

COLLEGE OF EDUCATION &
HEALTH PROFESSIONS



EDUC 5359: Environmental Science for Elementary
and Secondary Teachers

Summer 2013

Instructor Information:

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Instructor Web Site:	http://www.uta.edu/ra/real/faculty/cavallo		
Course Web Site:	http://elearn.uta.edu		

Course Information:

Course Title:	Environmental Science for Elementary and Secondary Teachers
Course Number:	EDUC 5359.007
Semester:	Summer 2013
Course Meeting Time and Location:	June 12, 5:00 p.m. – 9:00 p.m., Room 226 Science Hall, UTA Campus June 14, 6:00 a.m. – 6:00 p.m., Fossil Rim & Comanche Peak, Glen Rose, TX June 16-21, 6:00 a.m. – 9:00 p.m. daily, Big Brown Mine, Fairfield, TX June 26, 5:00 p.m. – 9:00 p.m., Room 226 Science Hall, UTA Campus

Catalog Description

Designed for elementary, middle and high school teachers who examine a variety of energy and environmental education issues and instructional strategies for classroom and outdoor settings. The course provides a broad spectrum of content from all areas of science and opportunities to participate in field trips, science investigations and seminar sessions. It facilitates the implementation of an environmentally based curriculum in schools using best practices.

Students experience a week long field course at Luminant in Fairfield, Texas on topics of energy, environmental science, conservation, and preservation of natural resources. Students develop inquiry, standards-based curricula based on the Luminant course experiences to use in their classrooms and share with teacher-participants.

Course Prerequisites:

There are no prerequisites listed for this course. Must be a graduate student to be enrolled in the course.

Textbook(s) and Materials:

- Truett, J.C. & Lay, D.W. (1984). *Land of Bears and Honey: A Natural History of East Texas*. Austin, TX: University Press
- Online resources and print material as posted on Webct: <http://elearn.uta.edu>
- National Research Council (1996). *National Science Education Standards*. Washington, DC: National Academy Press. <http://www.nap.edu/readingroom/index.html>
- Texas Essential Knowledge and Skills for Science. www.tea.state.tx.us/rules/tac/chapter112/ch112a.html
- National Science Teachers Association. *Science and Children* and *Science Scope* (monthly publications for elementary and middle school teachers). Washington, DC: NSTA. <http://www.nsta.org>
- Marek, E.A., & Cavallo, A.M.L., (1997). *The Learning Cycle: Elementary School Science and Beyond*. Portsmouth, NH: Heinemann.

Learning Outcome/Objectives:

The general structure of this course engages students in active, field-based experiences that serve the purposes of a) learning earth science concepts related to energy, environment and conservation/reclamation, and b) translating science concepts learned into meaningful science teaching curricula for students. The specific goals of this course are as follows.

1. *Understanding the Science Process:* Students will gain understanding of the nature of scientific inquiry, and the use of science inquiry in teaching and learning earth science concepts.
2. *Understanding Science Content:* Students will form sound understandings of central concepts related to energy and the environment, and their application to everyday life.
3. *Applying the Standards:* Students will be able to apply the National Science Standards and Texas State Standards (TEKS) in selecting and developing high quality teaching and learning experiences for elementary school students.
4. *Developing Curricula:* Students will prepare inquiry-based (learning cycle) teaching/learning modules that on topics and experiences learned in the course in a form readily usable for teaching in elementary school classrooms.
5. *Utilizing Professional Resources:* Students will use a wide variety of instructional resources for teaching and learning energy topics such as books, professional journals, the Internet and other support media, and the community.

Course Topic Schedule:

Date	Topic	Assignment
June 8 Wednesday 5:00 pm – 9:00 p.m. Room 226 Science Hall UT Arlington Campus	Introductions Energy and Environmental Education Field Course Information Q & A Syllabus and Assignment	Readings Pack
June 10 Monday Leave at 6:30 a.m.	Tour Comanche Peak and Fossil Rim, Glen Rose Texas	Reading Planning Assignment
June 12 – 17 6:30 am – 9:00 pm daily	Field Course at Luminant Facility *See full schedule provided*	Daily chapter readings from Truett and Lay book: <i>Land of Bears and Honey</i> . Develop and be ready to discuss curriculum (inquiry, learning cycle) ideas with peers/participants
June 22 Wednesday 5:00 pm – 9:00 p.m. Room 226 Science Hall UT Arlington Campus	Present Curriculum Course Conclusion and Celebration Course Feedback and Evaluation	Due: Assignment 1 <i>Learning Cycle/5E Curriculum</i> Due: Assignment 2 <i>Photographic Journal</i> Due: Assignment 3 <i>Learning Cycle/5E Presentation</i>
Due: Assignment 4 <i>Participation</i> is evaluated throughout the course.		
* Course topics and dates are subject to change.		

