

## **Math 4304-115, 80203, Survey of Mathematical Ideas**

### **Fall 2023**

Texas A&M University-Central Texas

### **COURSE DATES, MODALITY, AND LOCATION**

August 28<sup>th</sup>, 2023 – October 20<sup>th</sup>, 2023

This is a 100% online course and uses the A&M-Central Texas Canvas Learning Management System

### **INSTRUCTOR AND CONTACT INFORMATION**

**Instructor:** Sam Jackson

**Email:** Preferred email is the Canvas Inbox. Student can also reach me at:  
sam.jackson@tamuct.edu

**Office Hours:** Tuesdays and Thursdays from 9:30 AM until 10:30 AM (The student need to send me an email to let me know who will be attending the meeting)

The office hours meeting will be on WebEx.

I will be available for students on an appointment-basis, please send me an email to set an appointment

Student is required to take a proctored midterm on September 29<sup>th</sup>. The midterm will be 3 hours long and can be taken anytime between 10am-5pm. The midterm should be taken online using the Proctorio software.

Student is also required to take a proctored final exam on October 20<sup>th</sup>. The final exam will be 3 hours long and can be taken anytime between 10am-5pm. The final should be taken online by using the Proctorio software.

### **Student-instructor interaction**

Weekly announcements will be sent out on Canvas. It is the student's responsibility to monitor the announcements posted under the "Announcements"-tab.

No late assignments will be accepted in this class.

Student can contact the instructor via the Canvas messenger under the "Inbox"-tab or via email at: sam.jackson@tamuct.edu

Instructor will respond within 48 hours to emails unless the emails were during the weekend or holidays.

The quizzes, tests, midterm, and final exams are proctored exams. Students need to install the Proctorio software to proctor these exams.

## **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:
  - [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**

This course is intended for prospective teachers who want to review key concepts, principles and strategies for teaching mathematics in 7-12 classrooms. The course is aligned with the Mathematics 7-12 Texas educator standards/frameworks and serves as preparation for taking the TExES certification examination.

Prerequisites: Math 120 and Math 402 or concurrent enrollment.

### **Competency Goals Statements (certification or standards)**

#### **Course Objective or Goal**

#### **Student Learning Outcomes**

Students will become thoroughly proficient in the following areas:

- Demonstrate understanding of number concepts, including the real number system and complex number system. (Covered on all assignments)
- Demonstrate understanding of patterns and Algebra being able to solve problems and formulate conjectures. Understands attributes of functions, relations, and their graphs. Understands trigonometric and circular functions and uses them to solve problems. (Covered on all assignments)

- Demonstrate understanding of mathematical reasoning and problem solving and how to communicate mathematical ideas and concepts. (Covered on all assignments)
- Demonstrate understanding of geometry (Euclidean) and measurement. (Covered on Midterm, Final)
- Demonstrate understanding of probability and statistics, including how to use appropriate graphical and numerical techniques to explore data, characterize patterns, and describe departures from patterns. Understand concepts and applications of probability. (Covered on Midterm, Final)
- Demonstrate understanding of mathematical learning, including how children learn mathematics and plans, organize, and implement instruction using knowledge of students, subject matter, and statewide curriculum (Covered on all assignments)
- Use software to explain abstract mathematical concepts via virtual manipulatives and animations. (Covered on tests)

Students will satisfy the Texas competencies and standards as outlined below by the Texas Education Agency:

**TExES competencies and standards:**

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## The Standards

### **Mathematics 7–12 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]) to prepare students to use mathematics.

### **Mathematics 7–12 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 (TEKS) to prepare students to use mathematics.

### **Mathematics 7–12 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 (TEKS) to prepare students to use mathematics.

### **Mathematics 7–12 Standard IV**

Probability and Statistics: The mathematics teacher understands and uses probability and statistics, their applications and technology appropriate to teach the statewide curriculum (TEKS) to prepare students to use mathematics.

