



EDCI 330, SECTION 01W
Foundations of Science Inquiry
COURSE SYLLABUS: Fall 2026

INSTRUCTOR INFORMATION

Instructor: Clay Stanfield, Clinical Instructor

Office Location: EDS 218 or STC 105A

Office Hours: T: 9:30 – 12:30, 2:00-4:00

W: 12:30-2:30

F: 9:30-11:30

Virtual office hours on D2L or by appointment via email

Office Phone: 903-886-5505

Office Fax: 903-886-5581 (Department of Curriculum and Instruction)

University Email Address: clay.stanfield@etsu.edu

Preferred Form of Communication: email

Communication Response Time: within 48 hours

COURSE INFORMATION

Course Materials: Lange, Alissa A.; Robertson, Laura; Price, Jamie; and Perry (Craven), Amie. 2021. Teaching Early and Elementary STEM. Johnson City: East Tennessee State University.

<https://dc.etsu.edu/etsu-oer/8>

All materials are embedded within the course or are accessible via the internet or through the Waters Library resource portal.

Course Description

This course prepares teacher candidates to design, deliver, and assess effective science instruction for learners in elementary and middle school (EC–6 and 4–8). Emphasis is placed on inquiry-based teaching, hands-on investigations, and the use of developmentally appropriate strategies that foster curiosity, critical thinking, and problem solving. Candidates will learn to integrate science with mathematics, literacy, and technology while addressing the needs of all learners. Attention is given to safety in the science classroom, alignment with the Texas Essential Knowledge and Skills

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(TEKS), and connections to national science standards. Field-based experiences provide opportunities for candidates to apply instructional methods in authentic classroom settings across the elementary and middle grades.

Student Learning Outcomes

1. **Design and implement inquiry-based science lessons** that align with TEKS and are developmentally appropriate for elementary and middle school learners.
2. **Apply effective instructional strategies**—including hands-on investigations, integration of literacy and mathematics, and the use of technology—to promote student engagement and conceptual understanding in science.
3. **Demonstrate knowledge and application of safety standards** by designing safe learning environments for science instruction, including proper use of materials, equipment, and procedures appropriate for elementary and middle school classrooms.
4. **Analyze lesson plans and/or instructional materials** (including, but not limited to HQIM and OER) to identify and recognize developmentally appropriate instruction within their specific grade band and content area and connect instructional decisions to learning theory.

Accreditation Standards Associated with this Class

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Standards & Test Framework Competencies Covered in EDCI 330	
Commissioner's Teacher Standards	2.B, 5.C.i, 6.A.i
TExES 160 Crosswalk / Framework	
Pedagogy & Professional Responsibility Standards (Aligned with TExES 160)	I & III
Classroom Teacher Standards (TAC 235)	
Technology Applications for All Teachers	1.1k-1.3k, 1.1s-1.5s, 2.1k-2.4k, 2.1s-2.10s, 3.1k-3.3k, 3.1s-3.7s, 4.1k-4.3k, 4.1s-4.12s, 6.4k, 7.1k-7.3k, 7.3s-7.5s, 7.7s, 7.11s, 7.14s;
Texas Essential Knowledge & Skills (TEKS) Standards Alignment	5 & 6
English Language Proficiency Standards	
Pre-K Guidelines	X.A.1-5
Science of Teaching Reading Standards	

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TExES 293 Science of Teaching Reading Crosswalk / Framework	
Core Subjects EC-6 Standards	
TExES 391 Core Subjects EC-6 Crosswalk/Framework	
Early Childhood:PK-3 Standards	
TExES 292 Early Childhood: Prekindergarten- Grade 3 Crosswalk/Framework	III.006.A-C;
TAC 228.57 Curriculum Requirements for Teacher Certification	
Program Required Performance Task(s) §228.41(2)(A-L)	

COURSE REQUIREMENTS

Minimal Technical Skills Needed

Students need to be comfortable:

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- Navigating and using the D2L platform,
- Accessing linked resources and readings on the internet,
- Conducting internet searches/browsing,
- Using basic office suite software such as word processing,
- Creating basic multi-media presentations such as short videos, slide presentations, and informational flyers with images,
- Viewing, downloading, and electronically printing PDF documents as needed

Instructional Methods

This is an online course; students will access class materials through the myLeo online (D2L) system. There will be online synchronous video conference meetings on Thursdays from 6pm - 7:30pm.

