

**ES 367-10/ TLT 367-10: Environmental Education**Course Web site: <http://coursesite.lehigh.edu/>

Thursdays 1/21, 3/4, and 3/25: 7-10 pm  
Saturdays March 27 and April 10: 9:00 am – 4:00 pm  
and Online

MG 103 and Offsite

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This is a Web-based and field-based course. Course content is available online at the course Web site. You are expected to complete the Web-based Modules and other assignments between the face-to-face meetings.

**Lehigh Course Catalog Description**

Introductory environmental education course designed to prepare students to implement environmental education opportunities in formal and non-formal education settings. Topics include history and philosophy of environmental education, environmental laws and regulations, GIS, environmental issues and decision-making, curriculum integration and environmental education teaching methodologies.

This is a Web-enhanced course containing both online and fieldwork components. A \$25 activity fee is required for field trip van transportation.

**Course Objectives** (*By the conclusion of the course, students will ...*)

1. develop a foundational knowledge of environmental education.
2. understand the importance of developing an environmentally literate populace.
3. critically examine environmental issues in the Lehigh Valley area.
4. understand how local, regional, state, national, and international laws and regulations influence environmental decisions.
5. be able to locate and use environmental education teaching and learning materials.
6. integrate instructional technology into environmental education settings.

**Additional Objectives for Environmental Education certification students** (*By the conclusion of the course, students will demonstrate ability to...*)

7. plan instructional activities linked to the *North American Association for Environmental Education Standards* or the *Pennsylvania Department of Education Academic Standards for Environment and Ecology*.
8. analyze and evaluate appropriate theories of learning, moral reasoning and valuing processes to select, develop, and implement curricula and teaching strategies to achieve environmental education goals with all learners.
9. understand the importance of stewardship and a healthy environment.

## Required Textbooks

Halma, R. & Oplinger, C. S. (2001) *The Lehigh Valley: A Natural and Environmental History*. Pennsylvania State Univ Press. ISBN:0271020946

North American Association for Environmental Education (2000). *Environmental education materials: Guidelines for excellence workbook. Bridging theory and Practice*. NAAEE: Rock Springs, GA. ISBN3 1-8840088-80-1. Online available: <http://www.naaee.org/npeee/workbook.pdf>

North American Association for Environmental Education (2004). *Excellence in environmental education - Guidelines for learning (K-12)*. NAAEE: Rock Springs, GA. Online available: [http://naaee.org/npeee/learner\\_guidelines.php](http://naaee.org/npeee/learner_guidelines.php)

## Optional Textbooks:

North American Association for Environmental Education (2004). *Guidelines for the initial preparation of environmental educators*. NAAEE: Rock Springs, GA. ISBN# 1-884008-78-X. Online available: [http://naaee.org/npeee/new\\_ee.php](http://naaee.org/npeee/new_ee.php)

Chiras, D. (2006). *Environmental science. Seventh edition*. Jones and Bartlett. ISBN 0-7637-0860-7.

## Course Website

Web-based Environmental Education modules, learning activities, course readings, forums, handouts, and other resources for this course are available online at:

**<http://coursesite.lehigh.edu/>**

Each student is assigned an e-mail address at registration. Students are expected to use e-mail as one form of communication with the instructor during this semester.

## Course Readings [Course Website and online] (\* denotes optional text readings)

Archie, M. & McCrea, E. (1996). *Environmental education in the United States: Definition and Direction*. In M. Archie (Ed.), *Environmental education in the United States – Past, present, and future*. Collected papers of the 1996 National Environmental Education Summit. (pp.1-8). Burlingame, CA.

Audet, Richard, and Ludwig, Gail. (2000). *GIS in Schools*. Redlands, CA: ESRI Press. pp. 5-12, 55-61.

Bodzin, A. (2008) Integrating instructional technologies in a local watershed investigation with urban elementary learners. *The Journal of Environmental Education*, 39(2), 47-58.

Bodzin, A. (2002). LEO EnviroSci Inquiry: Using the Web to learn environmental sciences. *Learning and Leading with Technology*, 29 (5) 32-37.

Braus, J. (1999). Powerful Pedagogy – Using EE to achieve your education goals. In L. Mabb (Ed.), *EEducator Special Issue: Advancing Education Reform* (pp. 17-24). NAAEE: Rock Springs, GA.

Braus, J. & Disinger, J. (1996). Educational roots of environmental education in the United States and their relationship to its current status. In M. Archie (Ed.), *Environmental education in the United States – Past, present, and future*. Collected papers of the 1996 National Environmental Education Summit. (pp.9-19). Burlingame, CA.