### **Mathematics 7–12 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 7–12 Standard VI**

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

### **Mathematics 7–12 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.

Competencies:

## **Domain I — Number Concepts**

Competency 001: *The teacher understands the real number system and its structure, operations, algorithms and representations.*

The beginning teacher:

- A. Understands the concepts of place value, number base and decimal representations of real numbers.
- B. Understands the algebraic structure and properties of the real number system and its subsets (e.g., real numbers as a field, integers as an additive group).
- C. Describes and analyzes properties of subsets of the real numbers (e.g., closure, identities).
- D. Selects and uses appropriate representations of real numbers (e.g., fractions, decimals, percents, roots, exponents, scientific notation) for particular situations.
- E. Uses a variety of models (e.g., geometric, symbolic) to represent operations, algorithms and real numbers.
- F. Uses real numbers to model and solve a variety of problems.
- G. Uses deductive reasoning to simplify and justify algebraic processes.
- H. Demonstrates how some problems that have no solution in the integer or rational number systems have solutions in the real number system.



Competency 002: *The teacher understands the complex number system and its structure, operations, algorithms and representations.*

The beginning teacher:

- A. Demonstrates how some problems that have no solution in the real number system have solutions in the complex number system.
- B. Understands the properties of complex numbers (e.g., complex conjugate, magnitude/modulus, multiplicative inverse).
- C. Understands the algebraic structure of the complex number system and its subsets (e.g., complex numbers as a field, complex addition as vector addition).
- D. Selects and uses appropriate representations of complex numbers (e.g., vector, ordered pair, polar, exponential) for particular situations.
- E. Describes complex number operations (e.g., addition, multiplication, roots) using symbolic and geometric representations.

Competency 003: *The teacher understands number theory concepts and principles and uses numbers to model and solve problems in a variety of situations.*

The beginning teacher:

- A. Applies ideas from number theory (e.g., prime numbers and factorization, the Euclidean algorithm, divisibility, congruence classes, modular arithmetic, the fundamental theorem of arithmetic) to solve problems.
- B. Applies number theory concepts and principles to justify and prove number relationships.
- C. Compares and contrasts properties of vectors and matrices with properties of number systems (e.g., existence of inverses, non-commutative operations).
- D. Uses properties of numbers (e.g., fractions, decimals, percents, ratios, proportions) to model and solve real-world problems.
- E. Applies counting techniques such as permutations and combinations to quantify situations and solve problems.
- F. Uses estimation techniques to solve problems and judges the reasonableness of solutions.

Competency 004: *The teacher uses patterns to model and solve problems and formulate conjectures.*

The beginning teacher:

- A. Recognizes and extends patterns and relationships in data presented in tables, sequences or graphs.
- B. Uses methods of recursion and iteration to model and solve problems.
- C. Uses the principle of mathematical induction.
- D. Analyzes the properties of sequences and series (e.g., Fibonacci, arithmetic, geometric) and uses them to solve problems involving finite and infinite processes.
- E. Understands how sequences and series are applied to solve problems in the mathematics of finance (e.g., simple, compound and continuous interest rates; annuities).

Competency 005: *The teacher understands attributes of functions, relations and their graphs.*

The beginning teacher:

- A. Understands when a relation is a function.
- B. Identifies the mathematical domain and range of functions and relations and determines reasonable domains for given situations.
- C. Understands that a function represents a dependence of one quantity on another and can be represented in a variety of ways (e.g., concrete models, tables, graphs, diagrams, verbal descriptions, symbols).
- D. Identifies and analyzes even and odd functions, one-to-one functions, inverse functions and their graphs.
- E. Applies basic transformations [e.g.,  $k f(x)$ ,  $f(x) + k$ ,  $f(x - k)$ ,  $f(kx)$ ,  $|f(x)|$ ] to a parent function,  $f$ , and describes the effects on the graph of  $y = f(x)$ .
- F. Performs operations (e.g., sum, difference, composition) on functions, finds inverse relations and describes results symbolically and graphically.
- G. Uses graphs of functions to formulate conjectures of identities [e.g.,  $y = x^2 - 1$  and  $y = (x - 1)(x + 1)$ ,  $y = \log x^3$  and  $y = 3 \log x$ ,  $y = \sin(x + \frac{\pi}{2})$  and  $y = \cos x$ ].