Student Responsibilities or Tips for Success in the Course

Professionalism and Ethical Behavior

As a future educator, you are expected to interact with your instructor and peers in a professional manner. Please be courteous to classmates in online discussions, even when giving constructive feedback. Adhering to the [Educators' Code of Ethics](#) and university policies related to academic honesty is a baseline expectation for behavior.

Begin each module early in the week.

Did you know that college students typically underestimate how long it takes to complete their work? This can lead to late assignments, even when we have the best intentions. Starting early and working toward finishing early each week is the secret to finishing on time with a quality work product (because you are giving yourself that extra time to get it done).

Ask questions early and often.

Instructors want to support you, but this is difficult if you don't communicate about your struggles. Please reach out to the course instructor with questions about assignments. You can set yourself up for success by asking your questions early enough to use the instructor's feedback before an assignment is due.

Designate a study space and time(s) that are free from distractions.

Did you know that multi-tasking is less effective for learning than paying full attention to one task at a time? Use your brain power more efficiently by finding a place free from distractions for your coursework. This can mean a quiet room or place in the library, turning off your phone notifications, etc.

Don't cram. Space out your work instead!

You will learn more effectively if you work for 45 minutes to an hour at a time instead of a marathon study session. This can be difficult to schedule with our busy lives, but the

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amount of information you retain will be improved if you can do some work each day instead of all at once.

READ.

AI is a fantastic tool that can be useful for summarizing information. However, part of building your understanding through reading is mentally interacting with the text – asking questions, making predictions or connections, summarizing information as you go, etc. If you have AI do this for you, you’re going to be missing out on the mental processes that make your learning stick!

GRADING

Final grades in this course will be based on the following scale:

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or Below

Weights of the assessments in the calculation of the final letter grade.

Reading Reflections	20%
Discussion Posts & Responses (“PLC Posts”)	20%
Mini-Projects	20%
Mid-Term Lesson Plan Analysis	20%
Final Lesson Plan Analysis	20%
TOTAL	100%

Assessments

Assessment in this course is project-based and emphasizes application of inquiry-based science teaching methods. Candidates design a **TEKS-aligned Inquiry-Based Science Lesson** in a classroom matching their certification area (EC–6 or 4–8). Coursework evaluates lesson design, safety practices, and reflective analysis of student learning. These assessments demonstrate competency in inquiry-based instruction, safe classroom management, and standards-aligned planning.

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TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by East Texas A&M University have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

Zoom Video Conferencing Tool

https://inside.etamu.edu/campuslife/CampusServices/CITESupportCenter/Zoom_Account.aspx?source=universalmenu

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@etamu.edu.

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

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Interaction with Instructor Statement

Please contact me with any questions you may have. I do have an office on campus with an office phone, but I often meet in other buildings or locations. The quickest way to reach me, no matter where I am that day, is to email me. I monitor my email regularly and typically respond within one business day.

Please send correspondence through your LeoMail account. This is the official email account for student/instructor correspondence.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

Attendance / Participation

Due to this being an online course, traditional attendance of sitting in a classroom is not taken. In place of physical attendance, participation will be considered in the course grade. Please review the above information on course grades and assignments to learn more about how your participation will be counted.

Artificial Intelligence Policy

Unless expressly permitted as part of the instructions for an assignment, the use of artificial intelligence (ChatGPT, Copilot, Gemini, Claude, etc.) will not be permitted in this course. If the use of AI is included in a course assignment, students must report what was used and how to the instructor. Failure to report the use of AI, or using AI when it has not been expressly permitted, will be considered academic dishonesty.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the [Student Guidebook](http://www.etamu.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx).
<http://www.etamu.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>

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Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:

<https://www.britannica.com/topic/netiquette>

ETAMU Attendance

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedure 13.99.99.R0.01](#).

