

**FNR 4070C and 5072C: Environmental Education Program Development
University of Florida**

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Office Hours: Tues 2:00 – 4:00 pm, and by appointment

Class Meets: Wednesday: Periods 8-10, 3:00 – 6:00 pm, Room 219, NZ
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Good environmental education (EE) programs are designed to meet environmental and educational goals for specific audiences. They use appropriate teaching strategies to engage learners and build capacity to resolve environmental issues. The development of a good program includes: a comprehensive needs assessment to understand the audience and available resources; a pre-test of the materials prior to full-scale implementation; a training program for staff or volunteers; and an evaluation procedure to continue improving the program. This course will introduce students to these techniques of program development for adult and youth-based environmental education activities in the non-formal arena (such as nature centers, extension, residential facilities, environmental organizations, and resource agencies). Students will work together to develop and implement tools for a program evaluation. Familiarity with popular environmental education programs is helpful, and may be obtained through The College of Education course: Environmental Education Methods and Materials (EDG 4930).

Course Description:

A comprehensive approach to program development, from needs assessment to evaluation, will be applied to non-formal environmental education.

Course Objectives:

By the end of this course, students will be able to:

- Describe the goals and objectives of environmental education (EE) and education for sustainable development (ESD)
- Explain how a variety of educational programs achieve EE goals
- Critique EE and ESD materials
- Use a Logic Model for program planning
- Apply learning theory and teaching strategies to environmental education programs
- Develop and use evaluation tools, collect and analyze data for a client
- Explain how social and political change affects EE
- Write a fundable grant proposal for EE program development

Materials:

Readings on reserve on-line – go to <https://ares.uflib.ufl.edu/>– Find – this course.

Evaluating Your Environmental Education Programs – provided in class

Other materials can be downloaded from web sites or will be e-mailed.

Course Policies:

Students are expected to attend class, engage in discussion, submit assignments on time, and participate in group work. Absences will be excused if accompanied by appropriate paperwork. After three unexcused absences, 1% per day will be deducted from the final course grade. Assignments are to be turned in during class on the day they are due.

Grading Scale:

A	93 – 100%	C	73 – 76%
A-	90 – 92%	C-	70 – 72%
B+	87 – 89%	D	63 – 66%
B	83 – 86%	D+	67 – 69%
B-	80 – 82%	D-	60 – 62%
C+	77 – 79%	E	below 59%

University of Florida Policies

Academic Honesty

As a result of completing the registration form at the University of Florida, every student has signed the following statement: “I understand that the University of Florida expects its students to be honest in their academic work. I agree to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University.”

UF Counseling Services

Resources are available on campus for students having personal problems or lacking clear career and academic goals with interfere with their academic performance. These resources include:

1. University Counseling Center, 301 Peabody Hall, 392-1575 (personal and career counseling);
2. Student Mental Health, Student Health Care Center, 392-1171 (personal counseling);
3. Center for Sexual Assault /Abuse Recovery and Education (CARE), Student Health Care Center, 392-1161 ext. 4231 (counseling related to sexual assault and abuse);
4. Career Resource Center, Reitz Union, 392-1601 (career development assistance and counseling).

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

Grading

For questions about the new minus grade system, see the catalog web page on UF Grading policies <http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>

Class Objectives

By the end of the relevant class, students will be able to:

Describe the roots of environmental education in the U.S.

Explain how social and political influences continue to shape EE in the U.S.

Explain how people learn information, concepts, and skills.

Use the learning cycle to develop and critique educational activities and program plans.

Describe at least four strategies educators use while teaching learners

Describe the strategies and guidelines for EE materials and program development that should lead to excellence in EE.

Explain the component of a logic model.

Develop a logic model that describes an EE program.

Use the learning cycle and research on education to develop logic models and programs.

Describe the steps of program development and the purpose of three types of evaluation.

Develop program and behavioral objectives.

Describe the advantages, disadvantages, and purposes of five evaluation tools.

Create items for evaluation tools for each of the three types of evaluation.

Explain the qualities of a good survey or interview question.

Create and pilot test evaluation tools for your project.