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Competency 006: *The teacher understands linear and quadratic functions, analyzes their algebraic and graphical properties and uses them to model and solve problems.*

The beginning teacher:

- A. Understands the concept of slope as a rate of change and interprets the meaning of slope and intercept in a variety of situations.
- B. Writes equations of lines given various characteristics (e.g., two points, a point and slope, slope and  $y$ -intercept).
- C. Applies techniques of linear and matrix algebra to represent and solve problems involving linear systems.
- D. Analyzes the zeros (real and complex) of quadratic functions.
- E. Makes connections between the  $y = ax^2 + bx + c$  and the  $y = a(x - h)^2 + k$  representations of a quadratic function and its graph.
- F. Solves problems involving quadratic functions using a variety of methods (e.g., factoring, completing the square, using the quadratic formula, using a graphing calculator).
- G. Models and solves problems involving linear and quadratic equations and inequalities using a variety of methods, including technology.



Competency 007: *The teacher understands polynomial, rational, radical, absolute value and piecewise functions, analyzes their algebraic and graphical properties and uses them to model and solve problems.*

The beginning teacher:

- A. Recognizes and translates among various representations (e.g., written, tabular, graphical, algebraic) of polynomial, rational, radical, absolute value and piecewise functions.
- B. Describes restrictions on the domains and ranges of polynomial, rational, radical, absolute value and piecewise functions.
- C. Makes and uses connections among the significant points (e.g., zeros, local extrema, points where a function is not continuous or not differentiable) of a function, the graph of the function and the function's symbolic representation.
- D. Analyzes functions in terms of vertical, horizontal and slant asymptotes.
- E. Analyzes and applies the relationship between inverse variation and rational functions.
- F. Solves equations and inequalities involving polynomial, rational, radical, absolute value and piecewise functions using a variety of methods (e.g., tables, algebraic methods, graphs, use of a graphing calculator) and evaluates the reasonableness of solutions.
- G. Models situations using polynomial, rational, radical, absolute value and piecewise functions and solves problems using a variety of methods, including technology.

Competency 008: *The teacher understands exponential and logarithmic functions, analyses their algebraic and graphical properties and uses them to model and solve problems.*

The beginning teacher:

- A. Recognizes and translates among various representations (e.g., written, numerical, tabular, graphical, algebraic) of exponential and logarithmic functions.
- B. Recognizes and uses connections among significant characteristics (e.g., intercepts, asymptotes) of a function involving exponential or logarithmic expressions, the graph of the function and the function's symbolic representation.
- C. Understands the relationship between exponential and logarithmic functions and uses the laws and properties of exponents and logarithms to simplify expressions and solve problems.
- D. Uses a variety of representations and techniques (e.g., numerical methods, tables, graphs, analytic techniques, graphing calculators) to solve equations, inequalities and systems involving exponential and logarithmic functions.
- E. Models and solves problems involving exponential growth and decay.
- F. Uses logarithmic scales (e.g., Richter, decibel) to describe phenomena and solve problems.
- G. Uses exponential and logarithmic functions to model and solve problems involving the mathematics of finance (e.g., compound interest).
- H. Uses the exponential function to model situations and solve problems in which the rate of change of a quantity is proportional to the current amount of the quantity [i.e.,  $f'(x) = kf(x)$ ].

*Competency 009: The teacher understands trigonometric and circular functions, analyzes their algebraic and graphical properties and uses them to model and solve problems.*

The beginning teacher:

- A. Analyzes the relationships among the unit circle in the coordinate plane, circular functions and the trigonometric functions.
- B. Recognizes and translates among various representations (e.g., written, numerical, tabular, graphical, algebraic) of trigonometric functions and their inverses.
- C. Recognizes and uses connections among significant properties (e.g., zeros, axes of symmetry, local extrema) and characteristics (e.g., amplitude, frequency, phase shift) of a trigonometric function, the graph of the function and the function's symbolic representation.
- D. Understands the relationships between trigonometric functions and their inverses and uses these relationships to solve problems.
- E. Uses trigonometric identities to simplify expressions and solve equations.
- F. Models and solves a variety of problems (e.g., analyzing periodic phenomena) using trigonometric functions.
- G. Uses graphing calculators to analyze and solve problems involving trigonometric functions.

*Competency 010: The teacher understands and solves problems using differential and integral calculus.*

The beginning teacher:

- A. Understands the concept of limit and the relationship between limits and continuity.
- B. Relates the concept of average rate of change to the slope of the secant line and relates the concept of instantaneous rate of change to the slope of the tangent line.
- C. Uses the first and second derivatives to analyze the graph of a function (e.g., local extrema, concavity, points of inflection).
- D. Understands and applies the fundamental theorem of calculus and the relationship between differentiation and integration.
- E. Models and solves a variety of problems (e.g., velocity, acceleration, optimization, related rates, work, center of mass) using differential and integral calculus.
- F. Analyzes how technology can be used to solve problems and illustrate concepts involving differential and integral calculus.