Carter, R. L., and Simmons, B. (in press). The history and philosophy of environmental education. In Bodzin, Klein, & Weaver (Eds.) *The Inclusion of Environmental Education in Science Teacher Education*. Dordrecht, Netherlands: Springer.

Chiras, D. (2001). Environmental science: Creating a sustainable future, sixth edition. Jones and Bartlett. Chapter 3, p. 28-45; Chapter 4, 46 – 57; Chapter 28, p. 656 – 683

Disinger, J. F. & Monroe, M. C. (1994). Defining environmental education. University of Michigan: Ann Arbor, MI. pp. 2-14.

Environmental Literacy Council (2007). Resources for Environmental Literacy. NSTA Press. xvii-xxiii.

\*Modules available online at: <http://www.enviroliteracy.org/subcategory.php/316.html>

Hoopes, R. E. (2003, Spring). From Idea to Reality: The Wildlife Center's 2002 Transition. Lehigh Gap Restoration Project. *Wildlife Activist*. Available online: <http://lgnc.org/publications/wildlife-activist>.

Hoopes, R. E. (2008, Spring). Five years ago and back to the future: How the Lehigh Gap restoration project turned around a stalled superfund initiative. *Wildlife Activist*, 58, 3-6. Available online: <http://lgnc.org/publications/wildlife-activist>.

Kaspar, M. (1999). Achieving standards through environmental education. In L. Mabb (Ed.), *EEducator Special Issue: Advancing Education Reform* (pp. 48-51). NAAEE: Rock Springs, GA.

Kunkle, D. (2003, Summer). Watching grass grow: Update on the restoration process at Lehigh Gap. Lehigh Gap Restoration Project. *Wildlife Activist*. Available online: <http://lgnc.org/publications/wildlife-activist>.

Kunkle, D. (2003, Fall). Watching grass grow II. Lehigh Gap Restoration Project. *Wildlife Activist*. Available online: <http://lgnc.org/publications/wildlife-activist>.

Kunkle, D. (2004, Fall). Lehigh Gap Restoration Project: Year 2 progress report. *Wildlife Activist*. Available online: <http://lgnc.org/publications/wildlife-activist>.

Kunkle, D. (2006, Summer). Refuge grass planting nearing completion. *Wildlife Activist*. Available online: <http://lgnc.org/publications/wildlife-activist>.

Lieberman, G. A., & Hoody, L.L. (1998). Closing the achievement gap. Using the environment as an integrated context for learning. Executive summary. State Education and Environment Roundtable, San Diego, CA.

\*McComas, William F. (2002). The ideal environmental science curriculum: I. History, rationales, misconceptions & standards. *The American Biology Teacher*, 64(9), 665-672.

National Environmental Education and Training Foundation (NEETF) and Roper Starch Worldwide (2001). *Lessons from the environment: Why 95% of adult Americans endorse environmental education / The ninth annual national report card on environmental attitudes, knowledge, and behaviors*. Washington, D.C: Author.

North American Association for Environmental Education. The environmental education collection - A review of resources for educators. Volume 1. NAAEE: Rock Springs, GA. Online available: [http://naaee.org/npeee/vol\\_1\\_resources.php](http://naaee.org/npeee/vol_1_resources.php)

North American Association for Environmental Education. The environmental education collection - A review of resources for educators. Volume 2. NAAEE: Rock Springs, GA. Online available: [http://naaee.org/npeee/vol\\_2\\_resources.php](http://naaee.org/npeee/vol_2_resources.php)

North American Association for Environmental Education. The environmental education collection - A review of resources for educators. Volume 3. NAAEE: Rock Springs, GA. Online available: [http://naaee.org/npeee/vol\\_3\\_resources.php](http://naaee.org/npeee/vol_3_resources.php)

Palmerton Natural Resources Trustee Council (2006, February). Palmerton Zinc Pile Superfund Site Natural Resource Damage Assessment Plan.

Pennock, M. T., & Bardwell L. V. (1994). Approaching environmental issues in the classroom. University of Michigan: Ann Arbor, MI. pp.1-23.

Pennsylvania Center for Environmental Education (2001). The essentials of environmental education for Pennsylvania. Module 1. The history and philosophy of environmental education. PCEE: Slippery Rock, PA. pp. 1-19.

Pennsylvania Center for Environmental Education (2001). The essentials of environmental education for Pennsylvania. Module 3. Teaching about environmental issues. PCEE: Slippery Rock, PA.

