

MATH 4305.110, CRN 80137, CONCEPTS OF ELEMENTARY MATHEMATICS III

Fall 2017 rev. 08.16.2017

Texas A&M University-Central Texas

INSTRUCTOR AND CONTACT INFORMATION

Instructor: Christina Hamilton, Ph.D

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The preferred email is through Canvas "Inbox" for course-related information. If correspondence is not related to the course, contact via hamilton.c@tamuct.edu.

Office Hours:

Mondays 9:00 a.m. to 10:45 a.m., Tuesday 9:00 a.m. to 11:30 a.m., Wednesday 9:00 a.m., to 10:15 a.m. and Thursday 1-5:30. Due to university obligations that may interfere with my office hours, it is RECOMMENDED that you schedule an appointment by contacting me at hamilton.c@tamuct.edu. prior to arrival.

Mode of instruction and course access:

This course requires, face to face, hands-on learning, and may have online components. This course may require some supplemental readings and/or assignments made available online using the TAMUCT Canvas Learning Management System:
[<https://tamuct.instructure.com>]

Student-instructor interaction:

I check emails and text messages daily and will respond within two business days between the hours of 8 a.m. and 5 p.m. CST, excluding weekends and holidays.

911 Cellular:

Emergency Warning System for Texas A&M University – Central Texas

911Cellular 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 911 Cellular through their myCT email account.

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

COURSE INFORMATION

Course Overview and description:

This course is intended for prospective teachers who want to review key concepts, principles and strategies for teaching Mathematics in EC---6 and 4---8 classrooms. Technology and teaching methods will be incorporated where appropriate. Prerequisites: Math 305 (Math 1351).

Course Objective:

The goal of this course is to deepen your conceptual understanding of the underlying mathematics EC-6 and 4-8 school curriculum. During the semester you will be introduced to and immerse yourself in learning mathematics through the problem solving approach. In addition you will engage in the pedagogy pertaining to the learned mathematics. The mathematics in the course emphasizes topics relevant to teaching children from prekindergarten to grade 8 according to the TEKS.

Student Learning Outcomes:

	Assessed in
Relearn/master mathematics taught in grades EC-6 and 4-8.	Class activities, tests and final exam
Learn and reproduce effective teaching practices for K-8 Mathematics.	Class activities, test and final exam
Utilize technology in the form of e-manipulatives and/or 3D printing to explain abstract mathematical concepts	Class activities and Competency presentations
Master competencies as required on TExES Core Subjects EC-6 and 4-8 Mathematics exams	Competency Presentation, test and final exam

Competency Goals Statements (certification or standards):

Core Subjects EC-6	Mathematics 4-8
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.	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.	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	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.
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.	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	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.

Competencies

Core Subjects EC-6	Mathematics 4-8
Number Concepts and Operations	Number Concepts
Competency 002: The teacher understands concepts related to numbers, operations and algorithms and the properties of numbers.	<p>Competency 001: The teacher understands the structure of number systems, the development of a sense of quantity and the relationship between quantity and symbolic representations.</p> <p>Competency 002: The teacher understands number operations and computational algorithms.</p> <p>Competency 003: The teacher understands ideas of number theory and uses numbers to model and solve problems within and outside of mathematics.</p>
Patterns and Algebra	
Competency 003: The teacher understands concepts related to patterns, relations, functions and algebraic reasoning.	<p>Competency 004: The teacher understands and uses mathematical reasoning to identify, extend and analyze patterns and understands the relationships among variables, expressions, equations, inequalities, relations and functions.</p> <p>Competency 005: The teacher understands and uses linear functions to model and solve problems.</p> <p>Competency 006: The teacher understands and uses nonlinear functions and relations to model and solve problems.</p> <p>Competency 007: The teacher uses and understands the conceptual foundations of calculus related to topics in middle school mathematics.</p>
Geometry and Measurement	
Competency 004: The teacher understands concepts and principles of geometry and measurement.	<p>Competency 008: The teacher understands measurement as a process.</p> <p>Competency 009: The teacher understands the geometric relationships and axiomatic structure of</p>

	<p>Euclidian geometry.</p> <p>Competency 010: The teacher analyzes the properties of two- and three dimensional figures.</p> <p>Competency 011: The teacher understands transformational geometry and relates algebra to geometry and trigonometry using the Cartesian coordinate system.</p>
Probability and Statistics	
<p>Competency 005: The teacher understands concepts related to probability and statistics and their applications.</p>	<p>Competency 012: The teacher understands how to use graphical and numerical techniques to explore data, characterize patterns and describe departures from patterns.</p> <p>Competency 013: The teacher understands the theory of probability.</p> <p>Competency 014: The teacher understands the relationship among probability theory, sampling and statistical inference and how statistical inference is used in making and evaluating predictions.</p>
Mathematical Processes	Mathematical Processes and Perspectives
<p>Competency 006: The teacher understands mathematical processes and knows how to reason mathematically, solve mathematical problems and make mathematical connections within and outside of mathematics.</p>	<p>Competency 015: The teacher understands mathematical reasoning and problem solving.</p> <p>Competency 016: The teacher understands mathematical connections within and outside of mathematics and how to communicate mathematical ideas and concepts</p>