### **Domain III – Geometry and Measurement**

Competency 011: *The teacher understands measurement as a process.*

The beginning teacher:

- A. Applies dimensional analysis to derive units and formulas in a variety of situations (e.g., rates of change of one variable with respect to another) and to find and evaluate solutions to problems.
- B. Applies formulas for perimeter, area, surface area and volume of geometric figures and shapes (e.g., polygons, pyramids, prisms, cylinders, cones, spheres) to solve problems.
- C. Recognizes the effects on length, area or volume when the linear dimensions of plane figures or solids are changed.
- D. Applies the Pythagorean theorem, proportional reasoning and right triangle trigonometry to solve measurement problems.
- E. Relates the concept of area under a curve to the limit of a Riemann sum.
- F. Uses integral calculus to compute various measurements associated with curves and regions (e.g., area, arc length) in the plane, and measurements associated with curves, surfaces and regions in three-space.

Competency 012: *The teacher understands geometries, in particular Euclidian geometry, as axiomatic systems.*

The beginning teacher:

- A. Understands axiomatic systems and their components (e.g., undefined terms, defined terms, theorems, examples, counterexamples).
- B. Uses properties of points, lines, planes, angles, lengths and distances to solve problems.
- C. Applies the properties of parallel and perpendicular lines to solve problems.
- D. Uses properties of congruence and similarity to explore geometric relationships, justify conjectures and prove theorems.
- E. Describes and justifies geometric constructions made using compass and straightedge, reflection devices and other appropriate technologies.
- F. Demonstrates an understanding of the use of appropriate software to explore attributes of geometric figures and to make and evaluate conjectures about geometric relationships.
- G. Compares and contrasts the axioms of Euclidean geometry with those of non-Euclidean geometry (i.e., hyperbolic and elliptic geometry).

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Competency 013: *The teacher understands the results, uses and applications of Euclidian geometry.*

The beginning teacher:

- A. Analyzes the properties of polygons and their components.
- B. Analyzes the properties of circles and the lines that intersect them.
- C. Uses geometric patterns and properties (e.g., similarity, congruence) to make generalizations about two- and three-dimensional figures and shapes (e.g., relationships of sides, angles).
- D. Computes the perimeter, area and volume of figures and shapes created by subdividing and combining other figures and shapes (e.g., arc length, area of sectors).
- E. Analyzes cross-sections and nets of three-dimensional shapes.
- F. Uses top, front, side and corner views of three-dimensional shapes to create complete representations and solve problems.
- G. Applies properties of two- and three-dimensional shapes to solve problems across the curriculum and in everyday life.

Competency 014: *The teacher understands coordinate, transformational and vector geometry and their connections.*

The beginning teacher:

- A. Identifies transformations (i.e., reflections, translations, glide-reflections, rotations, dilations) and explores their properties.
- B. Uses the properties of transformations and their compositions to solve problems.
- C. Uses transformations to explore and describe reflectional, rotational and translational symmetry.
- D. Applies transformations in the coordinate plane.
- E. Applies concepts and properties of slope, midpoint, parallelism, perpendicularity and distance to explore properties of geometric figures and solve problems in the coordinate plane.
- F. Uses coordinate geometry to derive and explore the equations, properties and applications of conic sections (i.e., lines, circles, hyperbolas, ellipses, parabolas).
- G. Relates geometry and algebra by representing transformations as matrices and uses this relationship to solve problems.
- H. Explores the relationship between geometric and algebraic representations of vectors and uses this relationship to solve problems.



Competency 015: *The teacher understands how to use appropriate graphical and numerical techniques to explore data, characterize patterns and describe departures from patterns.*

The beginning teacher:

- A. Selects and uses an appropriate measurement scale (i.e., nominal, ordinal, interval, ratio) to answer research questions and analyze data.
- B. Organizes, displays and interprets data in a variety of formats (e.g., tables, frequency distributions, scatter plots, stem-and-leaf plots, box-and-whisker plots, histograms, pie charts).
- C. Applies concepts of center, spread, shape and skewness to describe a data distribution.
- D. Understands measures of central tendency (i.e., mean, median, mode) and dispersion (i.e., range, interquartile range, variance, standard deviation).
- E. Applies linear transformations (i.e., translating, stretching, shrinking) to convert data and describes the effect of linear transformations on measures of central tendency and dispersion.
- F. Analyzes connections among concepts of center and spread, data clusters and gaps, data outliers and measures of central tendency and dispersion.
- G. Supports arguments, makes predictions and draws conclusions using summary statistics and graphs to analyze and interpret one-variable data.

