

COLLEGE OF EDUCATION & HEALTH
PROFESSIONS



EDUC 5359: Environmental Science for Elementary and
Secondary Teachers

Summer 2014

Instructor Information

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Course Website: <http://elearn.uta.edu>

Course Information

Course Title:	Environmental Science for Elementary and Secondary Teachers
Course Number:	EDUC 5359.007
Semester:	Summer 2014
Course Meeting Time and Location:	June 9, 5:00 p.m. – 9:00 p.m., Room 226 Science Hall, UTA Campus June 13, 6:00 a.m. – 6:00 p.m., Fossil Rim & Comanche Peak, Glen Rose, TX June 15-20, 6:00 a.m. – 9:00 p.m. daily, Big Brown Mine, Fairfield, TX June 30, 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 (PROVIDED)

Online resources and print material as posted on Blackboard: <http://elearn.uta.edu>

Next Generation Science Standards (2013), Washington, DC: Achieve, Inc. <http://www.nextgenscience.org/>

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 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:

- Understanding the Science Process:* Students gain understanding of the nature of scientific inquiry, and the use of science inquiry in teaching and learning science concepts.
- Understanding Science Content:* Students form sound understandings of central concepts related to energy and the environment, and their application to everyday life.
- Applying the Standards:* Students apply the NGSS, National Science Standards, and Texas State Standards (TEKS) in selecting and developing high quality teaching and learning experiences for K-12 students.
- Developing Curricula:* Students prepare inquiry-based (5E/learning cycle) teaching/learning modules on topics and experiences learned in the course in a form readily usable for teaching in K-12 school classrooms.
- Utilizing Professional Resources:* Students use a variety of instructional resources for teaching and learning energy and environmental topics such as books, professional journals, the Internet, electronic support media, and community resources.

Course Topic Schedule

Date	Topic	Assignment
June 9 Wednesday 5:00 pm – 9:00 pm Room 226 Science Hall UT Arlington Campus	Introductions and Overview Field Course Information Q & A Syllabus and Assignment	Readings Pack
June 13 Friday Leave DFW between 6:00 a.m. and 7:30 a.m.; Depart Glen Rose between 5:00 pm and 6:00 pm	Tour Comanche Peak and Fossil Rim, Glen Rose Texas	Planning Assignment
June 15 – 20 6:30 am – 9:00 pm daily	Field Course at Luminant Big Brown Mine Facility *Refer to detailed schedule*	Daily chapter readings from Truett and Lay book: <i>Land of Bears and Honey</i> . Due Assignment 4: Reading and Book Presentation <i>Draft 1</i> presentations of 5E/learning cycle plans with peers/participants
June 30 Wednesday 5:00 pm – 9:00 pm Room 226 Science Hall UT Arlington Campus	Present Curriculum Course Conclusion and Celebration Course Feedback and Evaluation	Due Assignment 1: 5E/Learning Cycle Curriculum Due Assignment 2: Photographic Journal Due Assignment 3: 5E/Learning Cycle & Photographic Journal Presentation
Due Assignment 5: Participation is evaluated throughout the course.		
Note: Course topics and dates are subject to change.		

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

1. Learning Cycle/5-E Development.

- Select a science concept related to/experienced in the Luminant course.
- 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), technology, or adaptations for diverse learners.
- Prepare teacher and student guides for your 5E/Learning Cycle.
- You may post a first draft, **Draft I** 5E/Learning Cycle to be reviewed by the course instructor for feedback prior to final class meeting.
- Revise the Draft I 5E/Learning Cycle according to instructor feedback.
- Submit the **Final 5E/Learning Cycle** in electronic format for instructor review

Notes: You may attach **Assignment 2** to this assignment – see below. As permitted, curricula developed in the course will be made available in electronic form to all class participants.

40 points

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

- a. During the Luminant field experience, take photographs
- b. Make a power point, Prezi, other electronic capture, or paper scrapbook of photographs that can be usefully shared with students in teaching.
- c. Write captions describing the photographs (scientific aspects, as appropriate).
- d. Develop the Photographic Journal as **either** Elaboration/Application phase of 5E/learning cycle or a stand-alone teaching tool.
- e. Submit the photographic journal to instructor for review.

20 points

3. Presentation of Learning Cycle Curricula.

- a. During the final class meeting at UT Arlington make a presentation that explains your **Assignment 1** 5E/learning cycle to the class. The format can be to show your learning cycle on screen and discuss, make a shortened power point version, or distribute as hard copy to discuss.
- b. During this presentation also share/present your **Assignment 2** Photographic Journal to instructor/peers at the final class meeting.

10 points

4. Book Reading and Presentation.

- a. Groups of three teachers will each be assigned to read 1 or 2 chapters of the book: Truett, J.C. & Lay, D.W. (1984). *Land of Bears and Honey: A Natural History of East Texas*. Austin, TX: University Press (PROVIDED BY PROGRAM). The reading will be completed by Wednesday evening of the program.
- b. Each group of three will make an informal, interpretative presentation that illustrates and explains the chapter they have read to the rest of the group.

20 points

- 5. 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.

10 points

TOTAL = 100 points

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 <http://elearn.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 **and official email will utilize the UT Arlington email address. Utilizing this website and official UT Arlington email is a required function of the course.** **Students must access course materials at the Blackboard 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. If you are unable to resolve your issue from the Self-Service website, contact CDE support cdesupport@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."