

**EDUC 4345-120, Course 81211, Mathematics & Science Methods in the Elementary Classroom  
Fall 2021**

Texas A&M University-Central Texas

**COURSE DATES, MODALITY, AND LOCATION**

This course is a blended course with 30% online, with some supplemental readings and activities made available online and/or on Canvas [<https://tamuct.instructure.com>]. Field experience required – 6 hours of small observations of a math/science classroom.

Course dates are located on calendar.

**T/R 6:00-7:15 Rm. 312**

**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**

Warrior Shield is an emergency notification service that gives Texas A&M University-Central Texas the ability to communicate health and safety emergency information quickly via email, text message, and social media. All students are automatically enrolled in Warrior Shield through their myCT email account.

Connect to Warrior Shield by [911Cellular](https://portal.publicsafetycloud.net/Account/Login) [<https://portal.publicsafetycloud.net/Account/Login>] to change where you receive your alerts or to opt out. By staying enrolled in Warrior Shield, university officials can quickly pass on safety-related information, regardless of your location.

**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 (20 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 (25 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 (15 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. (SLOs 1-6)
- Midterm (10 points)
- Final (10 points each)

Assignment	Points	Due date
TEKS mapping activity	10	9/7
Mini lessons (5)	20	9/30
Midterm	10	10/21
Student misconceptions	10	10/28
Growth mindset project	25	11/18
Inquiry Unit	15	12/2
Final Exam	10	12/9

### 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	DUE DATE
8/24	Review syllabus; Intro to elementary science and math	Foster Ch. 1
8/26	Math and Science Image, attitudes, and cultures Procedural vs conceptual	Foster Ch. 2 & 3
8/31 CV	Identifying questions Module	Foster Ch. 4
9/2	TEKS mapping with Activities for integrating S&M	<b>Math and Science TEKS Eichinger book</b>
9/7 CV	TEKS mapping with Activities for integrating S&M	<b>Math and Science TEKS Eichinger book</b>
9/9	Teaching and learning through observations	Foster Ch. 5
9/14 CV	Teacher and learning through observations Module *Create a video of you doing one of the activities	<b>Upload video of Ch. 5 activity</b>
9/16	Learning processes in math & science Stations for learning	Foster Ch. 6
9/21 CV	How children learn math & science Module	Foster Ch. 7
9/23	The constructed framework How to create a mini lesson based on TEKS	Foster Ch. 8, 9
9/28 CV	All about measurement Module!	Foster Ch. 10, 11
9/30	Mini lesson presentations Liquids, earth, and life	<b>Mini Lessons due</b> Foster Ch. 12
10/5 CV	<b>Field experience- Observation</b>	
10/7	Inquiry and Learning	Foster Ch. 13
10/12	<b>Field experience-Observation</b>	
10/14	Assessing the management of the learning	Foster Ch. 14
10/19	<b>Field experience-Observation</b>	
10/21	MIDTERM	MIDTERM
10/26	<b>Field experience-Work with small group</b>	
10/28	Understanding Student misconceptions	<b>Misconceptions</b>
11/2	<b>Field experience-Work with small group</b>	
11/4	Lesson plan for small group instruction	GRR
11/9	<b>Field experience-Work with small group</b>	
11/11	How do I put it all together?	Intervention data
11/16 CV	Reflection on Canvas of field experience	Discussion
11/18	Inquiry Unit Topic and groups choose topic and begin working on unit design.	<b>Growth mindset due</b>
11/23	Library day- Research topics of interest for Inquiry unit	Research
11/25	<b>Thanksgiving Holiday</b>	
11/30 CV	Inquiry Unit group work	Inquiry Units
12/2	Inquiry Unit	<b>Inquiry Unit due</b>
12/7 CV	Final exam review	Final exam review
12/9	<b>FINAL EXAM</b>	<b>Final Exam</b>

## Important University Dates

### 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.

#### Other Technology Support

For log-in problems, students should contact Help Desk Central 24 hours a day, 7 days a week

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

Phone: (254) 519-5466

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

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

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### UNIVERSITY RESOURCES, PROCEDURES, AND GUIDELINES

#### Drop Policy

If you discover that you need to drop this class, you must complete a [Drop Request Form](https://www.tamuct.edu/registrar/docs/Drop_Request_Form.pdf) [[https://www.tamuct.edu/registrar/docs/Drop\\_Request\\_Form.pdf](https://www.tamuct.edu/registrar/docs/Drop_Request_Form.pdf)].

Professors 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, signed and returned. Once you return the signed 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.

#### 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. Academic integrity is defined as a commitment to honesty, trust, fairness, respect, and responsibility. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade for the course. Academic misconduct is any act that improperly affects a true and honest evaluation of a student's academic performance and includes, but is not limited to, working with others in an unauthorized manner, cheating on an examination or other academic work, plagiarism and improper citation of sources, using another student's work, collusion, and the abuse of resource materials. All academic misconduct concerns will be referred to the university's Office of Student Conduct. Ignorance of the university's standards and expectations is never an excuse to act with a lack of integrity. 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 report](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)].

### **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 Office of Access 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>]

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

Texas A&M University-Central Texas supports students who are pregnant 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/index.html) [<https://www.tamuct.edu/student-affairs/index.html>]. Students may also contact the institution's Title IX Coordinator. If you would like to read more about these [requirements and guidelines](http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf) 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 on-campus and online. Subjects tutored on campus include Accounting, Advanced Math, Biology, Finance, Statistics, Mathematics, and Study Skills. Tutors are available at the Tutoring Center in Warrior Hall, Suite 111. Tutor.com tutoring **will not offer writing support** beginning August 1, 2019, but will continue to offer other tutoring support.

If you have a question regarding tutor schedules, need to schedule a tutoring session, are interested in becoming a tutor, or have any other question, contact Academic Support Programs at (254) 501-5836, visit the Office of Student Success at 212F Warrior Hall, or by emailing [studentsuccess@tamuct.edu](mailto:studentsuccess@tamuct.edu).

Chat live with a 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. Access Tutor.com through Canvas.

### **University Writing Center**

Located in Warrior Hall 416, the University Writing Center (UWC) at Texas A&M University–Central Texas (TAMUCT) is a free workspace open to all TAMUCT students from 10:00 a.m.-5:00 p.m. Monday thru Thursday with satellite hours in the University Library Monday thru Thursday from 6:00-9:00 p.m. This semester, the UWC is also offering online only hours from 12:00-3:00 p.m. on Saturdays.

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 visiting the UWC during normal operating hours (both half-hour and hour sessions are available) or by making an appointment via [WOnline](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 and/or need any assistance with scheduling.

## **University Library**

The University Library provides many services in support of research across campus and at a distance. We offer over 200 electronic databases containing approximately 250,000 eBooks and 82,000 journals, in addition to the 85,000 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 on Skype or in-person at the library. 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) [http://tamuct.libguides.com/index].

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## **OPTIONAL POLICY STATEMENTS**

### **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 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, who are exhibiting concerning behaviors, or individuals causing a significant disruption to our community, 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](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=2)].

Anonymous referrals are accepted. Please see the [Behavioral Intervention Team](https://www.tamuct.edu/student-affairs/bat.html) website for more information [<https://www.tamuct.edu/student-affairs/bat.html>]. If a person's behavior poses an imminent threat to you or another, contact 911 or A&M-Central Texas University Police at 254-501-5800.

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## **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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