

EDUC 4345, CRN 11797, Math and Science Methods in Elementary

Spring 2022

Texas A&M University-Central Texas

COURSE DATES, MODALITY, AND LOCATION

This course meets face-to-face (Wednesdays from 6-8:30pm in WH 306), with supplemental materials made available online through the A&M-Central Texas Canvas Learning Management System [<https://tamuct.instructure.com/>].

INSTRUCTOR AND CONTACT INFORMATION

Instructor: Dr. Shelley B. Harris

Office: WH 332R

Phone: 254-519-5797

Email: shelley.harris@tamuct.edu

Office Hours

Wednesdays, Virtual, by appointment only

Student-instructor interaction

As your professor, my role is to facilitate in your learning and help assist you in your college journey. Please take advantage of the office hours provided – they are your time to visit.

I will do my best to help you in any way. I will be checking email daily. My response time will be returned within 72 hours. When sending an email, please put the course name and number in the subject line. For the body of the email, remember to include your W# and follow netiquette guidelines. Professional communication is expected at all times.

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].

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:
 - o [iPhone/iPad](https://apps.apple.com/app/safezone/id533054756): [<https://apps.apple.com/app/safezone/id533054756>]
 - o [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

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.

Competency Goals Statements (certification or standards)

The students will demonstrate mastery of the content knowledge required of an entry-level educator in this field in Texas public schools for the following TExES Competencies:

Mathematics Standard I

Number Concepts: The mathematics teacher understands and uses numbers, number systems and their structure, operations and algorithms, quantitative reasoning and technology appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in order to prepare students to use mathematics.

Mathematics Standard II

Patterns and Algebra: The mathematics teacher understands and uses patterns, relations, functions, algebraic reasoning, analysis and technology appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in order to prepare students to use mathematics.

Mathematics Standard III

Geometry and Measurement: The mathematics teacher understands and uses geometry, spatial reasoning, measurement concepts and principles and technology appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in order to prepare students to use mathematics.

Mathematics Standard IV

Probability and Statistics: The mathematics teacher understands and uses probability and statistics, their applications and technology appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in order to prepare students to use mathematics.

Mathematics Standard V

Mathematical Processes: The mathematics teacher understands and uses mathematical processes to reason mathematically, to solve mathematical problems, to make mathematical connections within and outside of mathematics and to communicate mathematically.

Mathematics Standard VI

Mathematical Perspectives: The mathematics teacher understands the historical development of mathematical ideas, the interrelationship between society and mathematics, the structure of mathematics and the evolving nature of mathematics and mathematical knowledge.

Mathematics Standard VII

Mathematical Learning and Instruction: The mathematics teacher understands how children learn and develop mathematical skills, procedures and concepts; knows typical errors students make; and uses this knowledge to plan, organize and implement instruction; to meet curriculum goals; and to teach all students to understand and use mathematics.

Mathematics Standard VIII

Mathematical Assessment: The mathematics teacher understands assessment and uses a variety of formal and informal assessment techniques appropriate to the learner on an ongoing basis to monitor and guide instruction and to evaluate and report student progress.

Mathematics Standard IX

Professional Development: The mathematics teacher understands mathematics teaching as a profession, knows the value and rewards of being a reflective practitioner and realizes the importance of making a lifelong commitment to professional growth and development.

Science Standard I

The science teacher manages classroom, field and laboratory activities to ensure the safety of all students and the ethical care and treatment of organisms and specimens.

Science Standard II

The science teacher understands the correct use of tools, materials, equipment and technologies.

Science Standard III

The science teacher understands the process of scientific inquiry and its role in science instruction.

Science Standard IV

The science teacher has theoretical and practical knowledge about teaching science and about how students learn science.

Science Standard V

The science teacher knows the varied and appropriate assessments and assessment practices to monitor science learning.

Science Standard VI

The science teacher understands the history and nature of science.

Science Standard VII

The science teacher understands how science affects the daily lives of students and how science interacts with and influences personal and societal decisions.

Science Standard VIII

The science teacher knows and understands the science content appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in physical science.

Science Standard IX	The science teacher knows and understands the science content appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in life science.
Science Standard X	The science teacher knows and understands the science content appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in Earth and Space science.
Science Standard XI	The science teacher knows unifying concepts and processes that are common to all sciences.

COURSE REQUIREMENTS (1st 8 weeks Math, 2nd 8 weeks Science)

1. Standards Chart and Review (25 points) Students will complete an alignment chart that connects the TExES Math and Science standards, NCTM standards and NSTA standards to its application in the classroom.

2. Math and Science Online Activities. (25 points) Students will select 5 math games and 5 science games to play from multiple grade levels. Students will print their badge or score as verification of game played. Finally, students will list each game they played and reflect on appropriateness to TEKS, learning and fun.

<https://mrnussbaum.com/math>

<https://mrnussbaum.com/games/science-games>

3. Math Workshop (100 points) Students will design two math center/stations (primary and intermediate) that includes a main lesson plan, multiple activities using manipulatives and technology, handouts and a take away. Each center/station will be TEKS based.

