



**ELED 437**  
**Science, Technology, and Math in a Field-Based Setting**  
**COURSE SYLLABUS: Fall 2017**

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<b>COURSE INFORMATION</b>
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**Materials – Textbooks, Readings, Supplementary Readings:**

Rosado, Luis A., EdD, *TEXES Core Subjects EC-6 (291), 3rd Edition*, 2016

*Textbook(s) Required:*

TEXES Core Subjects EC-6 (291) Book + Online (TEXES Teacher Certification Test Prep) 3rd Edition by Dr. Luis A. Rosado Ed.D. ISBN 13: 978-0738611983

National Council for teachers of math <http://www.nctm.org>

Texas Administrative Code (TAC), Title 19, Part II Chapter 126. Texas Essential Knowledge and Skills for Technology Applications: Subchapter A (K-5) and Subchapter B (6<sup>th</sup>). PDF versions available at the bottom of the webpage <http://ritter.tea.state.tx.us/rules/tac/chapter126/index.html>

English Language Proficiency Standards  
(ELPS) <http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html#74.4>

**Course Description:**

**ELED 437. Integrated Learning: Math, Science, & Technology in Field-Based Settings.**

Explores the integrated nature of learning with science, and math as content focus and with technology understanding, usage, and how it can enhance best practices. Seminars are conducted in CPDT centers; field-based applications take place in public schools under the guidance of public school teachers and university personnel that comprise the Instructional Leadership Team.

## **Student Learning Outcomes:**

1. The student will be an active and engaged participant in class discussions and Field Based experiences by analyzing, constructing/creating, and evaluating information presented within the textbook, external readings/resources, and class discussion.
2. The student uses problem-solving and decision-making skills, working independently and with others in a variety of settings. The student is expected to (a) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement solutions, and evaluate the effectiveness of the solution; and (b) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision. (SLO 4. Ethical Decision Making and Social Responsibility/Obj. 2)
3. The student will be able to design appropriate activities and experiences; implementing them in seminar and Field Based settings for math, science, technology, Science, Technology and Math, and reading through lessons that meet the state mandated Texas Essential Knowledge and Skills and the English Language Proficiency Standards.
4. The student will recognize and utilize technology in planning and appropriately implementing learning activities with children in math, science, Science, Technology and Math, and reading, as well as when communicating with parents.
5. The student will be able to identify, create, and apply a variety of teaching and classroom management strategies in seminar and Field Based setting that meet the individual, developmental, and diverse needs of young children.
6. The student will be introduced to and utilize the varied and appropriate assessments and assessment practices to monitor math, science, technology, Science, Technology and Math, and reading content comprehension and learning.
7. The students will associate Early Childhood-Sixth Grade and PPR Standards (TEXES) and ELPS for math, science, technology, Science, Technology and Math, and reading competencies with the course content and Field Based experience.

## **TEA Standards I-IV. Domains I-IV. Competencies:**

### ***Standard I. Domain I.***

**The teacher designs instruction appropriate for all students that reflects an understanding of relevant content and is based on continuous and appropriate assessment.**

1.1k the intellectual, social, physical, and emotional developmental characteristics of students in different age groups;

1.2k the implications of students' developmental characteristics for planning appropriate instruction;

1.5k cultural and socioeconomic differences and the significance of these differences for instructional planning; and

1.6k appropriate strategies for instructing English language learners.

1.7k the importance of the state content and performance standards as outlined in the Texas Essential Knowledge and Skills (TEKS);

1.10k how lesson content and skills connect with other disciplines and within the discipline; and

1.11k current research on best pedagogical practices.

1.12k the importance of developing instructional goals and objectives that are clear, relevant, meaningful, and age-appropriate;

1.13k the importance of developing instructional goals and objectives that can be assessed;

1.14k the importance of developing instructional goals and objectives that are suitable for students with varied learning needs; and

1.16k the use of appropriate materials and resources for preparing instruction, presenting lessons, and assessing learning;

1.17k the importance of knowing when to integrate technology into instruction and assessment; and

1.19k the importance of designing instruction that reflects the TEKS;

1.20k features of instruction that maximize students' thinking skills;

1.21k the importance of planning lessons and structuring units so that activities progress in a logical sequence;

1.22k how materials, technology, and other resources may be used to support instructional goals and objectives and engage students in meaningful learning;

1.23k the benefits of designing instruction that integrates content across disciplines; and

1.24k the importance of engaging in continuous monitoring and self-assessment of instructional effectiveness.

