ESP 445 ENVIRONMENTAL EDUCATION AND INTERPRETATION 3 Cr.
Lecture: MTWThF July 5-16
9:00 AM - 1:15 PM, 15-minute break 10:30-1045. Working lunch, noon.
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Office Hours: 1:15 PM-2 PM M-F and by arrangement

Course Summary

An exploration of formal and informal environmental education, this course also covers the basics of environmental interpretation. Students examine the relationship between interpretation and education, and practice concepts in teaching about nature, environmental science, and in interpretive exhibits/activities. Topics include ecosystem principles, science-teaching for Maine Learning Results, and natural resource policy aspects of environmental education. The course is intended for advanced undergraduates interested in environmental education and interpretation.

Prerequisites
9 credits of biology, chemistry, and environmental science in any combination
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Note: The information in this syllabus applies to both courses except where indicated

REQUIRED TEXTS

Purchase at bookstore
1) Knudson, Douglas M., Ted T. Cable and Larry Beck, 1995, Interpretation of Cultural and Natural Resources Venture Publishing, Inc.: State College, PA.
2) Thomashow, Mitchell, 1996, Ecological Identity: Becoming a Reflective Environmentalist. The MIT Press: Cambridge, MA. (To be read prior to attending the first class)
3) David Bones (Editor) Getting Started: Integrating Environmental Education into your Classroom Kendall/Hunt: Dubuque.
4) Stapp, William B., Arjen E. J. Wals, and Sheri L. Stankorb (Editors), 1996 Environmental Education for Empowerment: Action Research and Community Problem Solving Kendall/Hunt Publishing Co, Dubuque.

Available elsewhere
5) Maine Learning Results (available on the Internet)
6) I plan to do Project WET and Project WILD certifications. In that case, there will be a $5.00 fee that will include two activity workbooks.

Course objectives:

1. The student will demonstrate an understanding of environmental education and interpretation principles and concepts.

2. The student will demonstrate proficiency in scoring environmental education activities and lessons using the Maine Learning Results knowledge and skills criteria.

3. The student will demonstrate an understanding of how basic ecological and scientific concepts apply to

the creation and teaching of environmental education materials.

4. The student will demonstrate ability to design, evaluate, and interpret environmental activities, exhibits, and curriculum.

5. The student will be able to design environmental education and interpretation programs in formal and nonformal settings.

EVALUATION

Overall Course Grading

Evaluation	*percentage overall grade*
1. Design an environmental exhibit to demonstrate one or more ecological concepts. E.g., bulletin board, diorama, Poster, display, "Learning Center" (like at Maine Audubon)	10
2. Complete a series of Project WET activities (receiving Project WET certification). Key five activities into MLR	10
3. Completing a series of Project WILD Activities (for certification). Key five activities into MLR	10
4. Design an environmental education exercise in conjunction with Maine Learning Results (MLR) Must be distinct from Projects WET and WILD	10
5. Design a field trip: ocean shoreline interpret exercise that incorporates ecosystem principles. Or choose forest/pond/lake setting.	10
6. Conduct river/pond sampling, and lab write-up to show scientific sampling and analysis methods	10
7. Write a lesson plan that interprets human influences on the environment based on urban trees. Include objectives, materials, MLR citations, procedures, assessment	10
8. Design an indoor environmental lab experiment that addresses environmental systems/cycles. The experiment must use readily accessible materials, contain learning objectives, lab write-up, and be keyed into MLR	10
9. In-class quiz	10
10. Write a short paper that relates the concept of "ecological identity" to environmental education based on reading Thomashow. Further information on this assignment is provided below.	10
TOTAL	100%

Performance will be evaluated through the assignments and activities. Initiative, attendance, adherence to professional standards, and timely completion of work are all necessary for success in this course. There will be more detailed information on how to do the projects and assignments. We may need to agree on some time and meeting place changes to accommodate field trips, Projects WET and WILD certification training and other

logistics.

Letter Grade Criteria

I will sum up performance as a percentage of 100 and use the following guide in determining grades. Getting the work done on time is an important element for success in this course. Please pay careful attention to this issue.