4. Science Fair (100 points) Students will design a scientific experiment and present the results to the class. This is an individual activity and a chance to demonstrate competency at learner-centered scientific inquiry. The experiment will be TEKS based and include technology and handouts.

<https://www.jpl.nasa.gov/edu/learn/activities/science-fair-project/>

5. Lesson Plans (4, 25 points each) Students will create 4 lesson plans (2 math, 2 science) using an Inquiry format.

6. Final Exam (50 points)

7. Class participation and attendance. (25 points)

- Works with enthusiasm throughout the class time.
- Asks questions of instructor and peers, which demonstrates that s/he is thinking about what s/he is doing.
- Cooperates well with peers.
- In whole class sessions: adds insights to the class discussion which are based on readings and learning from previous sessions and other courses, not just anecdotal or 'gut' reactions.
- Listens to others with respect and may comment on their points.
- All classes attended – medical and other appointments are not made during class time.
- The student:
 - a. takes the responsibility to contact the instructor about work missed before the next session.
 - b. is never late.
 - c. brings materials to class.
- The student takes advantage of office hours when help is needed.
- Assignments are handed in complete and on-time and/or assigned reading has been done.
- All assignments are typed, spell-checked, and edited (unless otherwise directed).

Grading Criteria Rubric and Conversion

Grades will be assigned at the end of the semester on the following basis:

A = 100-90%

B = 89-80%

C = 79-70%

D = 69-60%

F = 59-0%

Posting of Grades

All assignments are due on Sunday at 11:59 as assigned for that week. Grades will be posted on the Canvas Grade book where students can monitor their status. Turn-around time for grades to be posted are within 2 weeks. Larger projects may take more time. If you have any questions or concerns, please do not hesitate to email me or come by my office.

Grading Policies

All assignments must be submitted on time to receive full credit. Any late assignment submitted will have an automatic 25% deduction or not accepted per the instructor's decision. Note: Arrangements in exceptional circumstances (hospitalization, catastrophe, etc.) are the responsibility of the student. This means you must meet with the instructor to discuss the situation and provide documentation. If you are having technology difficulties, email the assignment to yourself and print in the library. Paper copies and/or Canvas copies of assignments are necessary to receive a grade.

COURSE CALENDAR

Class	Topics	Assignment Due Date (Sunday 11:59pm)
1-19	Introduction, Community Building, Syllabus	
1-26	Problem Solving	Standards Chart
2-2	Place Value	Math Game
2-9	Numbers and Operations	Lesson Plan 1
2-16	Fractions	Math Game
2-23	Patterns and Algebraic Thinking	Lesson Plan 2
3-2	Place Value and Decimals	Math Workshop!!
3-9	Geometry	
3-16	Spring Break	
3-23	Physical Science	Lesson Plan 3
3-30	Physical Science	Science Game
4-6	Life Science	Lesson Plan 4
4-13	Life Science	Science Game, Reflection due
4-20	Earth and Space Science	Science Fair!!
4-27	Earth and Space Science Online Class – Study review for exam	
5-4	Final Exam	In class

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@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.

UNIVERSITY RESOURCES, PROCEDURES, AND GUIDELINES

Drop Policy

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

[<https://dynamicforms.ngwebsolutions.com/casAuthentication.ashx?InstID=eaed95b9-f2be-45f3-a37d-46928168bc10&targetUrl=https%3A%2F%2Fdynamicforms.ngwebsolutions.com%2FSubmit%2FForm%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.

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>].

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].

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](#) 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/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.

To schedule tutoring sessions and view tutor availability, please visit [Tutor Matching Services](#) [<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 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. For the Spring 2022 semester, 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 [WCOonline](https://tamuct.mywconline.com/) [https://tamuct.mywconline.com/]. In addition, you can email Dr. Bruce Bowles Jr. at 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 by making an appointment via [WCOonline](https://tamuct.mywconline.com/) [https://tamuct.mywconline.com/]. In addition, you can email Dr. Bruce Bowles Jr. at 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.

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

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 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](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=2) 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

Communication

It is the expectation that all students use and check their TAMUCT email account and Canvas Announcements daily for class updates and university notices. Communication is vital in all classes and therefore, an expectation to be successful. Please utilize both your student email and Canvas email for interactions with your Professor.

Professionalism

As a pre-service teacher, it is expected that a high level of professionalism be used at all times. This includes interactions with peers, faculty and staff, and property. In the event there is a concern about excessive phone use, working on something other than classwork on a laptop, lack of participation in class, absences, arriving late or leaving early, a conversation will occur with the professor of record. At any time there is a question, concern or suggestion, please contact your professor of record for a meeting.

Unforeseen Occurrences

Please be aware that changes may be made to this syllabus at the discretion of the professor and in the best interest of students. In the event of an unfortunate event, natural disaster or global pandemic, this course (contents, assignments, delivery) may have to change. Students will be notified immediately of any change.

Copyright Notice

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