Pennsylvania Department of Education. (2002). Academic Standards for Environment and Ecology. Online available: <http://www.pde.state.pa.us/k12/lib/k12/envec.pdf>

US Fish and Wildlife Service. (2004, April). Restoring our resources. Pennsylvania's Palmerton Zinc Pile.  
World Wildlife Fund. (2000) The biodiversity collection. A review of biodiversity resources for educators. NAAEE: Rock Springs, GA. Online available: <http://www.naaee.org/npeee/biodiversity.php>

## Absences

It is difficult to make up absences when a majority of class time will be spent in the field examining, manipulating, and negotiating ideas. Please consider absences very carefully since this course does not meet face-to-face too often. The instructor reserves the right to lower the final grade 1/2 letter grade per absence.

## Weather policy

Be advised that I will not cancel class unless the university does so. Canceled classes due to acts of God or war will be rescheduled.

## Attention students:

Accommodations for Students with Disabilities: If you have a disability for which you are or may be requesting accommodations, please contact both your instructor and the Office of Academic Support Services, University Center C212 (610-758-4152) as early as possible in the semester. You must have documentation from the Academic Support Services office before accommodations can be granted.

## Graded Assignments

Below is a list of assignments that will be graded, along with the total points available for each. The assignments are explained in detail in the "Assignments" section.

Assignment	Points	Due Date
Forum Tasks (9 forum tasks. 10 pts each)	90	Ongoing
Book Review	100	3/5
Environmental Education Final Project	150	5/6

**Assignments submitted that have also been submitted for another Lehigh course will not be accepted.**

**Regular attendance and timely submission** of assignments are expected of all students and are not, therefore, rewarded in the assignment of marks. All Forum Tasks are due at the **end** of week indicated on the syllabus.

An assignment will be marked down 10% of the points for each day submitted late. For example, a Book Review assignment submitted 2 days late would receive a maximum of 80 points. A Book Review assignment submitted 4 days late would receive a maximum of 60 points.

***No late submission for the Environmental Education Final Project.***

## Criteria Employed In Assigning Marks

MARK	WHAT IT REFLECTS
<b>A</b> <b>(90-100%)</b>	Excellent work that demonstrates a clear understanding of the material under study and a superior ability to utilize that material in the assignment submitted. When options for marks are involved, indicates successful completion of the highest level option.
<b>B</b> <b>(80-90%)</b>	A solid piece of work that demonstrates an understanding of the material under study and utilizes that material well in the assignment submitted. Usually either fails to include some pertinent material or utilizes that material less well than would warrant assignment of a mark of A. When options for marks are involved, indicates successful completion of more than the minimal level option.
<b>C</b> <b>(70-80%)</b>	Adequate work that demonstrates a basic understanding of most of the material under study and which utilizes that material to some extent in the assignment submitted. Usually contains errors or omissions involving relevant material. When options for grades are involved, indicates successful completion of minimal level option.
<b>D</b> <b>(60-70%)</b>	Work that fails to demonstrate understanding of the material under study and fails to utilize relevant material in the assignment submitted. When options for marks are involved, indicates failure to complete successfully the minimal level option.
<b>F</b> <b>(below 60%)</b>	Work that is incomplete, inappropriate, completely incorrect, or was submitted late. This mark indicates severe problems that lead to questions about whether the student should be involved in graduate study.

### Final Grade Determination

Mark	Points
A	317 - 340
A-	306 - 313
B+	299 - 305
B	280 - 298
B-	272 - 279
C+	265 - 271
C	246 - 264
C-	238 - 245
D+	231 - 237
D	212 - 230
D-	204 - 211
F	0 - 203

The values on the right above are threshold values. That means the student GPA must **equal or exceed** that threshold value in order to receive the higher mark.

## WEEKLY SCHEDULE

Readings are posted to our course Web site (<http://coursesite.lehigh.edu>) and organized by class session number. Students are responsible for completing those materials each week no later than Friday.