Assignments:

1. Learning Cycle/5-E Development.

- a. Select a science concept related to/experienced in the Luminant course.
- b. Develop an inquiry-based learning cycle on your selected concept. The learning cycle/inquiry lesson on this concept must also integrate at least one other subject in the curriculum (mathematics, social studies, language arts).
- c. Prepare teacher and student guides for your Learning Cycle.
- d. You may post a first draft, *Draft I Learning Cycle/5-E* to be reviewed by the course instructor for feedback prior to final class meeting.
- e. Revise the *Draft I Learning Cycle/5-E* according to instructor feedback.
- f. Submit the *Final Learning Cycle/5-E* in electronic format
- g. Attach **Assignment 2** this assignment – **see below**

*As permitted, curricula developed in the course will be made available in electronic form to all class participants.

2. **Electronic or Book Format Photographic Journal for Use in Teaching.**

- a. During the Luminant field experience, take photographs
- b. Make a power point or scrapbook of photographs that can be usefully shared with students in teaching.
- c. Write captions describing the photographs (scientific aspects, as appropriate).
- d. Present power point as Application/Elaboration phase of learning cycle with teachers in course at the final class meeting.
- e. *This scrapbook can be used as part of your Learning Cycle (application phase) in Assignment 1.*

10 points

3. **Presentation of Learning Cycle Curricula.**

- a. During the final class meeting, make a brief, 10 minute presentation of the learning cycle curriculum developed in the course.
- b. Submit the presentation to course instructor in electronic form.

30 points

4. **Participation.** Participation includes completing assigned readings and contributing to class discussions. Actively participating in field and other course activities, timely completion of assignments, and other affective variables related to course work. The instructor monitors student participation throughout the course.

20 points

TOTAL = 100 points

****Details and scoring criteria of each assignment will be provided.***

Grade Calculation:

A = 90 – 100

B = 80 – 89

C = 70 – 79

D = 60 – 69

F = Below 60

Attendance and Drop Policy:**Class Attendance**

Class attendance for all class meetings and for the duration of the program is expected and required.

Drop Policy

Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. Contact the Financial Aid Office for more information.

Policies:

The course website at <http://webct.uta.edu> will be utilized where all course materials and additional resources will be posted. Email messages and other discussion/correspondence will take place via the course website. **Utilizing this website is a required function of the course.** Students must access course materials at the Webct website to be successful in this course.

Email Communication:

The University of Texas at Arlington has adopted the University “MavMail” address as the sole official means of communication with students. MavMail is used to remind students of important deadlines, advertise events and activities, and permit the University to conduct official transactions exclusively by electronic means. For example, important information concerning registration, financial aid, payment of bills, and graduation are now sent to students through the MavMail system. All students are assigned a MavMail account. Students are responsible for checking their MavMail regularly. Information about activating and using MavMail is available at <http://www.uta.edu/oit/email>. There is no additional charge to students for using this account, and it remains active even after they graduate from UT

Arlington. To obtain your NetID or for logon assistance, visit <https://webapps.uta.edu/oit/selfservice/>. If you are unable to resolve your issue from the Self-Service website, contact the Helpdesk at helpdesk@uta.edu.

You are responsible if you do not receive information because you do not regularly check your UTA email.

University Mission:

The University of Texas at Arlington is a comprehensive research, teaching, and public service institution whose mission is the advancement of knowledge and the pursuit of excellence. The University is committed to the promotion of lifelong learning through its academic and continuing education programs and to the formation of good citizenship through its community service learning programs. The diverse student body shares a wide range of cultural values and the University community fosters unity of purpose and cultivates mutual respect.

College Mission:

The mission of the College of Education and Health Professions (COEHP) is to promote a collaborative culture of excellence in research, teaching, and service. The College is committed to fostering critical, creative thinkers prepared to engage meaningfully in a dynamic society. It offers certification and degree opportunities for persons interested in becoming elementary, middle-level, all-level, or secondary teachers and administrators.

Conceptual Framework:

The work of the College of Education is grounded in constructivism as a theory of teaching and learning and is done in a spirit of expectation that all involved in the College of Education and Health Professions, whether candidate, faculty or administrator, will hold the following as important: **Excellence, Student-Centered Environments, Research, Collaboration, Diversity, Technology, Field Experiences and Life-Long Learning.** Partners for the Future serves as the theme of the College of Education and Health Professions and epitomizes the understanding that it takes a village of partners to insure the future of education for all

American with Disabilities Act (ADA):

The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course, at the beginning of the semester, must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Student Support Services:

The University of Texas at Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. These resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals to resources for any reason, students may contact the Maverick Resource Hotline at 817-272-6107 or visit www.uta.edu/resources for more information.

Academic Honesty:

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University. According to the UT System Regents' Rule 50101, §2.2, "Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts."