

# EDUC 4345-110, Course 80136, Mathematics & Science Methods in the Elementary Classroom

Fall 2022

Texas A&M University-Central Texas

## COURSE DATES, MODALITY, AND LOCATION

This course is a blended course with 35% online, with some supplemental readings and activities made available online and/or on Canvas [<https://tamuct.instructure.com>]. Field experience required – 6 hours of observations of a math/science classroom. Course dates are located on calendar.

**T 6:00-8:45 Rm. 305 (We will meet face-to-face on days designated on calendar)**

## INSTRUCTOR AND CONTACT INFORMATION

**Instructor:** Ruth Lake, M.Ed

**Office:** WH 322

**Phone:** 254-519-5485; Cell 254-291-6708

**Email:** [laker12@tamuct.edu](mailto:laker12@tamuct.edu)

### Office Hours:

By appointment

### Student-instructor interaction

I will respond to email sent to the above email account and/or Canvas to messages sent through a myCT email account. You may expect a response to your email message within 24 to 48 hours except on weekends. You may also call at the above number or make an appointment during my office hours.

## WARRIOR SHIELD

### Emergency Warning System for Texas A&M University-Central Texas

**SAFEZONE.** SafeZone provides a public safety application that gives you the ability to call for help with the push of a button. It also provides Texas A&M University-Central Texas the ability to communicate emergency information quickly via push notifications, email, and text messages. All students automatically receive email and text messages via their myCT accounts.

Downloading SafeZone allows access to push notifications and enables you to connect directly for help through the app.

You can download SafeZone from the app store and use your myCT credentials to log in. If you would like more information, you can visit the [SafeZone](http://www.safezoneapp.com) website [[www.safezoneapp.com](http://www.safezoneapp.com)].

To register SafeZone on your phone, please follow these 3 easy steps:

1. Download the SafeZone App from your phone store using the link below:
  - [iPhone/iPad](https://apps.apple.com/app/safezone/id533054756): [<https://apps.apple.com/app/safezone/id533054756>]
  - [Android Phone / Tablet](https://play.google.com/store/apps/details?id=com.criticalarc.safezoneapp) [<https://play.google.com/store/apps/details?id=com.criticalarc.safezoneapp>]
2. Launch the app and enter your myCT email address (e.g. {name}@tamuct.edu)
3. Complete your profile and accept the terms of service

**For updates on COVID information, please monitor the University [website](https://www.tamuct.edu/covid19/) [<https://www.tamuct.edu/covid19/>]**

## COURSE INFORMATION

### Course Overview and description

**Course description:** This purpose of this course is to help preservice teachers discover how elementary children think and learn about mathematics. Examines the curriculum foundations and instructional methods for elementary mathematics. Building upon previous mathematical knowledge, and with a focus on supporting high quality mathematics education, this course provides resources and opportunities for experience with a number of instructional strategies and manipulatives. Science instruction focuses on the methods, materials and approaches for teaching science, including developmentally appropriate introductions to the physical, earth and life sciences. This course should be taken in the third block of the teacher education program.

Prerequisite: Admission to teacher education program.

## Student Learning Outcomes (SLOs)

The learner will:

1. analyze the structure of mathematics and science curriculum through the use of the TEKS and scope and sequence.
2. examine and justify use of various strategies, materials, and manipulatives for developmental appropriateness in teaching specific content knowledge and skills.
3. develop questioning skills for use in inquiry-based learning.
4. plan for teaching multiple ways of knowing and showing.
5. identify real-world applications and scenarios.
6. examine impact of technology on acquisition of content area knowledge.

## Required Reading and Textbook(s)

**Foster, G. W. (1999). *Elementary mathematics and science methods: Inquiry teaching and learning*. Wadsworth.**

Eichin, J. (2004). *Activities for integrating science and mathematics, K-8 (2nd Edition)*. Prentice

Hall.