Week	Discussion Topics and Assignments	Course List Readings )* denotes optional readings). Additional readings on Coursesite
#1 1/18 -1/22	<b>Face-to-face meeting on January 21</b> Course Overview.	
#2 1/23 -1/29	Foundations of Environmental Education <b>Forum Task #1 due</b>	Carter and Simmons (in press); Braus & Disinger (1996); Archie and McCrea (1996); Disinger and Monroe (1994); * Pennsylvania Center for Environmental Education (2001); * Chiras (2001)
1/29	<i>Last Day Drop/Add with a "W" and Registration</i>	
#3 1/30 -2/05	Environmental Education in school settings <b>Forum Task #2 due</b>	NAAEE (2004); Kaspar, (1999); Lieberman, and Hoody (1998); *McComas (2002)
#4 2/6 – 2/12	Environmental Literacy <b>Forum Task #3 due</b>	NEETF and Roper (2001)
#5 2/13 – 2/19	Environmental Literacy <b>Forum Task #4 due</b>	NAAEE (2004)
#6 2/20 – 2/26	A Critical Look at Environmental Literacy <b>Forum Task #5 due</b>	Environmental Literacy Council (2007)
#7 2/27 – 3/5	<b>Face-to-face meeting on March 4</b> Teaching and Learning about Environmental Issues <b>Book Review Due.</b>	Environmental Literacy Council (2007); Pennock, M. T., & Bardwell L. V. (1994); Pennsylvania Center for Environmental Education (2001)
3/6 – 3/12	<i>Spring Break.</i>	
#8 3/13 – 3/19	Environmental Issues in the Lehigh Valley Area <b>Forum Task #6 due</b>	
#9 3/20 – 3/27	<b>Face-to-face meeting on March 25</b> <b>Field trip on March 27. 9am – 4pm</b> <i>Class meets at Lehigh Transportation office – 121 Goodman Dr. on Goodman campus at 9 am.</i> <b>Wear good walking shoes. Bring water and snacks.</b> <b>Bring money for lunch stop.</b>  Palmerton Superfund Site. Lehigh Gap Nature Center.	Kunkle (2003, 2004, 2006); Hoopes (2003, 2008); Palmerton Natural Resources Trustee Council (2006)
#10 3/28 – 4/2	Geospatial Technologies in Environmental Education <b>Forum Task #7 due</b>	Audet and Ludwig (2000); Bodzin; 2008
#11 4/3 – 4/10	<b>Field trip on April 10. 9am – 4pm</b> <i>Class meets at Lehigh Transportation office – 121 Goodman Dr. on Goodman campus at 9 am.</i>	EPA (2008);

	<p>Lafarge Cement tour.          Jacobsburg EE center.          Recycling processes in manufacturing industries.          Energy issues.          Environmental laws and regulations.</p> <p>Role of State Parks in EE.          Biodiversity.          Personal rights and civic responsibility – access issues and rights.</p>	
#12 4/11 – 4/16	Environmental Literacy and Inquiry: Energy and Land Use Change	
#13 4/17 – 4/23	Activity Selection for Environmental Education	Bodzin (2002); NAAEE (2004)
#14 4/24 – 4/30	Work on Final Project	
May 6	<b>Final Project Due</b>	
<b>Notes:</b>	<p>There may be additional readings and exercises in the course that are not listed above but which are assigned as the course develops.</p> <p>We will attempt to comply with this syllabus as much as possible, although our discussions and the ways in which we learn may necessitate changes. The instructor will give you as much advance notice as possible of any changes.</p>	

# TLT/ES 367 Assignments

## Forum Tasks

Forum Task assignments are topic driven posting and response/discussion assignments based on a particular week's readings and/or learning tasks.

In general, forum participation should serve to enrich the learning experience for everyone. The primary purpose is for you to share thoughts and ideas with your peers. The instructor may not respond to every forum board posting, but does read and assess each one.

**Forum Task assignments are assessed based on participation, scholarship, and insight.** It is my intent that in certain Forum Tasks that you will read and comment on your classmates' forum postings. In doing so, it is expected that you will engage in a critical reflection and post a thoughtful and reflective response to the discourse in a forum thread.

### Commonly asked questions:

1. How much text must I post to each forum task?

There is no set limit. For some tasks, it is expected that you would post at least 5-6 thoughtful sentences. Forum task #1 is a good example:

*Based on your prior knowledge, experience, and a synthesis of this week's course readings, define EE in your own words.*

For other forum tasks in which there might be a more robust critical review task that you are responding to, 300-400 words would be an acceptable minimum. Forum task #6 is a good example:

*For every environmental issue there is no one right answer or solution.  
There are many perspectives and much uncertainty to solve such issues.*

*Discuss how this statement applies to some of the issues in the Lehigh Valley area. Select an issues-based simulation from this week's learning activities and discuss how different stakeholders can have varying viewpoints about an issue. Discuss how conflicts arise with regards to an environmental issue. How do environmental issues become resolved among differing stakeholders with opposing views? What are your thoughts and ideas? Provide specific examples from the Lehigh Valley issues to support your claims.*

2. What if I agree with someone's previous forum post?

This is fine. However, you cannot just write "I agree with what has already been said." If you agree with some one, discuss why you agree with what has already been said and provide additional insights to the discussion thread.



