

**EMS 4010 Applied Ecology
Fall, 2004**

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Please contact me by phone or email if you would like to make an appointment. Days and times available for appointments: T, W 1:30-4:30 pm, F 8:30-10:30 am

Course goal: To develop an awareness of the role of ecology in protecting and restoring our environment and to instill a sense of the responsibility that every individual has to her/his community.

This is a service-learning class that will focus on composting and on coastal plant restoration.

Course objectives: Students will be able to:

- ✓ describe and evaluate a variety of applications of ecological knowledge and techniques
- ✓ comprehend and critically evaluate scientific reports/studies
- ✓ create nutrient cycling diagrams for several ecosystems
- ✓ analyze the causes of coastal land loss
- ✓ describe levels of environmental awareness in the Baton Rouge community
- ✓ to develop strategies for responding as citizens to coastal erosion and other environmental issues

Grading policy: You are responsible for your own learning in this class. Attendance is very important; there will be frequent in-class activities that count toward the participation grade. If you know in advance that you cannot be in class, please call or email then follow-up after your absence to check on whether there is work to be made up. If you are unable to let me know in advance, please contact me after your absence. Assigned readings should be done before the class meeting. Final grades will be assigned a letter grade on the 10-point scale (90-100: A, 80-89: B, 70-79: C, 60-69: D, below 60 F). Grades will be based on:

Homework and in-class activities (15%)

Research paper (15%)

Presentation on research (10%)

Mid-term exam (20%)

Service activities and reports (20%)

Final exam (20%)

Textbooks:

Kareiva, Peter, ed. 1998. Exploring Ecology and Its Applications: Readings from the American Scientist. Sunderland, Massachusetts: Sinauer Associates.

Wilson, Edward O. 2002. The Future of Life. New York: Alfred A. Knopf.

Class web site: The class web site (<http://blackboard.lsu.edu/>) will be an important tool in the class, so be sure to be familiar with all of the functions on it. In order to logon to the site, you must provide a user name and a password. User names are the same as LSU PAWS user names. If you've already used Blackboard, use the same password that you used before. If not, your initial password is your social without the dashes. You can change your password using "Student Tools." Note that the email address listed is your official LSU PAWS account. You can access some parts of the class web site by logging on as a guest--use the word guest as both username and password. Class outlines will be posted before class so that they can be printed out to facilitate note taking. In addition, announcements, assignments, and links to web sites will also be posted at the site.

Service Learning

Service-Learning is an experience in which students participate in a service activity that meets community needs and reflect on the service activity to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility. You will be offered some suggestions for a service activity, but will be allowed to suggest your own as well. Credit for the service activity will be given for performance of the activity and for the quality of your report and reflection on the service. Reports should include 1) summary of the activities and 2) discussion of what you learned about a) environmental science, b) your community, and c) yourself. The report should be approximately two double-spaced pages, and should integrate these topics in a well-written essay.

Instructions for research papers

The paper should present a problem or question relating to applied ecology and use a review of the literature to develop and defend an answer to the question. Topics must have my approval. Papers should be typed and double-spaced.

Undergraduate students:

Required length, including figures and references, is 7-10 pages. A minimum of 6 references from professional peer-reviewed literature should be cited. References may include web sites if from a reputable source.

Graduate students:

Required length, including figures and references, is 12-15 pages. A minimum of 8 references from professional peer-reviewed literature should be cited. References may include web sites if from a reputable source.

Citation style

The style to be used for this paper is the author and date in parentheses within the text, and the references listed in alphabetical order in the reference section. If there are more than 2 authors, use et al. within text, but list all authors in list of references. Proper credit should be given for all tables and figures taken from other sources. For the reference list, follow the general format illustrated below.

Text examples:

The most serious instances of microbial corrosion occur in iron and steel structures buried in soils and sediments (Tiller, 1982).

Electron microscopy methods described by Ferris et al. (1992) were used for the examination of corroded surfaces.

An emission inventory is generally characterized by the chemical or physical identity of the pollutants included, the geographic area covered, the institutional entities covered, the time period over which emissions are estimated, and the types of activities that cause emissions (United States Environmental Protection Agency, 1999).

Reference examples:

Ferris, F. G., Jack, T. R. and Bramhill, B. J. 1992. Corrosion products associated with attached bacteria at an oil field water injection plant. Canadian Journal of Microbiology 38: 1320-1324.