Required Reading and Textbook(s):

Ridener, B. & Fritzer, P. (2004) Mathematics Content for Elementary and Middle School Teachers. Pearson. ISBN-13: 978-0205407996

COURSE REQUIREMENTS

Assignment	Description	Standards
Test	You will have three (3) online EC-6 Math core subjects' tests. The number of items will vary.	Mathematics Standard I-IV
Final	EC-6 Math core subjects' final tests	Mathematics Standard I-IV
Competencies Assignment	The purpose of this assignment is to allow students to deepen their understanding of elementary mathematics in a purposeful collaborative manner. You will be asked as a group to provide detail notes and practice with answer key to assigned concepts from the EC-6 Core or 4-8 competencies.. The details and rubric for this assignment will be posted in Canvas.	Mathematics Standard I-IV
Mathematics Content Knowledge for Teaching Journal Article	The purpose of this assignment is to give students the opportunity to analyze and communicate research relating to teachers mathematics content knowledge for teaching. You will be asked to read two NCTM journal articles, provide a summary of the two related articles, compare and contrast the two articles and present your findings in class. The details	Mathematics Standard I-IV

	and rubric for this assignment will be posted in Canvas.	
Teacher Interview	The purpose of this assignment is for you to learn from teachers about teaching mathematics. The details and rubric for this assignment will be posted in Canvas.	Mathematics Standard I-IV
Unpacking the TEKS	The purpose of this assignment is for you to learn the TEKS. You will unpack the TEKS and use this information during on-going assessments. The details and rubric for this assignment will be posted in Canvas.	Mathematics Standard I-IV
Presentation	The purpose of this assignment is for you to reflect on your growth and experiences. The details and rubric for this assignment will be posted in Canvas.	Mathematics Standard I-IV

Grading Criteria Rubric and Conversion

Assignment	Points	
Tests	200	Grades will be assigned at the end of the semester on the following basis:
Final	100	
Competencies Assignment	500	A = 90-100% 900-1000 points
Journal Article	25	B = 80-89% 800-899 points
Teacher Interview	50	C = 70-79% 700-799 points
Unpacking the TEKS	25	D = 60-69% 600-699 points
Presentation	100	F = 59% or below 599 or below points
Total points		1000

Posting of Grades

Final grades will be posted to Canvas Gradebook after completion of course requirements. The turn-around time for grades to be posted will be no later than the next class period.

COURSE OUTLINE AND CALENDAR

Complete Course Calendar

Date	Topic	Assignment Due <i>All assignments are Due by 11:59 P.M.</i>
8/28	Introductions, Math Standards, Mathematics Education	
August 28, Add/Drop/Late Registration begins August 30, Add/Drop/Late Registration ends, 16-week and 1st 8-week classes September 1, Priority Deadline to Submit Graduation Application		
9/4	Labor Day, CAMPUS CLOSED	
September 5, Last day to drop 1st 8-week classes with no record		
9/11	Unpacking the TEKS and lesson plans	
September 13, Last day to drop 16-week classes with no record		
9/18	Mathematical Content Knowledge for Teaching	
September 22, Last day to drop a 1st 8-week class with a Q or withdraw with a W		
9/25	Test 1 and Directed Teaching Observations	006 Competencies Assignment Due 9/24
10/2	Numbers Concepts and Operations 002 Review	
October 6, Deadline to submit graduation		
10/9	Columbus Day/ Test 2	002 Competencies Assignment Due 10/8
10/16	Patterns and Algebra 003 Review	Journal Article Due 10/15
October 20, Last day to withdraw from the University (1st 8-week classes WF)		