Competency 016: *The teacher understands concepts and applications of probability.*

The beginning teacher:

- A. Understands how to explore concepts of probability through sampling, experiments and simulations and generates and uses probability models to represent situations.
- B. Uses the concepts and principles of probability to describe the outcomes of simple and compound events.
- C. Determines probabilities by constructing sample spaces to model situations.
- D. Solves a variety of probability problems using combinations and permutations.
- E. Solves a variety of probability problems using ratios of areas of geometric regions.
- F. Calculates probabilities using the axioms of probability and related theorems and concepts such as the addition rule, multiplication rule, conditional probability and independence.

- G. Understands expected value, variance and standard deviation of probability distributions (e.g., binomial, geometric, uniform, normal).
- H. Applies concepts and properties of discrete and continuous random variables to model and solve a variety of problems involving probability and probability distributions (e.g., binomial, geometric, uniform, normal).

Competency 017: *The teacher understands the relationships among probability theory, sampling and statistical inference and how statistical inference is used in making and evaluating predictions.*

The beginning teacher:

- A. Applies knowledge of designing, conducting, analyzing and interpreting statistical experiments to investigate real-world problems.
- B. Analyzes and interprets statistical information (e.g., the results of polls and surveys) and recognizes misleading as well as valid uses of statistics.
- C. Understands random samples and sample statistics (e.g., the relationship between sample size and confidence intervals, biased or unbiased estimators).
- D. Makes inferences about a population using binomial, normal and geometric distributions.
- E. Describes and analyzes bivariate data using various techniques (e.g., scatterplots, regression lines, outliers, residual analysis, correlation coefficients).
- F. Understands how to transform nonlinear data into linear form to apply linear regression techniques to develop exponential, logarithmic and power regression models.
- G. Uses the law of large numbers and the central limit theorem in the process of statistical inference.
- H. Estimates parameters (e.g., population mean and variance) using point estimators (e.g., sample mean and variance).
- I. Understands principles of hypotheses testing.



Competency 018: *The teacher understands mathematical reasoning and problem solving.*

The beginning teacher:

- A. Understands the nature of proof, including indirect proof, in mathematics.
- B. Applies correct mathematical reasoning to derive valid conclusions from a set of premises.
- C. Uses inductive reasoning to make conjectures and uses deductive methods to evaluate the validity of conjectures.
- D. Uses formal and informal reasoning to justify mathematical ideas.
- E. Understands the problem-solving process (i.e., recognizing that a mathematical problem can be solved in a variety of ways, selecting an appropriate strategy, evaluating the reasonableness of a solution).
- F. Evaluates how well a mathematical model represents a real-world situation.

Competency 019: *The teacher understands mathematical connections both within and outside of mathematics and how to communicate mathematical ideas and concepts.*

The beginning teacher:

- A. Recognizes and uses multiple representations of a mathematical concept (e.g., a point and its coordinates, the area of a circle as a quadratic function of the radius, probability as the ratio of two areas, area of a plane region as a definite integral).
- B. Understands how mathematics is used to model and solve problems in other disciplines (e.g., art, music, science, social science, business).
- C. Translates mathematical ideas between verbal and symbolic forms.
- D. Communicates mathematical ideas using a variety of representations (e.g., numeric, verbal, graphical, pictorial, symbolic, concrete).
- E. Understands the use of visual media, such as graphs, tables, diagrams and animations, to communicate mathematical information.
- F. Uses appropriate mathematical terminology to express mathematical ideas.