Pullar-Strecker, P. 1987. Corrosion Damaged Concrete: Assessment and Repair. Boston: Butterworths, 99p.

Tiller, A. K. 1982. Aspects of Microbial Corrosion. In: Corrosion Processes, ed. R. N. Parkins. London: Applied Science Publishers, pp. 115-159.

United States Environmental Protection Agency. 1999. Global Warming. <http://www.epa.gov/globalwarming/> (last update March 29, 1999). Date visited: June 27, 2000.

Credit for tables and figures

Figure 1. Causes for extinction. (Source: Enger and Smith, 1995) (PUT THIS NOTATION IN FIGURE CAPTION)

Source for figure should then be listed in the list of references:

Enger, E. D. and Smith, B. F. 1995. Environmental Science: A Study of Interrelationships. Chicago: Wm. C. Brown, 431 p.

Instructions for presentations

Each student will give a 5-7 minute presentation to the rest of the class using PowerPoint or some other type of visual aid on her/his research paper.

Schedule (subject to change during the semester)

<i>Date</i>	<i>Topic</i>	<i>Readings, assignments</i>
8/23	Introduction to class	Complete personal profile on Blackboard website
8/30	Global change—plant migration, emergence of diseases	Levins, R. et al. "The Emergence of New Diseases", p. 81-89. (Am Sci. 82: 52-60, 1994) Pitelka, L. and the Plant Migration Workshop Group "Plant Migration and Climate Change" p. 265-274 (Am Sci. 85: 464-473, 1997)
9/6	Labor Day Holiday	
9/13	Biodiversity crisis	Future of Life ch. 1 and 2
9/20	Interactions among species, invasive species	Bertness, M. D. "The Ecology of a New England Salt Marsh", p. 90-99. Bergelson, J. "Competition between Two Weeds", p. 65-70. Vitousek, P. M., D'Antonio, Loope, L. L. and Westbrooks, R. "Biological Invasion as Global Climate Change", p. 218-228. (Am Sci. 84: 468-478, 1996)
9/27	Urban forestry (Peggy Davis from Baton Rouge Green)	
10/4	Conservation strategies	Future of Life ch. 3 and 4 Simons, T., Sherrod, S. K., Collopy, M. W., and Jenkins, M. A. "Restoring the Bald Eagle", p. 229-237.
10/11	Midterm exam	

10/16, 10/17 (Sat. and Sun.	Baton Rouge Green tree sale Baton Rouge Green fall tree sale at Burden Research Center October 16 th (8:00am-5:00pm) & 17th (11:00-4:00pm) Shifts: Saturday, Oct 16: 8:00-11:00; 11:00-2:00; 2:00-5:00 Sunday, Oct 17: 11:00-2:00 & 2:00-5:00(clean-up after the event)	
10/18	Biogeochemical cycles, composting	Cornell Composting website Distribute bin sale flyers
10/25	A&WMA conference, Holiday Inn	
11/1	No class meeting	
11/6 (Sat.)	EBR Recycling Office compost bin sale 8-3	
11/8	Bioremediation, phytoremediation	Bioremediation, phytoremediation and constructed wetland websites
11/15	Agroecosystems Nick Rasmussen report on weed science internship	Ball, D. M., Pederson, J. F and Lacefield, G. D. "The Tall- Fescue Endophyte", p. 100- 109. (Am Sci. 81: 370-380, 1993) Gould, F. "The Evolutionary Potential of Crop Pests", p. 206-217. (Am Sci. 79:496- 507, 1991) Websites on integrated pest management, GMCs. Drafts of reports due
11/22	Aquatic assessments Wetland delineation, coastal restoration	Larson, D. "Recovery of Spirit Lake", p. 178-189. (Am Sci. 81: 166-177, 1993) Laws, R. M. "The Ecology of the Southern Ocean", p. 190- 204 (Am Sci. 73: 26-40, 1985) Distribute Christmas tree flyers
11/29	Reports due, oral report presentations	

12/2	Solutions? Global warming, biodiversity crisis	Post et al., "The Global Carbon Cycle", p. 248-264 (Am Sci. 78:310-326, 1990) Websites on Gaia Future of Life ch. 5-7
12/12	Final exam	