<http://www.etamu.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.etamu.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

Academic Integrity

Students at East Texas A&M University are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

[Undergraduate Student Academic Dishonesty Form](#)

<http://www.etamu.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf>

[Graduate Student Academic Dishonesty Form](#)

<http://www.etamu.edu/academics/graduateschool/faculty/GraduateStudentAcademicDishonestyFormold.pdf>

<http://www.etamu.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

Students with Disabilities-- 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

East Texas A&M University

Velma K. Waters Library Rm 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: studentdisabilityservices@etamu.edu

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Website: [Office of Student Disability Resources and Services](http://www.etamu.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/)

<http://www.etamu.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

Nondiscrimination Notice

East Texas A&M University 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.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in East Texas A&M University 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 East Texas A&M University Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:

<http://www.etamu.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all East Texas A&M University campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

ETAMU Supports Students' Mental Health

The Counseling Center at East Texas A&M University, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit www.etamu.edu/counseling-center

Mental Health and Well-Being

The university aims to provide students with essential knowledge and tools to understand and support mental health. As part of our commitment to your well-being, we offer access to Telus Health, a service available 24/7/365 via chat, phone, or

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webinar. Scan the QR code to download the app and explore the resources available to you for guidance and support whenever you need it.



SAMPLE COURSE OUTLINE / CALENDAR

As stated previously in the syllabus, this calendar is subject to change based on the instructor's evaluation of students' needs. Please refer to D2L and course announcements for any changes that may occur.

Week	Topic / Module	Focus & Activities
1	Module 1: Foundations of Science Ed & Inquiry	Intro to STEM & Nature of Science: Goals of science teaching, inquiry vs. traditional instruction, what is STEM?.
2	Module 1: Foundations of Science Ed & Inquiry	Theory & Framework: Constructivism, the 5E Model (Engage, Explore, Explain, Elaborate, Evaluate).
3	Module 1: Foundations of Science Ed & Inquiry	Equity, Mindsets & CER: Strengths-based approaches, culturally responsive science, Claims-Evidence-Reasoning framework.
4	Module 2: Standards, Planning & Assessment	Unpacking Standards: NGSS/TEKS structure, 3-Dimensional Learning (DCIs, SEPs, CCCs).
5	Module 2: Standards, Planning & Assessment	Lesson Planning Basics: Aligning objectives, standards, and accommodations using the 5E framework.
6	Module 2: Standards, Planning & Assessment	Assessment in Science: Formative vs summative, performance assessments, rubric creation.
7	Module 3: Teaching Core Science Domains	Physical Science & Safety: Matter, energy, force; classroom safety plans and procedures.
8	Module 3: Teaching Core Science Domains	Life Science: Living systems, life cycles, ecology, sorting observable characteristics.

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9	Module 3: Teaching Core Science Domains	Earth & Space Science: Solar system, weather, earth systems, observational patterns.
10	Module 4: Integrated STEM & Technology	What is Integrated STEM? Levels of integration, engineering design cycle, authentic problem solving.
11	Module 4: Integrated STEM & Technology	Science & Literacy/Math: Using interactive science notebooks, children's literature, and math measurement.
12	Module 4: Integrated STEM & Technology	Technology Integration: Virtual labs, simulations, digital data collection.
13	Module 5: Capstone & Professional Growth	Differentiation in Science: Strategies for English Learners, diverse needs, UDL.
14	Module 5: Capstone & Professional Growth	Lesson Planning Workshop: Drafting, revising, and peer-evaluating TEKS-aligned inquiry lessons.
15	Module 5: Capstone & Professional Growth	Reflection and Next Steps: Final unit presentation, setting professional growth goals (T-TESS connection).
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