Competency 020: *The teacher understands how children learn mathematics and plans, organizes and implements instruction using knowledge of students, subject matter and statewide curriculum (Texas Essential Knowledge and Skills [TEKS]).*

The beginning teacher:

- A. Applies research-based theories of learning mathematics to plan appropriate instructional activities for all students.
- B. Understands how students differ in their approaches to learning mathematics.
- C. Uses students' prior mathematical knowledge to build conceptual links to new knowledge and plans instruction that builds on students' strengths and addresses students' needs.
- D. Understands how learning may be enhanced through the use of manipulatives, technology and other tools (e.g., stop watches, rulers).
- E. Understands how to provide instruction along a continuum from concrete to abstract.
- F. Understands a variety of instructional strategies and tasks that promote students' abilities to do the mathematics described in the TEKS.
- G. Understands how to create a learning environment that provides all students, including English-language learners, with opportunities to develop and improve mathematical skills and procedures.
- H. Understands a variety of questioning strategies to encourage mathematical discourse and to help students analyze and evaluate their mathematical thinking.
- I. Understands how to relate mathematics to students' lives and to a variety of careers and professions.

Competency 021: *The teacher understands assessment and uses a variety of formal and informal assessment techniques to monitor and guide mathematics instruction and to evaluate student progress.*

The beginning teacher:

- A. Understands the purpose, characteristics and uses of various assessments in mathematics, including formative and summative assessments.
- B. Understands how to select and develop assessments that are consistent with what is taught and how it is taught.

## Required Reading and Textbook(s)

No physical text is required for this class. All course materials will be available on the Canvas LMS.

Students are required to log into the following website:

[www.examedge.com](http://www.examedge.com)

Username:

Password:

A test will be assigned to the student.

**The students need to contact the instructor to get instructions about the Midterm exam and the Final Exam**

**The Lab assignments will be completed at MATH 4304L course**

## COURSE REQUIREMENTS

All homework assignments are not proctored and students have infinitely many attempts at the homework assignments.

Students have 3 attempts available on the quizzes, but the quizzes are timed exams. The quizzes are proctored quizzes. Students will need the Proctorio software for those quizzes.

All tests, midterm exam, and final exam are PROCTORED exams. Students will need the Proctorio software for those exams. Students have only one attempt to the tests, midterm exam and the final exam.

Students need to create a lecture video explaining each step of the labs. No credit will be given if the audio does not work during the lecture video.

## Grading Criteria Rubric and Conversion

Homework	6.5% (65 points)
Quizzes	7% (70 points)
Tests	16.5% (165 points)
Midterm exam	30% (300 points)
Final exam	30% (300 points)
Lab	10% (100 points)
<b>TOTAL</b>	<b>100% (1000 points)</b>



Final Grade	A	B	C	D	F
Points	900 -1000	800 - 899	700 - 799	600 - 699	0 - 599

### Posting of Grades

Students will receive immediate feedback on the following assignments on examedge:

Midterm

Final

Students will receive feedback within one week of the due date on the following assignments:

Presentations

### Rubric for labs:

	A	B	C	D	F
Solve the problem mathematically (70%)	Perfect solution	Almost Perfect software	Partial solution	Wrong solution	No submission
Video presentation (30%)	Perfect explanation of all steps using screen capturing software and audio	Almost perfect explanation of steps using screen capturing software and audio.	Mistakes in presentation	Mostly correct presentation With no audio	Wrong explanation with no audio
Total:					
100%					

**The Lab assignments will be completed at MATH 4304L course and the total points of the Lab will be added to the total points of MATH 4304 course.**

### Grading Policies

NO LATE ASSIGNMENTS WILL BE ACCEPTED IN THIS CLASS.

### COURSE OUTLINE AND CALENDAR

#### Complete Course Calendar

	<b>Assignments</b>
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Week 1	Homework: 1.1, 1.2, 1.3, 1.4, 1.5 Quiz#1
Week 2	Homework: 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5 Quiz#2 and Quiz#3 Lab#1
Week 3	Homework: 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10 Test#1 Lab#2
Week 4	Homework: 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10 Quiz#4 Test#2 Midterm Exam (Due date is 09/29/2023)
Week 5	Homework: 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10 Quiz#5 Lab#3
Week 6	Homework: 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.10 Quiz#6 Lab#4
Week 7	Homework: 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 8.10 Quiz#7 Test#3 Lab#5
Week 8	Final Exam (Due date is 10/20/2023)

### Important University Dates

<https://www.tamuct.edu/registrar/academic-calendar.html>

### TECHNOLOGY REQUIREMENTS AND SUPPORT

Use screen capturing software (for example Studio on Canvas) to record the labs.