Collect and analyze data for your project.

Summarize your conclusions and make recommendations in a written and verbal report on your project.

Create a program that meets a need and the funding guidelines described in a proposal request.

Develop logic model, objectives, program description, evaluation plan, letters of support, budget for your program.

Explain current movements in education and the impacts they are/may have on EE (No Child Left Behind/No Child Left Inside, service learning, EIC, EBE, etc.)

Understand the role of state standards and testing in education reform.

Explain how misconceptions, selective perception, and political agendas can affect environmental education.

Describe bias and explain why environmental and industry groups may be accused of it.

Develop strategies for detecting bias in materials and for creating materials that rise above it.

Describe education for sustainable development and compare it to EE.

Explain the criteria or objectives of programs that meets the goals of both and of either EE or ESD.

Justify the role of EE or ESD in schools, communities, parks, and agencies.

Describe how social learning strategies can help adults work together to resolve environmental issues.

Course Agenda

Wed.	Discussion Topic	Read for this date	Project Work
Aug 24	Course Intro, What is EE, Historic context	Hungerford 2010 Just say YES	Intro selves
Aug 31	Learning Theories Adult Education Activity Demonstration	Framework CEOT Chapter 2 One size does not fit	Intro to Projects Select a Group
Sept 7	Materials Guidelines for Excellence Climate and change [1] Climate Ed Review	Wojcik et al. draft, Climate change (JOF), Literacy Guidelines	Climate background
Sept 14	Program Development Logic Models Project Objectives, [1] Due	Workbook, 1 & 2	[3a] Discuss a Logic Model and Eval Plan for your project
Sept 21	Evaluation Tool Development	Workbook, 3	[3a] Due [3b] Work on ideas for activities and items for assessments
Sept 28	Schools and EE Science Ed Standards and Testing Connection to Nature	Gough, Ernst, Weilbacher, Leiberman NGSSS on Web Stevenson	Work on ideas for activities and items for assessments
Oct 5	ESD EBE	Tilbury, Ernst	[3b] due Begin plan for Pilot testing IRB Revision
Oct 12	[2] In Class Quiz and Take Home Essay		Revisions of Drafts Continue plan for Pilot testing
Oct 19	Data Collection Data Analysis	Workbook, 4 & 5	[4] Collect data over the next month; solve problems in class
Oct 26	EE Backlash & Advocacy Bias	Poore, Salmon, Holsum, ZPG	continue
Nov 2	[5] Writing Proposals for Projects	Archie, Place	continue
Nov 9	[5a] Proposal Ideas Due Adults and Social Learning	Schuster, Muro/Jeffrey, Wals	continue
Nov 16	Budgets, Letters, Details on Proposal Writing		Analyze data
Nov 23	<i>Thanksgiving Holiday</i>		
Nov 30	[5] Due, Recommendation Development, Report Writing; [6] Grad Presentations	Workbook, 6	[4] Work on project report; Finalize recommendations Prepare presentations
Dec 7	Presentations on Projects [4] due		

Assignments and Points

1. Climate Education Review. Select one of the climate education programs or materials from the list and use the NAAEE Materials Review Guidelines and the Climate Literacy Framework to critique it. Describe the audience it was designed for and its objectives. Assess how it addresses the EE goal and the five EE objectives. Discuss whether and how it allows you to judge the 6 components of excellence. What other aspects could be relevant in this case?
One page, single spaced. Due September 14. UG 10 points; Grad 10 points

2. In Class Quiz and Take Home Essay. This two-part assessment will cover basic concepts in the in-class portion (October 12) and allow you to spend a bit more time thinking about their application in the take-home portion, which will be due October 19. You are welcome to use any written resources from class or the library on the take-home section, but please do your own work. UG 20 pnts; Grad 15 pnts

3-4. The Project. Much can be learned about EE program development by doing it. You will work in groups to work on a climate change education project (see next page). Some class time will be set aside to work with groups; you will also need to meet outside class. Homework assignments will be directly related to your project. Draft tools are due September 21 and October 5 for in-class discussions and feedback. Your final report and oral presentation will be due December 7. Grad students will be responsible for leadership and organization of each subgroup. UG 35 points; Grad 25 points