## COURSE REQUIREMENTS – (Rubrics will be on Canvas)

- TEKS mapping activity (10 points): TLW identify alignments on scope and sequence for integration of mathematics and science TEKS. These alignments will be used later in unit development. You will need to download math and science standards in the grade level of your choosing. (SLO 1)
- Mini-Lessons (25 points): Students will create 5 lesson activities/center activities to help students understand and explore assigned mathematical and science concepts from the scope and sequence from selected grade level. Students will create the activity utilizing appropriate manipulatives to provide a concrete understanding of the concepts. Students must include an explanation/reflection for how they will use student data to inform instruction for subsequent lessons. You will present one lesson class (SLOs 2-6)
- Growth Mindset Project (10 points): Students will work in small groups to address specific components of mathematical/scientific growth mindsets. They will create an activity that supports these growth mindsets. (SLOs 3, 5, & 6)
- Understanding Student Misconceptions (10 points): Students will consider multiple samples of young children's attempts at solving mathematical problems or exploring science concepts. Videos of some young students will also be presented with the young student describing their solution strategy or understanding. Pre-service teachers will identify young student misconceptions and develop a strategy for reteach. (SLOs 2-4)
- Inquiry Unit (25 points): Working in teams, the students will develop a unit based on the integration of math and science TEKS on the scope and sequence for a specific grade level. Each student is responsible for his/her own lessons. (SLOs 1-6)
- Canvas Discussions (5)- Participation on discussions.
- Midterm (10 points)
- Final (10 points each)

Assignment	Points	Due date
TEKS mapping activity	10	9/6
Mini lessons (5)	25	9/27
Midterm	10	10/18
Student misconceptions	10	10/25
Growth mindset project	10	11/15
Inquiry Unit	20	12/1
Discussions and Modules	5	12/6
Final Exam	10	12/6

## Grading Criteria Rubric and Conversion

100 – 90 = A

89 – 80 = B

79 – 70 = C

69 – 60 = D

59 < = F

## Posting of Grades

Grades will be posted on Canvas. Grades will be generally posted one week after the assignment is submitted, depending upon the assignment. This timeline does not apply to late work. The instructor is not responsible for assignments that are not collected during the class period they are returned.

## Grading Policies

**Late Work:** Work is due according to the course calendar. No late work will be accepted except under extenuating circumstances which are communicated with the professor in a timely manner. If an extension is granted, the late work may be subject to deduction of points of 10% each day past the due date. If the assignment is due on Canvas, and it is late, the assignment date will not be reopened. Supplemental assignments are not available.

### COURSE OUTLINE AND CALENDAR -CV (Canvas online)

DATE	OBJECTIVE/TOPIC	Assignment due
	Review syllabus; Intro to elementary science and math	Foster Ch. 1
8/23	Math and Science Image, attitudes, and cultures	Foster Ch. 2 & 3
8/30 CV	Procedural vs conceptual Identifying questions Module	Foster Ch. 4
9/6	TEKS mapping with Activities for integrating S&M Teaching and learning through observations Teacher and learning through observations Module	Foster Ch. 5
9/13 CV	Use the Science lab "Force" as an example.  *Create a video of you doing one of the activities Learning processes in math & science	<b>Upload video of Ch. 5 activity</b>
9/20	Stations for learning  <b>Classroom Observation overview</b> How children learn math & science Module	Foster Ch. 6
9/27 CV	Guided math video	Foster Ch. 7 Foster 10, 11
10/4	The constructed framework How to create a mini lesson based on TEKS	Foster Ch. 8, 9
10/11	Mini lesson presentations: Liquids, earth, and life, Inquiry and Learning	<b>Mini Lessons due</b> Foster Ch. 12
10/18	MIDTERM Assessing the management of the learning	Foster Ch. 13 <b>MIDTERM</b>
10/25 CV	Understanding Student misconceptions	Foster Ch. 14
11/1	Lesson plan for small group instruction How do I put it all together? Inquiry Unit Topic and groups choose topic and begin working on unit design.	GRR Intervention data
11/8 CV	Reflection on Canvas of field experience	Discussion
11/15	Inquiry Unit collaboration GRR in math video	<b>Growth mindset due</b> Inquiry Units
11/22 CV	Research topics of interest for Inquiry unit	Research
11/24	<b>Inquiry Unit discussion</b> <b>Thanksgiving Holiday</b> Inquiry Unit	Inquiry Unit due
11/29	Final exam review	Final exam review
12/6	<b>FINAL EXAM</b>	<b>Final Exam</b>