A: **Excellent work**. An impressive performance! Aggregate 90 to 100% performance on assignments and quiz. Demonstrated high quality organizational, writing, research, and analytical skills. Course objectives met through an outstanding documentation of learning, with no significant errors or flaws. The student has a laudable grasp of environmental education and interpretation (EE/I) in terms of theory, development, and implementation. Superior insight into EE/I issues in Maine, USA, and the international community. Reports and papers serve as an example of scholarship. Student shows impressive grasp of the readings and in-class discussions.
A-: This is essentially a high B (very good work) with an average of 87-89.
B+: **Very good work**, with an average of 85 to 86.
B: **Good work**. 80 to 84% on assignments and activities. Good writing, research, analytical skills. Good reports, well-organized and high quality oral & written presentations. No significant grammatical or other editorial weaknesses. Work shows good development of ideas and thorough support of analyses. Some aspects of the student's work are very good or excellent. Student has a significant and utilitarian understanding of fundamental EE/I issues, concepts, and practices. Student does a quality job of briefing and presenting an EE/I document or topic. Student has a good grasp of EE/I basics demonstrated through meeting course objectives. Participation in class shows the student not only grasps the assigned readings and discussions but makes notable and significant contributions, insightful comments, intriguing and defendable conclusions.
B-: Acceptable work, average of 77-79.
C+: Acceptable work, Average of 75-76
C: **Acceptable** or "Average." 70 to 74 on projects and assignments. Acceptable college-level writing and analytical skills, reasonable organization and clarity. Demonstrated a functional understanding of the fundamentals of EE/I. Able to apply EE/I in a creditable manner. Student shows he or she has done all the assigned reading and can comment intelligently and constructively on the assignments. Ecological Identity Paper carefully proofed, with proper citations and structure, and have no more than two errors or typos per page. Paper also possess quality content in the subject matter.
C-: **Marginal work**. 68- 69 aggregate performance, based on a scale of 1 to 100.
D: Marginal work with an average of 65-67. Meets minimal requirements to not fail the course. Individual assignments were not submitted on time.

Assignments

Assignment #10, The "ecological identity" papers should conform to an accepted form as promulgated in the most recent version of the *Publications Manual* of the American Psychological Association, or the *Journal of Environmental Education*. This paper should be typed, double-spaced, and approximately 8-10 pages, with appropriate reference citations/bibliography. It should tie the course activities, your own thinking and orientation, and the course readings into articulation of a personal concept of ecological identity. Papers that average more than two errors (of fact or grammar) per page will be graded below C- regardless of how good the rest of the paper may be. I am willing to preview papers if they are given to me at least several days in advance.

We will decide standards and details for the remaining assignments.

Work is due on the date indicated. Please note that late work will not be accepted without prior

approval or unless a genuine emergency condition prevented prior approval. This is particularly important for a fast-paced summer class. A late assignment will not be accepted and a point value of zero will be assigned.

Attendance Students are expected to attend all classes and to inform me in advance or as soon as possible if a medical emergency or other event prevents attendance. Students are responsible for all material covered and all assignments regardless of attendance.

Statement regarding adaptation or accommodation
Please contact me as soon as possible if you have any questions or if you become aware of circumstances that might affect your participation in this course. If you need course adaptations or accommodations because of a disability please make an appointment with me as soon as possible.

At any point in the semester , if you encounter difficulty with the course or feel that you could be performing at a higher lever, please consult with me. Students experience difficulty in courses for a variety of reasons. For problems with writing skills or time management, make an appointment to see a student tutor at The Learning Center, Luthor Bonney, Second Floor, Portland Campus (780-4228). Help is also available through the Counseling Center, 105 Payson Smith Hall, Portland Campus (780-4050) and the Office of Academic Support for Students with Disabilities, Luthor Bonney, Second Floor, Portland Campus (780-4706).

Environmental Education and Interpretation Outline

Readings and assignments are due on date indicated. Be prepared to present assignments & lead discussions of readings.

=====week one========

1. **Tuesday, July 6**
11 AM: Tom Mullen, Project Learning Tree
Visit USM computer lab facilities to practice/verify login ability (Portland is open 8-10PM M-F and 12- 6 weekends, Gorham is open 8-8 M-F.)
Locate Maine Learning Results on Internet or obtain copy of them through another means.
Read Introduction, Acknowledgments & Forward to Thomashow
Read Forward & Preface in Knudson *et al*.

2. **Wednesday, July 7**
Continue PLT?
Assignment due today: Design an environmental exhibit to demonstrate and interpret one or more ecological concepts for the general public. E.g., bulletin board, diorama, Poster, display, "Learning Center" (like at Maine Audubon). You don't have to actually make the exhibit, just a mockup; the design must be complete enough to allow someone else to create the exhibit. Use texts as reference/example, select sponsoring organization (include type, level of government/business, etc), objectives for exhibit experience.
Read Chapter 1 in Thomashow
Read Section I in Knudson *et al*.
Read Unit 1 in Getting Started
Begin Environmental Education for Empowerment, continue on your own for rest of course.

3. **Thursday, July 8**
Project WET, Roberta Hill, Portland Water District.
Assignment: Write a lesson plan that interprets human influences on the environment based on urban trees. What ecological principles and lessons are to be encountered? Include objectives, materials, MLR citations, procedures, assessment.
Read Chapter 2 in Thomashow
Read Section II in Knudson *et al*.
Continue Getting Started on your own and refer to it as needed for rest of course

4. **Friday, July 9**
Field Trip: Project WILD, Linda Woodard, Maine Audubon
Assignment: Complete a series of Project WILD Activities (for certification). Write a one-page summary relating Project WILD to your philosophy/idea of environmental education.