5. EE Proposal. Writing project proposals is essential to obtain funding to support EE programs. Develop an idea for a project that meets the RFP criteria and write a proposal following EPA's Small Grants for EE Request for Proposals. <http://www.epa.gov/enviroed/grants.html>. This exercise will incorporate much of what we have discussed about program development, logic models, objectives, evaluation, training, learning, etc. You can dream up the organization or use a real one. You will write the budget, letters of support, and justification for the program. If your ideal program is better addressed with a different funder or RFP, you can propose one to me. Submit a 1 page summary of your plans (single spaced) and draft logic model on November 9. Submit your final proposal November 30. 25 points

6. Graduate Students: "What Research Says" Paper. The world of environmental education research is quickly moving in several interesting directions: systems thinking, resilience, adaptive collaborative management and multi-stakeholder processes, public participation/citizen science, and connections to nature. A great deal of research is not readily available to the practitioners in a form they find meaningful. Please select a current question or topic of interest to you and develop a coherent explanation of it with relevant research results for practitioners. Use the EDIS document format as a potential framework. Readers must be able to draw appropriate conclusions from the literature you cite (so you need to explain the research). Aim for at least 6 references and 4-6 pages. Present your findings to the class on November 30, or before if you wish. Due November 30, electronically. Grad 15 points

Points for participation, attendance, and coming to class prepared with the mini assignments
UG 10 points; G 10 points

EEPD Project

A key element of this course is working with a client to assist their efforts to develop or evaluate high quality environmental education programs. This year the client is Project Learning Tree and PINEMAP, for which we are developing a secondary module on forests and climate change. The trick with group work is making sure it is a learning opportunity for everyone and no one feels unfairly burdened. I trust you will all do your best to be engaged, productive, and responsible. Within each of the two groups, everyone will submit your own logic model, evaluation plan, and draft evaluation tool. The group will collectively revise and pilot test activities and evaluation tools, analyze data, summarize conclusions, and make recommendations in a written report and verbal presentation. Transportation and expenses associated with pilot testing will be covered for approved trips. Please select one of the following two groups, and work within your group to further divide into working teams, as needed.

The Project Learning Tree Secondary Module will be developed at UF to help educators convey the following topics: 1) Climate, climate change, carbon sequestration, 2) How forests can mitigate climate change, 3) How forest owners can adapt management practices to better cope with variability, and 4) Life Cycle Analysis to understand that substituting wood for other products can mitigate climate change.

Activities:

One group will work on the development and testing of at least 3 activities for the curriculum. Many relevant activities exist and we needn't repeat them. Few activities do exactly what we need them to. Activities will include all needed background for the teacher and procedure for leading the activity with youth (grades 7-12). Activities will use the experiential learning cycle but can use a number of different types of experiences: nearby investigation, science experiment, cooperative group exercise, game, simulation, role play, etc. You can also provide reading material. Within the group, individuals can take the lead on these tasks:

- Review existing activities and brainstorm new ones
- Develop completed activities
- Develop an observation guide, a pre/post test of knowledge for the activities
- Develop an interview guide for teachers who use the activities
- Observe and interview educators using the activities; implement pre/post test
- Analyze pre/post test results and Revise activities
- Produce recommendations and report

Needs assessment:

The other half of the class will develop and implement a needs assessment for teachers to learn more about how to develop and package the PLT module. Questions can cover knowledge about climate change, ability to teach about climate change, interest in teaching about forests and climate, types of classes they might introduce to these topics, how the materials should be disseminated, interest in learning about current research, and preference for an online or in-person workshop. Within the group, individuals can take the lead on these tasks:

- Develop items for the needs assessment
- Coordinate review, pilot test, and revision process
- Obtain email lists and permission to use them to send the needs assessment
- Use survey monkey to send the survey and reminders
- Analyze data and Produce recommendations and report

Reading List

Introducing EE: History, Goals, etc.

Readings for August 24

Required:

Monroe, M. 2001. Just Say Yes to Youth Environmental Stewardship. IFAS Fact Sheet.