# **Book Review - The Lehigh Valley: A Natural and Environmental History by Robert Halma, Carl S. Oplinger**

## **Overview**

The purpose of this book review is to help you critically think about how the environmental features of the Lehigh Valley have changed over time.

All reviews are to be completed in the format stipulated and word processed using 12 point, Times font, double-spaced type. Be sure to address each item listed below.

## **I. Review of the Work (2-3 pages)**

- Summarize some of the main ideas presented in the book with regards to the environment.
- Compare the historical aspects of the Lehigh River watershed area to current features today. How has the availability of transportation routes influenced development in the Lehigh Valley?
- Describe the impacts of humans on the Lehigh Valley environment.
- How have local, regional, state, national, and international environmental laws and regulations influenced environmental decisions in the Lehigh Valley?

## **II. Implications for Environmental Education (2-3 pages)**

The environmental history and issues of the Lehigh Valley offer educators opportunities for teaching learners about investigating environmental issues, the role of science-technology-society, personal and civic responsibility, service learning, and community-based research and problem solving. Discuss some ideas that you have for integrating these types of environmental education pedagogies and strategies into a school-based, informal and/or public educational setting.

## **How to Format and Submit Your Assignment**

Your report should be in 12-point Times New Roman font with 1" margins all around. All pages of the entire document should be numbered sequentially. Each of the sections of the document should be labeled with the appropriate heading from above and they should be presented in the order that they are presented above. Your report should include a cover page with a title, "Book Review" and the words "TLT/ES 367 – Dr. Bodzin" and your name. Label your file: *last name.doc* (for example my file would be called: *bodzin.doc*)

Submit your paper using the **Assignment Submission in Coursesite**.

# Environmental Education Final Project

## Option 1: Environmental Issues Paper

Write an 8-10 page research paper on an environmental issues topic of your choice. Paper topic needs to be approved by the course instructor.

Your paper must contain a minimum of 8 references using APA format. The report should be word-processed using 12 point, Times font, double-spaced type.

In your paper, include the following:

- Provide content background about the problem.
- Discuss environmental concerns about the issue.
- Discuss economic concerns about the issue.
- Identify the differing positions about the issue.
- Identify proposed solutions to the issue.

## Option 2: EE Resource Unit (Required for Environmental Education certification students)

You will create an environmental education instructional unit to be used in a K-12 school classroom or informal education setting. State a specific grade level your unit will be implemented with. Your resource unit will contain:

- A comprehensive content outline that serves as a resource for the entire unit (materials to be used for activity centers, extension activities, etc.).
- A minimum of 5 lesson plans.
- At least one lesson that incorporates instructional technology into the unit (Web-based activity, GIS, probeware, hypermedia, software, etc.).
- An **end of the unit test** for the unit that incorporates a mixture of traditional assessment type items (i.e. multiple choice test items) and non-traditional assessment items (i.e. design problems). Include an **answer/scoring key** for this unit summative assessment.

**Your curricular resource unit is to be completed in the format stipulated below. Points will be deducted for not adhering to the assigned format.**

### I. Content Outline

A. **Overarching understandings.** What **overarching understandings** are desired? What will students understand as a result of this unit?

B. **Essential questions.** What are the **overarching “essential” questions of the unit?** What **“essential”** and **“unit”** questions will focus this unit? List the questions you will ask to determine whether the students understand the material studied and whether they can apply what they have learned.

C. **Assessment methods for gathering evidence.** What evidence will show that students understand \_\_\_\_\_? List performance tasks, projects, quizzes, tests, academic prompts, and other evidence (e.g. observations, work samples, dialogues) that you will use to assess learner understandings.

D. **Learning objectives.** Given the target understandings, other unit goals, and the assessment evidence identified, what knowledge and skills are needed? Specify what students **need to know** (facts, concepts, principles, generalizations) and **be able to do** (skills, process, and strategies) to demonstrate their understanding through performance.

Students will need to know .....

Students will need to be able to.....

E. **Learning Experiences.** What teaching and learning experiences will equip students to demonstrate the targeted understandings?

Be sure to **clearly articulate** your activity implementation ideas for each of your intended lessons. It is recommended

that you use a bulleted brief description list for each day of your unit.

For example....

Day 1:

- Present the story of the sailors' "mystery disease (scurvy).
- Introduce essential and unit questions and key vocabulary terms.
- Present concept attainment lesson on food groups, then categorize foods.

Day 2:

- Have students read and discuss the nutrition brochure from the USDA.
- Present lesson on the food pyramid and identify food in each group.

Day 3:

- Web-based activity on building balanced meals.

[Continue for each day of your unit.]

F. Consideration of **Safety Precautions**. What, if any, special considerations should be made about safety?

G. Consideration of **Special Students**. Describe variations on the lessons you would implement if you have special students - for example, students with disabilities or gifted students.

H. **Materials and Resources**. It is advantageous to determine necessary materials and resources to assist in the implementation of your unit. This way, you avoid limiting yourself to a few familiar items. Many of these items can be used in activity centers or for extension activities. Resources for your own personal planning use may also be listed.

**Be sure to use APA style for each of your references.**

A fairly complete list of how to cite materials in APA format is available in the Course Website.

For Internet resources, here is an acceptable format I would expect you to use:

Carolina Coastal Science. (1998). NC State University: Bodzin, Alec M. Retrieved September 28, 2000 from the World Wide Web: <http://www.ncsu.edu/coast>

**For Internet resources, make sure you include the Web site title, published date, publisher, author, date retrieved, and Web address (URL).**

- a. Printed Resources. Printed Resources. Books, textbooks, curricular enhancement modules, pamphlets, journals, maps, encyclopedias, magazines, booklets, professional journals. **(List at least 3)**
- b. Computer and CD-ROM Resources. Educational software, reference works, educational games and simulations related to curriculum, and CD-ROM adaptations of literature. **(List at least 1).**
- c. Internet Resources. **(List at least 6).**
- d. Audio/Visual Resources. Videos, films, filmstrips, laser discs, movies, slide programs, or overhead transparencies. **(List at least 1).**

## II. Lesson plans

**Your resource unit must contain at least 5 lesson plans.** The lesson plans must show developmentally sound scope and sequence to the content and concepts that are presented. You may get ideas from other places but do NOT just zerox intact lesson plans from somewhere else. Your selected assessments should correlate with your objectives. You may use any of the three lesson plan formats listed below.

### Lesson Plan Format

1. Grade level and subject
2. Science Concepts.

The scientific concept(s), generalization, concept, or theory students should be able to articulate as a result of this lesson.

### 3. Related Content Standards or Frameworks (National Science Education Standards and/or Pennsylvania Science Standards)

Write out the NSES, NAAEE or PA state standards that your lesson is aligned to. (Do not just list a number).

### 4. Objective(s)

List objective(s) as described in chapter 6 in the Trowbridge text.

### 5. Description of Introductory Activity (Anticipatory Set) and Discussion

Details on how you will introduce the lesson. This should contain details concerning a demonstration or other interest-focusing activity, the initial discussion, directions, and safety and management considerations appropriate for the lesson.

### 6. Materials Needed

A complete list of materials you will need to implement your lesson.

### 7. Description of Learning Activities

Describe the learning activities students will be conducting in the classroom. Required procedures should be listed.

### 8. Guiding questions/Typical Discussion Questions

List the questions you will present to students to engage them in learning the lesson's concept(s).

### 9. Lesson closure

How will you conclude your lesson to ensure that your learners understood the lesson's concept(s)?

### 10. Assessments

How will you assess that learning has occurred? Assessments used should include **both** formative and summative assessments. Describe the assessments you will use.

For formative, how will you use that information to inform teaching and influence learning? Be specific.

For summative, include assessment items that would appear at an end-of-the-unit quiz or test. These should align specifically to your lesson objective(s).

## How to Format and Submit Your Assignment

Your final project should be in 12-point Times New Roman font with 1" margins all around. All pages of the entire document should be numbered sequentially. Each of the sections of the document should be labeled with the appropriate heading from above and they should be presented in the order that they are presented above. Your final project should include a cover page with a title, "Environmental Education Final Project" and the words "TLT/ES 367 – Dr. Bodzin" and your name. Label your file: *last name.doc* (for example my file would be called: *bodzin.doc*)

## Option 3: Environmental Education in Your State

Interview two people in Environmental Education (EE) leadership positions within your state. This may be a State EE Board Member; State government official that works with Department of Environmental Protection, PA Game Commission, State Parks, or some other state agency; EE non-profit member such as Sierra Club chapter, Wildlands Conservancy, Lehigh Gap Nature Center, or other non-profit group.

Submit a 8-10 page paper (double-spaced) to your instructor that:

- Identifies the names, positions held, and backgrounds of the two EE leaders.
- Discusses each leader's responses to the following questions.