1.25k the role of assessment in guiding instructional planning;

1.26k the importance of creating assessments that are congruent with instructional goals and objectives;

1.28k the role of technology in assessing student learning;

1.30k the connection between the Texas statewide assessment program, the TEKS, and instruction; and

1.1s plan lessons that reflect an understanding of students' developmental characteristics and needs;

1.2s adapt lessons to address students' varied backgrounds, skills, interests, and learning needs, including the needs of English language learners;

1.3s use effective approaches to address varied student learning needs and preferences

1.5s acknowledge and respect cultural and socioeconomic differences among students when planning instruction.

1.6s use the Texas Essential Knowledge and Skills (TEKS) to plan instruction;

1.9s plan instruction that reflects an understanding of important prerequisites relationships;

- 1.10s plan instruction that makes connections within the discipline and across disciplines; and
- 1.12s develop instructional goals and objectives that are clear, relevant, meaningful, and age-appropriate;
- 1.13s develop instructional goals and objectives that are able to be assessed;
- 1.14s develop instructional goals and objectives that reflect students' age, developmental level, prior skills and knowledge, back-ground, and interests; and
- 1.15s develop instructional goals and objectives that reflect different types of student learning and skills.
- 1.16s use various types of materials and other resources to aid in preparing and implementing instruction;
- 1.17s use technological tools to promote learning and expand instructional options; and
- 1.19s plan instructional activities that progress sequentially and support stated instructional goals based on the TEKS;
- 1.21s use varied activities and instructional groupings to engage students in instructional content and meet instructional goals and objectives;
- 1.23s provide students with opportunities to explore content from many perspectives.

### ***Standard II. Domain II.***

**The teacher creates a classroom environment of respect and rapport that fosters a positive climate for learning, equity, and excellence.**

- 2.1k the importance of creating a learning environment in which diversity and individual differences are respected;
- 2.10k routines and procedures for managing and using materials, supplies, and technology;
- 2.14k appropriate behavior standards and expectations for students at various developmental levels; classroom;
- 2.15k the significance of district policies and procedures for managing student behavior and ensuring ethical behavior in the class-room.
- 2.1s interact with students in ways that reflect support and show respect for all students;
- 2.5s ensure that instructional goals and objectives, activities, classroom interactions, assessments, and other elements of the classroom environment convey high expectations for student achievement.
- 2.7s organize and manage groups to ensure that students work together cooperatively and productively;
- 2.14s communicate high and realistic expectations for students' behavior and ensure that students understand behavior expectations and consequences for misbehavior.

### ***Standard III. Domain III.***

**The teacher promotes student learning by providing responsive instruction that makes use of effective communication techniques, instructional strategies that actively engage students in the learning process, and timely, high-quality feedback.**

3.2k principles and strategies for communicating effectively in varied teaching and learning contexts;

3.3k spoken and written language that is appropriate to students' age, interests, and background; and

3.4k skills and strategies for engaging in skilled questioning and leading effective student discussions

3.5k criteria for selecting appropriate instructional activities and assignments for students with varied characteristics and needs;

3.6k how to present content to students in relevant and meaningful ways

3.7k the use of instructional materials, resources, and technologies that are appropriate and engaging for students in varied learning situations;

3.8k the importance of promoting students' intellectual involvement with content and their active development of understanding;

3.9k strategies and techniques for using instructional groupings to promote student learning;

3.11k techniques for structuring and pacing lessons in ways that promote student engagement and learning.

3.12k characteristics of effective feedback for students;

3.13k the role of timely feedback in the learning process; and

3.14k how to use constructive feedback to guide each student's learning

3.15k the significance of teacher flexibility and responsiveness in the teaching/ learning process; and

3.16k situations in which teacher flexibility can enhance student learning.

3.1s communicate directions, explanations, and procedures clearly, accurately, and with an appropriate level of detail, both orally and in writing;

3.4s use effective communication techniques, including questioning and discussion techniques, to foster active student inquiry, higher-order thinking, problem solving, and productive, supportive interactions;

3.6s apply skills for leading discussions that engage all students in exploring important questions and that extend students' knowledge.

