Learning Goals for Environmental Studies  
Draft 12/15/10

Humankind faces numerous significant problems, many of which are environmental in nature: global climate change, habitat and biodiversity loss, air and water pollution, dwindling fossil fuel and mineral resources, and overpopulation. While these problems may appear very different at first glance, they are similar in that each one is extraordinarily complex and each requires a combination of natural science and social science responses. Our students will need a wide range of skills and knowledge to address these problems.

The other key fact is that new and different environmental problems are always arising. Since the mid-twentieth century, every generation has faced a new set of environmental problems, many of which were created by our responses to other problems. There was no problem of DDT poisoning our ecosystems and killing raptors until we invented pesticides to kill insect pests; and there was no hole in the ozone layer until we created chlorofluorocarbons for our refrigerators and aerosol cans. We know that tomorrow will bring new issues with which to wrestle, as well as new responses to today’s problems. As a result, it is essential that environmental studies students learn to be flexible and have the confidence and skills to master new environmental issues as they arise.

We want our students to be able to approach environmental issues from multiple perspectives. They need to recognize that environmental problems will not be solved with narrowly defined technical or societal responses, but will require interlocking responses from multiple disciplines. In addition, we want our students to understand that environmental solutions require inputs from a wide range of stakeholders. Our graduates should appreciate the diverse values, needs, and goals of all actors in environmentally difficult situations, recognizing that each party brings strengths and needs to the table that must be considered in proposed resolutions.

In the Environmental Studies Program we want to help our students gain confidence in their ability to analyze and address environmental problems, and we want to help them develop the personal strength to tackle these difficult and sometimes overwhelming issues. Our students will live in a world with at least eight or nine billion people – three times the population of the planet their parents were born into – and they will need to be flexible, smart, tough, and compassionate in their responses to the issues that continually arise.

Core Skills

Because environmental studies is interdisciplinary and draws from so many different fields, it requires a wide gamut of intellectual skills. With two notable additions, the Core Skills listed under the University Learning Goals give a good sense of the foundation needed by our students. Our students should acquire and hone these skills:

*Communication skills:* Express facts, ideas, opinions and beliefs in a variety of written and oral formats.

*Quantitative skills:*
Collect, interpret and utilize numerical data and quantitative information; 
Use mathematical and other abstract models to express and understand causal relationships.

**Critical thinking skills:**
Analyze, interpret and synthesize information and ideas from diverse sources;
Evaluate the relevance and validity of information, empirical evidence and theoretical arguments;
Solve challenging problems and arrive at reasoned conclusions.

An essential skill that students must acquire is a grounding in Geographic Information Systems (computerized mapping and analysis). Environmental studies requires a strong understanding of the interactions between humans and the places they live, and GIS is the best tool for bringing together disparate types of information for analysis and communication of patterns. Finally, students must develop the capacity to frame insightful questions; when we ask the right questions about environmental problems, it is much easier to reach effective resolutions.

**Knowledge**
Given the vast amounts of change that will occur in the environmental field in the future, our graduates will need to be conversant in a number of disciplines in the social sciences, natural sciences, and humanities. Ideally, they would have solid foundations in ecology, environmental chemistry, environmental economics, environmental ethics, environmental health, environmental history, environmental law and policy, geography, natural resource management, physics, political theory, and statistics – for starters.

In practice, they will need to have a good grounding in several social science and natural science fields, and the ability to gain competence with key concepts from new fields as the need arises. Individual students may find themselves drawn toward either natural science or social science approaches to addressing environmental problems; while we want all of our graduates to gain skill in both social and natural sciences, the program is structured so that students can focus more heavily in one area or the other.

Environmental issues cover the complete range of geographical scales from the local to the regional to the global. Our graduates must learn how to address different problems at different scales, recognizing that the frameworks needed to solve problems will vary from place to place and that regional and global problems require additional skills.

Our students need to gain familiarity with numerous social science and natural science disciplines, along with the humility to know that they will need to collaborate with colleagues from many different fields in any attempt to address environmental problems.

**Social Justice**
Our students see themselves as being responsible for the well-being of human beings and natural environments around the globe, and this is a responsibility that they take to heart. They want to make a difference and to take an active part in *Tikkun Olam*, the “repairing of the world.”
students recognize that their actions have implications both locally and across the globe, and most attempt to create sustainable lifestyles that lessen their impacts. Many of our students get involved in work with local and international environmental groups during their time at Brandeis and afterwards.

**Action**

Above all, we recognize that environmental learning is best done in practice, not merely in theory. Over the years we have found that students can become discouraged by the magnitude and complexity of environmental problems facing us, so our program emphasizes the ability of students to find challenges that they can reasonably begin addressing without despairing. One of the ways we give students confidence to tackle real-world problems is through our strong internship program. Nearly all of our students undertake an intensive internship in environmentally-focused organizations including governmental agencies and non-governmental organizations, environmental education programs, and environmentally responsible and forward-thinking businesses. Our students throw themselves into these internship experiences (many do multiple internships), which give them real-world skills to complement and enliven their classroom learning.

Finally, we want our students to find joy in the natural world, and not just see the Earth as a place full of environmental problems. Many of our courses emphasize the wonders of our planet and celebrate the people who are good stewards of the Earth’s lands and waters.

**Upon Graduation:**

Environmental Studies graduates from Brandeis go on to a wide range of environmental careers and academic programs. In the last few years our graduates have worked or studied in the following settings and programs.

- **Governments** such as the US Government, foreign governments, state and local governments; sample positions include environmental aide for a US senator; climate Change Coordinator, British Virgin Islands; Foreign Service Officer for the US Government; and Peace Corps Volunteers in Senegal and Madagascar to name just a few.
- **Non-Governmental Environmental Organizations** for many US and international organizations; in fields such as climate change, deforestation, energy efficiency, and environmental law.
- **Ecology and Conservation Biology Field Work** in the US and abroad, studying forest ecology, as well as the behavior and conservation of bird, whales, and sea turtles.
- **Educators including Environmental Educators** in high school science courses and museums, environmental education positions at field stations and farms, and English as a Second Language programs.
- **Graduate Studies** in Ph.D. programs in environmental policy, biology, geography, chemistry, communications, and environmental history; Master’s programs in environmental science, water policy, sustainability, forestry, environmental education, public policy, and landscape architecture. In addition, many of our graduates have gone on to study environmental law, while others have studied medicine or veterinary science.
It is very typical for our graduates to work for a few years after they finish their studies at Brandeis before going on to further studies. During this time they explore different environmental fields, which helps them decide on the work they hope to do and the skills they need to learn. After this period, a very high proportion go on to graduate school; in fact, many environmental graduate schools strongly recommend that applicants have work experience before they undertake their graduate studies.