**Important University Dates:** <https://www.tamuct.edu/registrar/academic-calendar.html>

## TECHNOLOGY REQUIREMENTS AND SUPPORT

### Technology Requirements

This course will use the A&M-Central Texas Instructure Canvas learning management system. **We strongly recommend the latest versions of Chrome or Firefox browsers. Canvas no longer supports any version of Internet Explorer.**

Logon to A&M-Central Texas Canvas [<https://tamuct.instructure.com/>] or access Canvas through the TAMUCT Online link in myCT [<https://tamuct.onecampus.com/>]. You will log in through our Microsoft portal.

Username: Your MyCT email address. Password: Your MyCT password

### Canvas Support

Use the Canvas Help link, located at the bottom of the left-hand menu, for issues with Canvas. You can select “Chat with Canvas Support,” submit a support request through “Report a Problem,” or call the Canvas support line: 1-844-757-0953.

**For issues related to course content and requirements, contact your instructor.**

### Online Proctored Testing

A&M-Central Texas uses Proctorio for online identity verification and proctored testing. This service is provided at no direct cost to students. If the course requires identity verification or proctored testing, the technology requirements are: Any computer meeting the minimum computing requirements, plus web camera, speaker, and microphone (or headset). Proctorio also requires the Chrome web browser with their custom plug in.

### Other Technology Support

For log-in problems, students should contact Help Desk Central

24 hours a day, 7 days a week

Email: [helpdesk@tamuc.edu](mailto:helpdesk@tamuc.edu)

Phone: (254) 519-5466

[Web Chat](http://hdc.tamuc.edu): [<http://hdc.tamuc.edu>]

*Please let the support technician know you are an A&M-Central Texas student.*

## UNIVERSITY RESOURCES, PROCEDURES, AND GUIDELINES

### Academic Accommodations

At Texas A&M University-Central Texas, we value an inclusive learning environment where every student has an equal chance to succeed and has the right to a barrier-free education. The Warrior Center for Student Success, Equity and Inclusion is responsible for ensuring that students with a disability receive equal access to the university’s programs, services and activities. If you believe you have a disability requiring reasonable accommodations, please contact the Office of Access and Inclusion, WH-212; or call (254) 501-5836. Any information you provide is private and confidential and will be treated as such.

For more information, please visit our [Access & Inclusion](https://tamuct.instructure.com/courses/717) Canvas page (log-in required) [<https://tamuct.instructure.com/courses/717>]

### Academic Integrity

Texas A&M University-Central Texas values the integrity of the academic enterprise and strives for the highest standards of academic conduct. A&M-Central Texas expects its students, faculty, and staff to support the adherence to high standards of personal and scholarly conduct to preserve the honor and integrity of the creative community. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade for the course. All academic misconduct concerns will be referred to the Office of Student Conduct. When in doubt on collaboration, citation, or any issue, please contact your instructor before taking a course of action.

For more [information regarding the student conduct process](https://www.tamuct.edu/student-affairs/student-conduct.html), [<https://www.tamuct.edu/student-affairs/student-conduct.html>].

If you know of potential honor violations by other students, you may [submit a referral](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=0), [[https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout\\_id=0](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=0)].

### Drop Policy

If you discover that you need to drop this class, you must complete the [Drop Request](#) Dynamic Form through Warrior Web.

[<https://federation.ngwebsolutions.com/sp/startSSO.ping?PartnerIdpId=https://eis-prod.ec.tamuct.edu:443/samlso&SpSessionAuthnAdapterId=tamuctDF&TargetResource=https%3a%2f%2fdynamicforms.ngwebsolutions.com%2fSubmit%2fStart%2f53b8369e->

0502-4f36-be43-f02a4202f612].