University of Florida. <http://edis.ifas.ufl.edu/FR120> -- WEB

Hungerford, Harold R., 2010. Environmental Education for the 21st Century: Where have we been? Where are we now? Where are we headed? *Journal of Environmental Education*. 41(1): 1-6. RESERVE

Learning Theory

Readings for August 31

Required:

Jacobson, S., M. McDuff, and M. C. Monroe. 2006. Chapter 2 Learning and Teaching with Adults and Youth. *Conservation Education and Outreach Techniques*. Oxford University Press. Pp 35-62. RESERVE

Monroe, MC, E. Andrews, K Biedenweg, 2007. A Framework for Environmental Education Strategies. *AEEC*. 6(3): 205-216 RESERVE

Newstrom, J. H. and M. L. Lengnick-Hall. 1991. One size does not fit all. *Training and Development*, 45(6): 43-48. RESERVE

Materials Guidelines and Climate Change

Readings for Sept 7

Required:

Wojcik, D., K Biedenweg, L. McConnell, G. Iyer, M. Monroe. Draft chapter on Global Trends in Environmental Education. – RESERVE

NAAEE, Guidelines for Excellence: EE Materials and NonFormal Programs. Order or download your own from the National Service Center for Environmental Publications (NSCEP) at <http://www.epa.gov/nscep/> . Order your own if you wish:

171B04001 - Nonformal Environmental Education Programs: Guidelines For Excellence

171B04003 - Environmental Education Materials Guidelines For Excellence

Climate Literacy: The Essential Principles of Climate Sciences. Produced by a group of government agencies. A readable version can be downloaded from:

[http://downloads.climatescience.gov/Literacy/Climate Literacy Booklet Low-Res.pdf](http://downloads.climatescience.gov/Literacy/Climate_Literacy_Booklet_Low-Res.pdf)

Malmsheimer, R. W., P. Heffernan, S. Brink, D. Crandall, F. Deneke, C. Galik, E. Gee, J. A. Helms, N. McClure, M. Mortimer, S. Ruddell, M. Smith, and J. Stewart. 2008. Chapter 1: Global Climate Change. *Journal of Forestry Special Issue: Forest Management Solutions for Mitigating Climate Change in the United States*. 106(3): 125-128.

How Are Programs Developed?

Readings for September 14

Required:

Ernst, J. A., M. C. Monroe, and B. Simmons. 2009. Evaluating Your Environmental Education Program: A Workbook for Practitioners. North American Association for Environmental Education. Chapters 1 and 2. IN CLASS

Optional:

Monroe, M., J. Washburn, T. Goodale, and B. Wright. 1997. *National Park Education Programs Making a Difference: Evaluating PARTNERS, A Parks as Classrooms Program*. Washington DC: National Park Foundation. RESERVE

On Logic Models: W.K. Kellogg Foundation 2004. Logic Model Development Guide. Battle Creek MI: Kellogg Foundation. Item #1209 when ordered from 1-800-819-9997. Or download from www.wkkf.org, search for logic model, and click on the pdf symbol

More info: Website from Univ of Wisconsin, Program Development and Evaluation program on Logic Model <http://www.uwex.edu/ces/pdande/evaluation/evallogicmodel.html> -- and <http://www.uwex.edu/ces/lmcourse>

Evaluation Tool Development

Readings for Sept 21

Required:

Ernst, J. A., M. C. Monroe, and B. Simmons. 2009, Evaluating Your Environmental Education Program: A Workbook for Practitioners. North American Association for Environmental Education. Chapter 3.