======week two==========

Continue to read Thomashow on your own, as time permits; finish by August 2.

5. **Monday, July 12**
Meet in Room 213. Project WET, demonstration and practice on Groundwater model, Marianne Dubois, Maine DEP.
Meet objective 2: Complete a series of Project WET activities (receiving Project WET certification).
Homework due: Key five Project WET activities into MLR. Or comment on/evaluate previous key of activities.
Homework due: Key five Project WILD activities into MLR. Or comment on/evaluate previous key of activities.
Read Chapters 6,7,8,9 in Knudson *et al*.

6. **Tuesday, July 13**
Computer room, 219 Bailey. Electronic Learning Marketplace and other resources.
Computer search for materials needed in assignment due July 15th. Check out http://www.edgateway.net; http://www.naturenet.com; http://www.eelink.net; and http://www.stopnps.com/educate/educate.htm
EIPD 528: *Assignment: In teams of two, to be done in class: Sketch a proposal for a semester-long environmental curriculum integrating social studies, writing, humanities, history (etc). Provide goals, objectives, budget, generally relate curriculum to MLR.*
ESP 499: Quiz Covers notes, activities, assignments, and general concepts from readings.
Skim through rest of Section III in Knudson *et al*. (Chapters 10,11,12,13,14)

7. **Wednesday, July 14**
Indoor air pollution, Dr. Marybeth Smuts, toxicologist, EPA. Topic: EPA environmental education programs, "Tools for schools."
*Homework due: The air we breathe--write an outline for environmental education **or** interpretation exercise. Can be for formal or informal setting. Relate to Maine Learning Results (MLR) and focus on a facet of air pollution or climate change. Include public action for expanded learning beyond the setting. Product should include ecological axioms/principles, objectives, equipment, required skills.*
Skim chapters 15, 16, 17 in Knudson *et al*.

8. **Thursday July 15**
Playing with worms and composting: terrestrial community ecology, input--output analysis, biomass

computation. In teams of two, develop draft grant to obtain a classroom (or environmental organization) worm bin. Include proposed primary school worm activities. Include learning objectives, time, equipment, cost, maintenance, activities procedures, evaluation, etc.
Computer room, 219 Bailey
Homework due: Outline a proposal for a computer-based indoor environmental lab experiment that addresses environmental systems/cycles. The experiment must use the Internet and other readily accessible materials, contain learning objectives, require lab write-up, and be keyed into MLR. Hopefully, we will have an opportunity to use computer lab time to modify the proposal as appropriate.
Skim Chapter 18 and 19 in Knudson *et al.*

9. **Friday, July 16**
Pond sampling, designing field trips. Conclude Project WILD.
Homework due: Design a field trip: ocean shoreline interpret exercise that incorporates ecosystem principles. Or choose forest/pond/lake setting. Write proposal for trip for your institution that includes: rationale, target group, logistics, duration, learning objectives, interpretive tasks, follow-up evaluations. Tie into Thomashow (Chapter 3).
Skim chapter 20, Appendices A & B in Knudson *et al.*

Post-class assignments

Due July 24th
Assignment: Use our July 16th pond sampling as a starter and create a field activity and a lab activity. Aim at high school level, designed to show scientific sampling and analysis methods and some aspect of pollution/human intervention in aquatic systems (see chapter 3, Action Research & Community Problem Solving, in Environmental Education for Empowerment, Stapp et al.).

Due August 2nd
Assignment: Write a short paper that relates the concept of "ecological identity" to environmental education based on reading Thomashow. Depending on your interest (e.g., formal, nonformal, grade school, college), how do you view "educating for ecological identity."

========concepts, topics & approaches ==========

theories of learning and cognitive development
environmental terminology
myths of environmental education
ecosystem theory and ecological principles
nature, nurture, and culture
history of environmental education
environmental interpretation
environmental concept maps,
cognitive mapping and ecological identity
encouraging laboratory-based science experiences
environmental curricula - formal and informal
Project WET, Project Wild, Project Learning Tree and other "Projects"
oceanside experiences
urban nature
sustainable development concepts
environmental values
environmental behavior

environmental careers and internships
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> "*We are now at a point where we must educate our children in what no one knew yesterday, and prepare our schools for what no one knows yet.*" -- Margaret Mead

> "*One result of formal education is that students graduate without knowing how to think in whole systems, how to find connections, how to ask big questions, and how to separate the trivial from the important. Now more than ever ... we need people who think broadly and who understand systems, connections, patterns, and root causes.*" -- David Orr