Faculty cannot drop students; this is always the responsibility of the student. The Registrar's Office will provide a deadline on the Academic Calendar for which the form must be completed. Once you submit the completed form to the Registrar's Office, you must go into Warrior Web and confirm that you are no longer enrolled. If you still show as enrolled, FOLLOW-UP with the Registrar's Office immediately. You are to attend class until the procedure is complete to avoid penalty for absence. Should you miss the drop deadline or fail to follow the procedure, you will receive an F in the course, which may affect your financial aid and/or VA educational benefits.

#### Important information for Pregnant and/or Parenting Students

Texas A&M University-Central Texas supports students who are pregnant, experiencing pregnancy-related conditions, and/or parenting. In accordance with requirements of Title IX and related guidance from US Department of Education's Office of Civil Rights, the Dean of Student Affairs' Office can assist students who are pregnant and/or parenting in seeking accommodations related to pregnancy and/or parenting. Students should seek out assistance as early in the pregnancy as possible. For more information, please visit [Student Affairs](https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html) [https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html]. Students may also contact the institution's Title IX Coordinator. If you would like to read more about these [requirements and guidelines](#) online, please visit the website [http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf].

Title IX of the Education Amendments Act of 1972 prohibits discrimination on the basis of sex and gender—including pregnancy, parenting, and all related conditions. A&M-Central Texas is able to provide flexible and individualized reasonable accommodation to pregnant and parenting students. All pregnant and parenting students should contact the Associate Dean in the Division of Student Affairs at (254) 501-5909 to seek out assistance. Students may also contact the University's Title IX Coordinator.

#### Tutoring

Tutoring is available to all A&M-Central Texas students, both virtually and in-person. Student success coaching is available online upon request.

If you have a question, are interested in becoming a tutor, or in need of success coaching contact the Warrior Center for Student Success, Equity and Inclusion at (254) 501-5836, visit the Warrior Center at 212 Warrior Hall, or by emailing [WarriorCenter@tamuct.edu](mailto:WarriorCenter@tamuct.edu).

To schedule tutoring sessions and view tutor availability, please visit [Tutor Matching Services](https://tutormatchingservice.com/TAMUCT) [https://tutormatchingservice.com/TAMUCT] or visit the Tutoring Center in 111 Warrior Hall.

Chat live with a remote tutor 24/7 for almost any subject from on your computer! Tutor.com is an online tutoring platform that enables A&M-Central Texas students to log in and receive online tutoring support at no additional cost. This tool provides tutoring in over 40 subject areas except writing support. Access Tutor.com through Canvas.

#### University Library & Archives

The University Library & Archives provides many services in support of research across campus and at a distance. We offer over 200 electronic databases containing approximately 400,000 eBooks and 82,000 journals, in addition to the 96,000 items in our print collection, which can be mailed to students who live more than 50 miles from campus. Research guides for each subject taught at A&M-Central Texas are available through our website to help students navigate these resources. On campus, the library offers technology including cameras, laptops, microphones, webcams, and digital sound recorders.

Research assistance from a librarian is also available 24 hours a day through our online chat service, and at the reference desk when the library is open. Research sessions can be scheduled for more comprehensive assistance, and may take place virtually through WebEx, Microsoft Teams or in-person at the library. [Schedule an appointment here](#)

[https://tamuct.libcal.com/appointments/?g=6956]. Assistance may cover many topics, including how to find articles in peer-reviewed journals, how to cite resources, and how to piece together research for written assignments.

Our 27,000-square-foot facility on the A&M-Central Texas main campus includes student lounges, private study rooms, group work spaces, computer labs, family areas suitable for all ages, and many other features. Services such as interlibrary loan, TexShare, binding, and laminating are available. The library frequently offers workshops, tours, readings, and other events. For more information, please visit our [Library website](#)

[http://tamuct.libguides.com/index]

#### University Writing Center

University Writing Center: Located in Warrior Hall 416, the University Writing Center (UWC) at Texas A&M University-Central Texas (A&M-Central Texas) is a free service open to all A&M-Central Texas students. The hours of operation are from 10:00 a.m.-5:00 p.m. Monday thru Thursday in Warrior Hall 416 (with online tutoring available every hour as well) with satellite hours available online only Monday thru Thursday from 6:00-9:00 p.m. and Saturday 12:00-3:00 p.m.