Schools and EE

Readings for September 28

Required:

Monroe, Randall, and Crisp. 2001. Improving student achievement with environmental education. IFAS Fact Sheet. University of Florida. <http://edis.ifas.ufl.edu/FR114> WEB

Weilbacher, M. 2009-2010. Last child in the woods, first book in the field. Green Teacher. 87:3-8. RESERVE

Poole, W. 2007. The nature of nature-deficit disorder: A conversation with Richard Louv. Land and People. 19(2): 44-49. RESERVE

*Group 1 -- Lieberman, Gerald A. and Linda L. Hoody. 1998. *Closing the Achievement Gap: Using the environment as an integrating context for learning. Executive Summary*. State Education and Environment Roundtable. More information at www.seer.org RESERVE

*Group 2 -- Ernst, J. A. and M. C. Monroe. 2004. The effects of environment-based education on students' critical thinking skills and disposition toward critical thinking. *Environmental Education Research* 10:4, 507-522. RESERVE

*Group 3 -- Gough, A. 2002. Mutualism: a different agenda for environmental and science education. *International Journal of Science Education*. 24(11): 1210-1215.

*Group 4 -- Stevenson, R. B. 2007. Editorial: Overview. *Environmental Education Research* 13(2): 129-138.

For Class: Read one of the four starred papers and be prepared to explain its implications to others. How does EE Reform affect your project? Review NCLI and NCLB Web sites if you want an update

ESD, EBE

Readings for October 5

Required:

Tilbury, D. 2011. What are commonly accepted learning processes aligned with ESD? Education for Sustainable Development: An expert review of processes and learning. Paris: UNESCO. Pages 19-39. <http://www.iucn.org/?uNewsID=7368>

Ernst, J. 2009. Influences on US middle school teachers' use of environment-based education. *Environmental Education Research*, 15(1): 71-92.

Review IRB materials at <http://irb.ufl.edu/irb02/index.html> and our submitted temporary protocol

Data Collection and Analysis

Readings for October 19

Required:

Ernst, J. A., M. C. Monroe, and B. Simmons. In Press. Evaluating Your Environmental Education Program: A Workbook for Practitioners. North American Association for Environmental Education. Chapters 4 - 5.

EE Backlash & Advocacy

Readings for October 26

Required:

Poore, Patricia. 1993. EnviroEducation: Is it Science, Civics--or Propaganda? *Garbage*. April-May 1993, 26-31. RESERVE

Salmon, J. 2000. Are we building environmental literacy? *Journal of Environmental Education*. 31:4 (4-10). RESERVE

Are they building environmental literacy? *ZPG Fact Sheet*. RESERVE

Holsman, R. H.. 2001. Viewpoint: The politics of environmental education. *Journal of Environmental Education*. 32:2. 4-7. RESERVE

For Class: How does backlash affect climate change education?

Writing Proposals

Readings for November 2

Required:

Archie, Michele. 1993. *Grant funding for your environmental education programs: Strategies and Options*. Troy, OH: NAAEE. Focus on pages 13-22. RESERVE

Israel, G. 2001. Using Logic Models for Program Development. IFAS Fact Sheet. University of Florida. AEC 360. <http://edis.ifas.ufl.edu/wc041> RESERVE

NAAEE, Guidelines for Excellence: Nonformal EE Programs

Optional:

Web sites: http://www.epa.gov/Education/grants_apply.html

<http://www.epa.gov/Education/grants/index.html>

<http://www.mcf.org/mcf/grant/writing.htm>

For Class: Think about a project you would like to write a proposal to fund and make a logic model to guide your thinking.

Adults and Social Learning

Readings for November 9

Schusler, T. M., D. J. Decker, & M. J. Pfeffer. 2003. Social learning for collaborative natural resource management. *Society and natural resources*. 16:4, 309-326.

Muro, M. and P. Jeffrey. 2008.. A critical review of the theory and application of social learning in participatory natural resource management processes. *Journal of environmental planning and management*. 51(3): 325-344.

Wals, A.E.J., N. van der Hoeven, H. Blanken. 2009. The acoustics of social learning. Wageningen: Wageningen Academic Publishers. Pages 5-28.

<http://www.ecs.wur.nl/NR/rdonlyres/E635711D-7B4D-43B6-8FE2-249B95D2349E/92733/acousticsdigital.pdf>

Ernst, J. A., M. C. Monroe, and B. Simmons. In Press. Evaluating Your Environmental Education Program: A Workbook for Practitioners. North American Association for Environmental Education. Chapters 6.