10/23	Directed Teaching Observations	003 Competencies Assignment Due 10/22
October 23, Add/Drop/Late Registration begins, 2nd 8-week classes October 26, Add/Drop/Late Registration ends, 2nd 8-week classes		
10/30	Probability and Statistics 005 Review	
October 30, Last day to drop 2nd 8-week classes with no record		
11/6	Mathematical Process 006 Review	004 Competencies Assignment Due 11/5
November 10, Veteran's Day November 10, Last day to drop with a Q or withdraw with a W (16-week classes)		
11/13	Mathematical Content Knowledge for Teaching	Teacher Interview Due 11/12
November 17, Last day to drop a 2nd 8-week class with a Q or withdraw with a W		
11/20	Test 3 and Directed Teaching Observations	005 Competencies Assignment Due 11/19
November 23-24, Thanksgiving, CAMPUS CLOSED		
11/27	Presentations	
12/4	Presentations	
12/11	Final Exam	
December 15, Last day to withdraw from the University (16-week and 2nd 8-week classes) December 15, Last day to file for Degree Conferral (Registrar's Office) December 15, Commencement (End of Fall Term) December 25-January 1, WINTER BREAK		

The professor reserves the right to amend this syllabus at any time. If revisions are necessary, the professor will make every effort to provide as much advanced notice as possible.

TECHNOLOGY REQUIREMENTS AND SUPPORT

Technology Requirements.

This course will use the A&M-Central Texas Instructure Canvas learning management system. Logon to A&M-Central Texas Canvas [<https://tamuct.instructure.com>].

Username: Your MyCT username (xx123 or everything before the "@" in your MyCT e-mail address)

Password: Your MyCT password

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.

For issues with **Canvas**, select "chat with Canvas support," submit a support request to Canvas Tier 1, or call the Canvas support line: 1-844-757-0953, links to all are found inside of Canvas using the "Help" link.

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

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].

Professors cannot drop students; this is always the responsibility of the student. The Registrar's Office will provide a deadline on the University 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, 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 reported 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.

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 Department 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 Department of Access and Inclusion at (254) 501-5831. Any information you provide is private and confidential and will be treated as such.

For more information please visit our [Access & Inclusion](https://www.tamuct.edu/student-affairs/access-inclusion.html) webpage
<https://www.tamuct.edu/student-affairs/access-inclusion.html>

Texas A&M University-Central Texas supports students who are pregnant and/or parenting. In accordance with requirements of Title IX and 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. For more information, please visit <https://www.tamuct.departments/index.php>. 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>].

Tutoring.

Tutoring is available to all A&M-Central Texas students, both on-campus and online. On-campus subjects tutored include Accounting, Advanced Math, Biology, Finance, Statistics, Mathematics, and Study Skills. Tutors are available at the Tutoring Center in Warrior Hall, Suite 111.

If you have a question regarding tutor schedules, need to schedule a tutoring session, are interested in becoming a tutor, or any other question, contact Academic Support Programs at 254-519-5796, or by emailing Larry Davis at Imdavis@tamuct.edu.

Chat live with a tutor 24/7 for almost any subject on your computer! Tutor.com is an online tutoring platform that enables A&M-Central Texas students to log-in and receive FREE online tutoring and writing support. This tool provides tutoring in over forty subject areas. Access Tutor.com through Canvas.

The University Writing Center.

Located in 416 Warrior Hall, the University Writing Center (UWC) at Texas A&M University-Central Texas is a free workspace open to all TAMUCT students from 10am-5pm Monday-Thursday with satellite hours in the University Library on Mondays from 6:00-9:00pm. Students may arrange a one-on-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 [WCOOnline](https://tamuct.mywconline.com/) [<https://tamuct.mywconline.com/>]. In addition, you can email Dr. Bruce Bowles Jr. at bruce.bowles@tamuct.edu to schedule an online tutoring session. 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 University Writing Center is here to help!

If you have any questions about the University Writing Center, please do not hesitate to contact Dr. Bruce Bowles Jr. at bruce.bowles@tamuct.edu.

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 72,000 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 twenty-four 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](https://tamuct.libguides.com/) [https://tamuct.libguides.com/].

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 A&M-Central Texas, 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 Counseling Services (254-501-5956) located on the second floor of Warrior Hall.

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/departments/compliance/titleix.php) [https://www.tamuct.edu/departments/compliance/titleix.php].

INSTRUCTOR POLICIES.

It is expected that you conduct yourself in such a way that resembles a student with a professional behavior and commitment to the teaching field expectations. Attendance is mandatory. You are to be in class at least 90% of the time, if your attendance is below this threshold your final grade will be lowered by one (1) full letter. An excused absence will be granted with a doctor's note or legal documentation provided no later than two days following the absence. Late work will not be accepted unless given prior approval by the professor. In most situations, a doctor's note or legal documentation will be required. In the event of an excused absence (via doctor's note), you are responsible for asking a classmate to take notes and gather handouts or class information for you. It is your responsibility to find out what you missed. Your professional behavior, including your professional attire, arriving to class late and leaving class early will be monitored and recorded on your professional teaching disposition.

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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