3.7s create lessons with a clearly defined structure around which activities are organized;

3.9s select and use instructional materials, resources, and technologies that are suitable for instructional goals and that engage students cognitively;

3.10s represent content effectively and in ways that link with student's prior knowledge and experience;

3.11s use flexible grouping to promote productive student interactions and enhance learning;

3.12s pace lessons appropriately and flexibly in response to student needs;

4.10k the importance of documenting self-assessments;

4.11k characteristics, goals, and procedures associated with teacher appraisal; and

4.12k the importance of using reflection and ongoing self-assessment to enhance teaching effectiveness.

## COURSE REQUIREMENTS

### **Instructional / Methods / Activities Assessments**

This course consists of a series of activities, experiences/observations in the field, and assessments to assist you in achieving the outcomes/objectives for the course and instructional units. The student will consistently work on various combinations of assignments, activities, field experiences/observations, discussions, readings, research, etc.

### **Professionalism - 200 points**

Class periods are completely interactive. If you miss, it is virtually impossible to make-up planned inter-active learning opportunities. Students will attend and be ready to participate in class discussions, with assigned readings, and contribute to group activities. This includes turning in homework in a timely and professional manner. This also includes professional behaviors at your field-based assignment. Student Learning Outcomes: 1,2,4, 7.

Assessment Method: Professional rubric determined by the Instructional Leadership Team

### **The Reflective Teacher – 100 points**

#### **Lesson Observation Write up**

#### **Articles/Books/Blogs Study Reflection**

You will read articles, books, and blogs relating to teaching Science, Technology and Math. You will comment on these readings and be ready to add to the class discussion. You will conduct a field-based investigation on your assigned campus observing a Science, Technology/Math lesson performed by your mentor or another teacher. You will make notes on the teaching and learning strategies, technology, lesson delivery, manipulative usage, lesson cycle implementation, classroom management, and assessment. We will discuss these in class and determine how they relate to the pedagogy you have studied in your courses up to this point and the articles discussed in class. You will then write a paper that synthesizes all that you learned from your placement and from the articles that we discussed in class. Student Learning Outcomes: 1-7 (PPR Standards 2.1k, 2.1s, 2.2s) (ELA/Reading Standards 1-12; PPR Standards 1.1k-1.6k, 1.25k; TEC 38.003)

Assessment Method: Discussion rubric, writing rubric

### **Cross Curricular Unit – 100 points**

Working together in a cooperative group you will design and present a five day integrated lesson plan based on TEKS. You must integrate language arts, social studies, Math, and science throughout the lesson plan. Make use of all the pedagogy that you have learned to this point in your classes.

Student Learning Outcomes: 1-6 Standard I. Domain I. 1.19k, 1.24k, 1.20k, 1.23k, 1.24k, 1.25k, 1.26k  
Standard III. Domain III. 3.2k, 3.3k, 3.4k, 3.5k, 3.6k, 3.7k, 3.8k, 3.12k, 3.13k, 3.14k, 3.15k, 4.10k

Assessment Method: Presentation of lesson, lesson evaluation based on provided rubric

### **Core Subject Presentation – 100 points**

You will participate in a TExES cooperative group that utilizes the textbook. Your group will share with your peers your chosen or assigned chapter to present a plan of action

Students are to log and turn in at least six hours of outside study activities.  
The seminar team will guide students on test taking strategies and resources for TExEs.  
Student Learning Outcomes: 1-7

Assessment Method: Documentation of study procedures and resources. Success on the EC-6 Core Subject TExES.

### **Content Final – 100 points**

#### **Instructions for Certify Teacher:**

1. Go to <http://www.certifyteacher.com>
2. Select the study guide you wish to purchase – make sure to select the **online** version option. Re-member – access is granted until you receive a passing grade from the state
3. Click **Login** under the **Apply Promo Code** option in the **My Shopping Cart** page
4. Click **Sign In** under “I Don’t Have an Account Yet” to create your account – make sure to use your **university e-mail address** when creating the account – the promo code will **not** work for any other e-mail.
5. Enter the Promo Code **TEXES4728** when prompted. The price will drop to the discount price after that (\$25)
6. Select **Accept** in the **Six Clock-Hours Requirement** window for your promo code to be validated
7. Complete the purchase transaction by providing your credit card information. You will be able to access your online readiness review solution seconds after the purchase transaction is complete.

Student Learning Outcomes: 1-7

Assessment Method: Comprehensive exam on each subject through Certify Teacher

**Final Grading:**

Grading will reflect a combination of seminar and fieldwork. Field focus: prior preparation, strength and delivery of lessons, knowledge of subject matter, utilization of lesson design, and assessment of student progress. A grading sheet will be handed out in class.