For More Information

- Bennett, Dean B. 1988-89. Four steps to evaluating environmental education learning experiences. *Journal of Environmental Education*. 20:2,14-21.
- Bitgood, Stephen. 1993. What do we know about school field trips? *What research says about learning in science museums*, # 2. Wash. DC: Assoc Science-Tech Cntrs, 12-16.
- Blanchard, Kathleen A. Seabird conservation on the North Shore of the Gulf of St. Lawrence, Canada: The effects of education on attitudes and behaviour towards a marine resource. In Palmer, J. W. Goldstein, and A. Curnow (eds.) *Planning education to care for the earth*. Gland, Switzerland: IUCN CEC. 39-50.
- Disinger, John. 1993. Environment in the K-12 Curriculum: An Overview. In Wilke, R.J. (ed) *Environmental Education: Teacher Resource Handbook*. Arlington VA: NSTA and Kraus International Publications.
- Fien, John, William Scott, and Daniella Tilbury. 2002. Exploring Principles of Good Practice: Learning from a meta-analysis of case studies on education within conservation across the WWF network. *AEEC*, 1(3): 153-162.
- Hino, Jeffery C. and Edward C. Jensen. 1996. Science-Based TV Spots: Educating the public about forestry. *Journal of Applied Communications*. 80:1, 5-19.
- Jacobson, Susan K. 1991. Evaluation model for developing, implementing, and assessing conservation education programs: Examples from Belize and Costa Rica. *Environmental Management*. 15:2, 143-150.
- Jickling, B. 1992. Why I don't want my children to be educated for sustainable development, *Journal of Environmental Education*, 23(4): 5-8.
- Jickling, B. and H. Spork. 1998. Education for the environment: a critique, *Environmental Education Research* 4(3): 309-328.
- Keen, M., V. A. Brown, and R. Dyball. 2005. Social learning: a new approach to environmental management. *Social Learning in environmental management: Towards a sustainable future*. London: Earthscan, 3-21.
- Lane, Jennie, Richard Wilke, Randy Champeau, and Dan Sivek. 1995. Strengths and weaknesses of teacher environmental education preparation in Wisconsin. *Journal of Environmental Education*. 27:1, 36-45.
- McDuff, Mallory. 2002. Needs Assessment for Participatory Evaluation of Environmental Education Programs. *AEEC*. 1(1): 25-36.
- McKenzie-Mohr, D. 2000. Fostering sustainable behavior through community based social marketing. *American Psychologist* 55:5, 531-537.
- Munson, Bruce H. 1994. Ecological Misconceptions. *Journal of Environmental Education*. 25(4) 30-34.

- Parsons, Chris. 1993. Front-end Evaluation: How do you choose the right questions? In *Visitor Studies: Theory, Research and Practice* Volume 6. Jacksonville AL: Visitor Studies Association, pp 66-71.
- Sheparson, D. P., S. Choi, D. Niyogi, and U. Charusombat. 2011. Seventh graders' mental models of the greenhouse effect. *Environmental Education Research*. 17(1): 1-18.
- Volk, T. and Cheak. 2003. Effects of environmental education on students, parents, and communities. *Journal of Environmental Education*. 34(4) 12-25.
- Environmental Education Research Special Issue on Resilience in Socio-Ecological Systems: 16(5-6), Oct-Dec 2010.
- Environmental Education Research Special Issue on Schooling and EE. 13(2), April 2007

Undergraduate and Graduate Students Learning Together

This course is designed to help students who wish to become environmental educators. You will develop and practice the skills that educators need to develop and evaluate effective programs. If you have some practical experience in environmental education, you will bring that perspective to the class discussions and build on it with the assignments. If you have taken other classes in EE, you needn't read the same things over again, but can use this opportunity to build on what you know and learn something new. Both undergraduates and graduate students can bring personal experiences (both paid and volunteer) from the EE world and from other courses. Some undergraduates and graduate students may be new to EE.

Please use this course to help you learn what will be most useful as you embark on your career. Mold the assignments to fit your interests. I will expect more critical, more thoughtful, and better referenced work from graduate students than undergraduates, in general. If you would like to emphasize one portion of the course to the exclusion of another, let's negotiate.