5 for the various objectives and outcomes. This evaluation taken in total will supply the evidence for future changes to the current curriculum and policy.

- In the students first and second year they are asked to maintain a portfolio for each year consisting of a work from the various disciplines (i.e. lab report, writing assignment, policy analysis, etc). At the end of spring semester, the portfolios are reviewed by the Coordinator and members of the Committee to evaluate strengths and weaknesses in the curriculum as it applies to the learning outcomes and goals.

- In year three students include the Comprehensive Energy Plan from Resource Management is added to their portfolio. This is a major writing assignment that focuses on critical thinking, imaginative thought, effective advocacy, as well as the ability to articulate both orally and in writing on a scale of 1 to 5.

- In year four the students add their capstone experience to their portfolio. The capstone consists of either an internship or thesis. The problem statements, as well as project proposals, are reviewed by the Environmental Science Committee and students are not allowed to proceed until they have satisfied the concerns of the Committee. Each student submits a final paper of their capstone experience and gives a public presentation of their work.

- Each semester students are interviewed by the coordinator during the advising period to evaluate the student’s progress and expectations, as well as to solicit the student’s views as to the strengths and weaknesses of the curriculum.

- Students enrolled in the program are also surveyed in alternate years to assess availability of appropriate courses, suitability of course requirements, and overall program satisfaction.

- Graduates have an exit interview and alumni are surveyed by the Coordinator and the Committee Chair to determine whether the program provides adequate preparation for the job market and whether alumni are satisfied with their academic training.

- Formal review of interns by their hosts will be used to assess the adequacy of student preparation and to review appropriateness of the curriculum. This will be conducted jointly by the Coordinator and the Committee.

- Employers of recent alumni will be surveyed to determine if the program adequately prepared students for professional employment in the field of Environmental Science. This will also be conducted jointly by the Coordinator and the Committee.

- Each spring the Environmental Science Coordinator and the Environmental Science Curriculum Committee deliberates as to the evaluations of the above criteria in order to consider appropriate changes to the curriculum. The results of this evaluation will be compiled in the assessment report.

- The curriculum will undergo an outside independent review at the end of year five.