<b>ELED 437 Science, Technology, and Math in a Field-Based Setting</b>	<b>Possible Points</b>	<b>Earned Points</b>
Science Lesson Observation Report/Exhibition	25	
Math Lesson Observation Report/Exhibition	25	
Science & Math – Articles/Books/ Blogs Study Reflection	50	
STEM Lesson Plan	100	
Science EC-6 Content Final	50	
Math EC-6 Content Final	50	
Cross Curricular Unit	100	
Core Subject Presentation	100	
Field Supervision Evaluation ( 1 <sup>st</sup> placement)	50	
Field Supervision Evaluation (2 <sup>nd</sup> placement)	50	
Field Supervision Evaluation	100	
Mentor 1 Final Grade	50	
Mentor 2 Final Grade	50	
Professionalism	200	
<b>Total Points</b>	<b>1000</b>	

<b>TECHNOLOGY REQUIREMENTS</b>
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The following information has been provided to assist you in preparing to use technology successfully in this course.

- Regular access to leomail.
- Internet access/connection – high speed recommended (not dial-up)
- Word Processor (i.e. MS Word)

Our campus is optimized to work in a Microsoft Windows environment. This means our courses work best if you are using a Windows operating system (XP or newer) and a recent version of Microsoft Internet Explorer (6.0, 7.0, or 8.0).

Your courses will also work with Macintosh OS X along with a recent version of Safari 2.0 or better. Along with Internet Explorer and Safari, eCollege also supports the Firefox browser (3.0) on both Windows and Mac operating systems.

It is strongly recommended that you perform a “Browser Test” prior to the start of your course. To launch a browser test, login in to eCollege, click on the ‘myCourses’ tab, and then select the “Browser Test” link under Support Services.



This course will be facilitated using eCollege, the Learning Management System used by Texas A&M University-Commerce. To get started with the course, go to: <https://leo.tamuc.edu/login.aspx>. Another shortcut is <http://online.tamuc.org>. You will need your CWID and password to log in to the course. If you do not know your CWID or have forgotten your password, contact Technology Services at 903.468.6000 or [helpdesk@tamuc.edu](mailto:helpdesk@tamuc.edu).

## COMMUNICATION AND SUPPORT

**Office Hours:** By Appointment  
**University email:** [Carol.Smith@tamuc.edu](mailto:Carol.Smith@tamuc.edu)

## COURSE AND UNIVERSITY PROCEDURES/POLICIES

### University Specific Procedures:

#### Academic Honesty Policy

Texas A&M University-Commerce does not tolerate **plagiarism** and other forms of academic **dishonesty**. Conduct that violates generally accepted standards of academic honesty is defined as academic dishonesty. "Academic dishonesty" includes, but is not limited to, plagiarism (the appropriation or stealing of the ideas or words of another and passing them off as one's own), cheating on exams or other course assignments, collusion (the unauthorized collaboration with others in preparing course assignments), and abuse (destruction, defacing, or removal) of resource material.

Disciplinary action for these offenses may include any combination of the following:

1. Point deduction on an assignment.
2. Failure for an assignment.
3. A grade of zero for an assignment.
4. Failure for the course.
5. Referral to the Academic Integrity Committee or department head for further action.
6. Referral to the Dean of the College of Education and Human Services, Business and Technology, Arts and Sciences, or Graduate School as appropriate.
7. Referral to the University Discipline Committee.
8. Communication of student's behavior to the Teacher Certification Office and/or Dean of the College of Education as constituting a reason to bar student from entering into or continuing in a teacher certification program. Procedures, A 13.04, 13.12, 13.31, and 13.32

**ADA Statement:** The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons

with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

**Office of Student Disability Resources and Services**  
**Texas A&M University-Commerce**  
**Gee Library 162**  
**Phone (903) 886-5150 or (903) 886-5835**  
**Fax (903) 468-8148**  
[StudentDisabilityServices@tamuc.edu](mailto:StudentDisabilityServices@tamuc.edu)  
[Student Disability Resources & Services](#)

**Nondiscrimination statement: Texas A&M-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.**

**Texas Senate Bill 11 - (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations. For a list of locations, please refer to (<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>) and/or consult your event organizer. Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.**

**Disclaimer:**

*The instructor reserves the right to make changes to the schedule of the class. Any alterations will be announced in class or via email by the instructor. Students who do not attend class or check their email assume responsibility for knowledge of any alteration to the course.*