Tutors are prepared to help writers of all levels and abilities at any stage of the writing process. While tutors will not write, edit, or grade papers, they will assist students in developing more effective composing practices. By providing a practice audience for students' ideas and writing, our tutors highlight the ways in which they read and interpret students' texts, offering guidance and support throughout the various stages of the writing process. In addition, students may work independently in the UWC by checking out a laptop that runs the Microsoft Office suite and connects to WIFI, or by consulting our resources on writing, including all of the relevant style guides. Whether you need help brainstorming ideas, organizing an essay, proofreading, understanding proper citation practices, or just want a quiet place to work, the UWC is here to help!

Students may arrange a one-to-one session with a trained and experienced writing tutor by making an appointment via [WCOnline](https://tamuct.mywconline.com/) [https://tamuct.mywconline.com/]. In addition, you can email Dr. Bruce Bowles Jr. at [bruce.bowles@tamuct.edu](mailto:bruce.bowles@tamuct.edu) if you have any questions about the UWC, need any assistance with scheduling, or would like to schedule a recurring appointment with your favorite tutor.

#### A Note about Sexual Violence at A&M-Central Texas

Sexual violence is a serious safety, social justice, and public health issue. The university offers support for anyone struggling with these issues. University faculty are mandated reporters, so if someone discloses that they were sexually assaulted (or a victim of Domestic/Dating Violence or Stalking) while a student at TAMUCT, faculty members are required to inform the Title IX Office. If you want to discuss any of these issues confidentially, you can do so through Student Wellness and Counseling (254-501-5955) located on the second floor of Warrior Hall (207L).

Sexual violence can occur on our campus because predators often feel emboldened, and victims often feel silenced or shamed. It is incumbent on ALL of us to find ways to actively create environments that tell predators we don't agree with their behaviors and tell survivors we will support them. Your actions matter. Don't be a bystander; be an agent of change. For additional information on campus policy and resources visit the [Title IX webpage](https://www.tamuct.edu/compliance/titleix.html) [https://www.tamuct.edu/compliance/titleix.html].

#### Behavioral Intervention

Texas A&M University-Central Texas cares about the safety, health, and well-being of its students, faculty, staff, and community. If you are aware of individuals for whom you have a concern, please make a referral to the Behavioral Intervention Team. Referring your concern shows you care. You can complete the [referral](#) online

[https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout\_id=2].

Anonymous referrals are accepted. Please see the [Behavioral Intervention Team](https://www.tamuct.edu/bit) website for more information [https://www.tamuct.edu/bit]. If a person's behavior poses an imminent threat to you or another, contact 911 or A&M-Central Texas University Police at 254-501-5805.

## OTHER POLICIES

### Attendance and Late Assignment Policy:

Attendance: Professional behavior and commitment to teaching are the expectations. Attendance and punctuality are required. It is not possible to make up the work missed during the class period since it involves interactions of students, instructor, and content.

Three class absences for any reason will result in lowering the final grade by a letter grade. Four or more absences will result in failure of the class. Tardies will result in the loss of professionalism points. Four (4) times a student is tardy for 15 minutes or more is equal to one absence. Students missing class are responsible for notes, handouts, assignments, and any changes in schedules. Your commitment to becoming the best teacher possible includes regular, timely attendance and participation.

**Class Participation:** Being prepared to participate includes completing assigned reading and bringing necessary textbooks, assignments, and materials to class. You are expected to read before the class session, actively participate in classroom assignments and discussions, and fully participate in online work. Any in-class presentations and activities cannot be made up. The use of technology, to include cell phones and other electronic devices, can enhance learning and the educational experiences; however it can also become a distraction to the learning tasks at hand. Off-task technology usage will result in deduction in professionalism points.

The content in this syllabus is subject to change.

### Copyright Notice

Students should assume that all course material is copyrighted by the respective author(s). Reproduction of course material is prohibited without consent by the author and/or course instructor. Violation of copyright is against the law and Texas A&M University-Central Texas' Code of Academic Honesty. All alleged violations will be reported to the Office of Student Conduct.

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