

Building Partnerships to Promote Active Learning in Environmental Management

Maud M. Walsh¹, Vicki R. Loe², Susan Hamilton³, Robert Dillemath³, and Andres Harris⁴

¹ School of Plant, Environmental, and Soil Sciences, Louisiana State University, 104 Sturgis Hall, Baton Rouge, LA 70803-2110, ewwals@lsu.edu

²Office of Response and Restoration, National Oceanographic and Atmospheric Administration, 7600 Sand Point Way NE, Seattle, WA 98115

³East Baton Rouge Recycling Office, 805 St. Louis Street, Baton Rouge, LA 70802

⁴Facility Services, Louisiana State University, Baton Rouge, LA 70803



Recycling @ LSU

Introduction

The goal of the Environmental Management Systems curriculum at Louisiana State University is to provide students with a background in physical and biological sciences as well as in environmental management, policy, and economics. Several partnerships have been established to incorporate active learning in core classes by providing opportunities to work on real-world environmental problems

and solutions.	Introductory course	Upper-level course
Partnership with NOAA Office of Response and Restoration	Oil spill scenario in-class activity Guest speaker from NOAA	Problem-based group projects focusing on case studies of oil contamination Guest speaker from NOAA
Assessment of learning about oil spill response and career options	in-class discussion of oil spill response options Essay questions on exams	Group project reports Essay questions on exams
Partnerships with East Baton Rouge Parish Recycling Office and LSU Recycling Office	Earth Day, Household Hazardous Materials Collection Day, composting demonstration participation included among options for activities	Earth Day or Household Hazardous Materials Collection Day required of all students in the class Waste management may be, but is not necessarily, focus of second activity
Assessment of learning about recycling	Individual reflective essays Essay questions on exams	Individual reflective essays Project proposals Group reports Essay questions on exams

For more information:

East Baton Rouge Recycling Office

<http://brgov.com/DEPT/recycle/>

Louisiana State University School of Plant, Environmental & Soil Sciences
<http://www.speess.lsu.edu>

NOAA Office of Restoration and Response. Environmental Sensitivity Indices.
<http://www.response.restoration.noaa.gov/esi>

NOAA Office of Response and Restoration. Incident News.
<http://www.incidentnews.gov/>

NOAA Office of Restoration and Response. Screening Quick Reference Tables.
<http://www.response.restoration.noaa.gov/squirts>

Recycling @ LSU <http://recycling.lsu.edu/>

Partnership with NOAA's Office of Response and Restoration

The National Oceanographic and Atmospheric Administration Office of Restoration and Response (NOAA OR&R) has a strong presence in Louisiana, providing essential expertise in spill response and environmental restoration. In 2008 an educational agreement was established between NOAA OR&R and the School of Plant, Environmental and Soil Sciences at Louisiana State University. One of the goals of the partnership is to improve the quality of the Environmental Management Systems undergraduate program by incorporating problem-based learning related to coastal environmental issues. Another objective is to raise the profile of NOAA OR&R in the community, and increase the number of people who choose education and careers supporting NOAA's mission.

Problem-based activities NOAA OR&R educational materials were used in two environmental management classes, one an introductory class and one a junior/senior-level course. Environmental Sensitivity Indices (ESI) were used in the introductory class to illustrate the complexity of environmental management. Students were presented with an oil spill scenario and asked to provide scientific support to responders. They used NOAA OR&R trajectory information and environmental sensitivity maps to identify vulnerable coastal locations, establish protection priorities, and identify cleanup strategies.



Two scenarios based on NOAA OR&R projects in Louisiana were the basis of group projects in the upper-level Applied Environmental Management class. Students investigated chemical, biological, and social aspects of oil spills and made recommendations for response or restoration plans. Both classes were visited by guest lecturers from NOAA who spoke about preparing for a career in the sciences, the role that NOAA plays in protecting the environment, and the day-to-day life of an environmental scientist.

Results

Qualitative assessments indicate that students in both classes had a greater understanding of the challenges of oil spill containments and cleanup. Before and after conducting the activity students in the introductory class were asked to write five words that came to mind when they heard "oil spill." Student word selections, particularly those related to oil spill response, were mainly general terms, e.g. "cleanup", before the exercise, and more specific ones, e.g. "containment", "sensitive species" and "priorities," after working on the scenario. One student noted in an essay about environmental careers, students learned that NOAA OR&R mission is "wide-ranging, from designing new ways to respond to disasters to research into the effects on ecosystems by human behavior. Knowledge of raw science ...and the ability to think critically are needed."

Partnerships with Baton Rouge and LSU recycling offices

Service-learning activities by environmental management students in partnership with city and campus recycling programs were aimed at providing students with practical experience in planning and implementing recycling in a variety of settings.

Students in both the introductory-level and upper-level course worked with the East Baton Rouge Parish Recycling Office on community events such as Earth Day and America Recycles Day to increase their understanding of the challenges of implementing feasible waste reduction and recycling programs.



On student group in the upper-level environmental management class worked with the LSU solid waste and recycling coordinator to assemble and place 50 new recycling bins on campus, and then monitors their use by collecting and weighing the contents over a 3-week period. Their work resulted in the redistribution of some bins that were not being used into areas of heavier student traffic and waste disposal.



Results

Student reports, reflective essays and exam question responses indicate that the students learned about the challenges of environmental management, particularly in the area of solid waste. Several areas emerged as needing improvement: students would like to see better integration of service projects with course material and learning goals, more in-class time for preparation for activities and more opportunities to design their own service projects. However, overall students felt that service-learning was a valuable activity that increased their awareness about environmental issues in their communities.