1. What is the history of EE in your state?

2. What is the current attitude of the state legislature and governor toward EE?

3. Where does EE fit organizationally within state agencies? Are there positions, offices, and/or responsibilities assigned to support EE? Specifically, what support is provided?
4. What are the strengths in our state in terms of providing EE to the state's students, teachers and citizens?
5. What are the weaknesses in our state in terms of providing EE to the state's students, teachers and citizens?
6. What specific steps need to be taken to build upon the strengths and address the weaknesses in order to improve our capacity to deliver EE to our state's students, teachers and citizens?
7. Who could/should provide leadership to initiate these steps?
8. Summarize your own reflections about the status of EE in your state, (i.e., what do you see as the strengths, weaknesses, needs, and future prospects?) based upon your interviews and your own experiences.

Submit your paper using the **Assignment Submission tool in Coursesite**

## Pennsylvania Department of Education Program Standards for Environmental Education Certification and Preparation

Competency	Artifact/activity that demonstrates competency
KNOWING THE CONTENT	
<p>I.A. History, philosophy, and research in Environmental Education including: Fundamental approaches, processes and goals of environmental education, Environmental education research and prominent researchers</p>	<p>Text readings including: Pennsylvania Center for Environmental Education (2001). The essentials of environmental education for Pennsylvania. Module 1. The history and philosophy of environmental education; Halma, R. &amp; Oplinger, C. S. (2001) The Lehigh Valley: A natural and environmental history; North American Association for Environmental Education (2000). Guidelines for the initial preparation of environmental educators.</p> <p>Web-based activities, Web-based modules, and in-class activities on the history, philosophy, and research in EE.</p> <p>Book review assignment.</p>
<p>I.B. Principles of environment and ecology including:</p> <ul style="list-style-type: none"> <li>• Influences of human populations and individuals on the environment</li> <li>• Environmental laws and regulations and their influence on ecosystems</li> </ul>	<p>Text readings including: Halma, R. &amp; Oplinger, C. S. (2001) The Lehigh Valley: A natural and environmental history; Chiras, D. (2001). Environmental science: Creating a sustainable future</p> <p>Web-based activities, Web-based modules, and in-class activities on anthropomorphic influences and environmental laws and regulations and their influence on ecosystems</p> <p>Field trip site visits and topics.</p> <p>Book review assignment.</p>
<p>I.F. Local, regional, state, national, and international environmental laws and regulations that influence environmental decisions including: Economic, political, social institutions and processes. Legal and cultural influences on social attitudes, values, and philosophies. Historical context of human organization, resource management and technological change.</p>	<p>Text readings including: Halma, R. &amp; Oplinger, C. S. (2001) The Lehigh Valley: A natural and environmental history; Chiras, D. (2001). Environmental science: Creating a sustainable future</p> <p>Web-based activities, Web-based modules, and in-class activities on local, regional, state, national, and international environmental laws and regulations that influence environmental decisions.</p> <p>Field trip site visits and topics.</p> <p>Book review assignment.</p>
<p>I.G. Stewardship and a healthy environment including: Personal rights and civic responsibility. Post management practices. Recycling. Local, national and global environmental health issues. Biodiversity and ecological sustainability</p>	<p>Text readings including: Halma, R. &amp; Oplinger, C. S. (2001) The Lehigh Valley: A natural and environmental history; Chiras, D. (2001). Environmental science: Creating a sustainable future</p> <p>Web-based activities, Web-based modules, and in-class activities on stewardship and a healthy environment.</p> <p>Field trip site visits and topics.</p> <p>Book review assignment.</p>

<b>PERFORMANCE</b>	
II.B. Planning of instruction based upon subject matter; students and community; school district standards; Pennsylvania Academic Standards; other standards that promote problem analysis, creativity and decision-making skills	Text readings including all NAAEE, PCEE, and PDE required readings.  In-class activities, Web-based modules, and handouts on topics of EE learning theories, EE frameworks and standards, inquiry in EE, EE unit planning.  Environmental Education Final Project assignment.
II.D. Designing, conducting and evaluating laboratory activities, using techniques, equipment and facilities that meet current technological standards including computer applications to science teaching, hands-on laboratory experiences and equipment	Course readings, and Website Modules on topics pertaining to incorporating instructional technologies into the curriculum.  Course activities including Web-based inquiry analyses, Real-time data collection activities during field trips, inquiry-based classroom lessons using spreadsheets and databases, and Web-based instructional materials located on course Websites utilizing interactive java applets, GIS, QuickTime VR, Flash interactivities, and Web-based data submission forms.  Environmental Education Final Project assignment.
II.E. Selecting, analyzing and modifying materials to meet the instructional needs and levels of diverse learners	Text readings including all NAAEE, and PCEE required readings. Web-based modules on implementing and customizing EE materials.  Environmental Education Final Project assignment.
<b>III. PROFESSIONALISM</b>	
III.A. Professional organizations, publications, resources, professional development and life-long learning	EE professional organizations resources.

<b>354.32 MONITORING AND ASSESSMENT</b>	<b>Artifacts/activities that demonstrates competencies</b>
(1) The progress of candidates at different stages of the program shall be monitored through performance-based assessments, which shall stipulate the level of competence required to ensure success in the following skill dimensions:	Environmental Education Final Project assignment.
(i) Content mastery	Course activities including assessment and rubric development, inquiry-based classroom lessons, Web-based inquiry analyses, real-time data collection activities, inquiry-based classroom lessons using spreadsheets and databases, evaluating the quality of instructional materials with the NAAEE guidelines, and implementation of Web-based instructional activities located on course Websites.  Course readings, Website handouts on assessment and evaluation, and discussion of safety in the EE classroom and on field trips.
(ii) Planning	
(iv) Organization	
(v) Monitoring student progress	
(vii) Sensitivity to students' needs	
(viii) Problem analysis	
(ix) Strategic and tactical decision making	
(x) Oral and written communication and presentation	
(xi) Mastery of instructional technology	
(xii) Mastery of instructional technology	

<b>354.33 PROFESSIONAL COMPETENCY (1)(i) Instructional</b>	<b>Artifacts/activities that demonstrates competencies</b>
(A) The teacher understands the central concepts, tools of inquiry, and structures of the discipline the teacher teaches and can create learning experiences that make these aspects of subject matter meaningful for all students.	Text readings including all NAAEE, PCEE, and PDE required readings.  In-class activities and handouts on topics of EE learning theories, EE frameworks and standards, inquiry in EE, EE unit planning. Environmental Education Final Project assignment.
(C) The teacher understands how students differ in their ability and approaches to learning and creates opportunities that foster achievement of diverse learners in the inclusive classroom.	Text readings including all NAAEE and PCEE required readings.  Environmental Education Final Project assignment.
(D) The teacher understands and uses a variety of instructional strategies, including interdisciplinary learning experiences, to encourage students' development of critical thinking, problem solving and performance skills.	Course readings, Website handouts, and classroom experiences including topics of on incorporating instructional technologies into the curriculum, EE learning theories, STS debate simulations, inquiry in EE, GIS, and EE curriculum integration.  Course activities including Web-based inquiry analyses, real-time data collection activities during field trips, inquiry-based classroom lessons using spreadsheets and databases, and Web-based instructional materials located on course Websites utilizing interactive java applets, GIS, QuickTime VR, Flash interactives, and Web-based data submission forms. Environmental Education Final Project assignment.
(E) The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning and self-motivation.	Course readings, Website Modules, and classroom experiences including topics of EE learning theories, STS debate simulations, inquiry in EE, GIS, and EE curriculum integration. Environmental Education Final Project assignment.
(F) The teacher uses knowledge of effective verbal, nonverbal and media	Course readings, and Website Modules pertaining to



<p>communication techniques supported by appropriate technology to foster active inquiry, collaboration and supportive interaction in the classroom.</p>	<p>incorporating instructional technologies into the curriculum.  Course activities including Web-based inquiry analyses, real-time data collection activities during field trips, inquiry-based classroom lessons using spreadsheets and databases, and Web-based instructional materials located on course Websites utilizing interactive java applets, GIS, QuickTime VR, Flash interactives, and Web-based data submission forms.  Environmental Education Final Project assignment.</p>
<p>(G) The teacher plans instruction based upon knowledge of subject matter, students, the community and curriculum goals.</p>	<p>Text readings including all NAAEE, PCEE, and PDE required readings.  In-class activities and handouts on topics of EE learning theories, EE frameworks and standards, inquiry in EE, EE unit planning.  Environmental Education Final Project assignment.</p>
<p>(H) The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social and physical development of the learner.</p>	<p>Course readings, and Website handouts on assessment and evaluation.  Assessment and rubric development course activities.  Environmental Education Final Project assignment.</p>
<p>(I) The teacher thinks systematically about practice, learns from experience, seeks the advice of others, draws upon educational research and scholarship and actively seeks out opportunities to grow professionally.</p>	<p>Introduction to state and national environmental education professional organizations.</p>