Access the ExamEdge website for the midterm exam and the final exam at:

[www.examedge.com](http://www.examedge.com)

### Technology Requirements

This course will use the A&M-Central Texas Instructure Canvas learning management system.

We strongly recommend the latest versions of Chrome, Firefox, Edge, or Safari browsers. Canvas will run on Windows, Mac, Linus, iOS, android, or any other device with a modern web browser. **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/>] by clicking on the "TAMUCT Online Canvas" tile. You will then log in through our Microsoft portal.

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

## Canvas Support

Use the Canvas Help tab, located at the bottom of the left-hand menu, for issues with Canvas. You can search the support articles or use the Email, Call, or Chat buttons at the bottom of the support pop-up to contact the Canvas Help Desk.

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

## Online Proctored Testing

Texas A&M University-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 requires use of the Chrome web browser with their custom plug in installed.

## 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

### Warrior Center for Student Success

The Warrior Center for Student Success is a comprehensive academic support department at A&M-Central Texas, dedicated to fostering an environment of excellence and empowerment among its student body. The center offers a wide range of programs and services to ensure every student reaches their full potential, and is a haven for students seeking guidance, resources, and a strong support network to excel in their educational journey.

**ADA Access and Accommodations:** Texas A&M University-Central Texas ensures that students with disabilities have equal access to educational opportunities by providing appropriate accommodations and support services. If you believe you have a physical, learning or socio-emotional disability requiring reasonable accommodations, please visit [Access and Inclusion](https://www.tamuct.edu/student-affairs/access-inclusion.html) [https://www.tamuct.edu/student-affairs/access-inclusion.html] for more details or contact the Office of Access and Inclusion, WH-212; (254) 501-5836. Any information you provide is private and confidential.

**Success Coaching and Peer Mentoring:** Our experienced Success Coaches work one-on-one with students to develop personalized action plans, set academic goals, and build effective study strategies, time management skills, and resilience. Our Peer Mentors provide a valuable support system, offering guidance, encouragement, and a relatable perspective to help

students navigate their academic and personal challenges. For more details call 254-501-5836 or 254-501-5928 or visit [Academic Support](https://www.tamuct.edu/student-affairs/academic-support.html) [https://www.tamuct.edu/student-affairs/academic-support.html]. Click the link to schedule a session (virtual or in-person) with a success coach [bit.ly/3q7uB50](https://bit.ly/3q7uB50) or visit WH, 111.

**Testing Services:** We offer a secure and comfortable environment for students and members of the community to take courses and distance learning exams, as well as placement tests and professional certification exams. Our Testing Service also offers resources and support referrals for testing related challenges (test anxiety, learning disabilities, etc.) and supports all approved ADA accommodations. Call (254) 519-5830 or visit the [Testing Center](https://www.tamuct.edu/testing-center/) [https://www.tamuct.edu/testing-center/].

**Tutoring and Supplemental Instruction Services:** Our team of qualified Tutors and Supplemental Instructors assist students in various non-writing subjects, promoting academic comprehension and enhancing learning outcomes. Click the link to schedule a tutoring session with a TAMUCT tutor (virtual or in-person) or view tutor availability [bit.ly/43Q6wNz](https://bit.ly/43Q6wNz). You may also chat live with a remote tutor 24/7 for a variety of subjects through our partnership with Tutor.com, an online tutoring platform that is free to all TAMUCT students. To learn more please visit [Tutoring Services](https://www.tamuct.edu/student-affairs/academic-support.html#tutoring) [https://www.tamuct.edu/student-affairs/academic-support.html#tutoring] or call (254) 501-5836 or visit the Tutoring Hub in Warrior Hall, 111.

### **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 Student Conduct Office. 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/reporting.php?TAMUCentralTexas), [https://cm.maxient.com/reporting.php?TAMUCentralTexas].

### **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?PartnerIdpld=https://eis-prod.ec.tamuct.edu:443/samlssso&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 Records and Admissions Office will provide a deadline on the Academic Calendar for which the form must be completed. Once you submit the completed form to the Records and Admissions 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 Records and Admissions 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.

### **Pregnant and/or Parenting Students Rights and Accommodations**

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 Associate Dean in the Division of Student Affairs, (254) 501-5909, can assist students who are pregnant, experiencing pregnancy-related conditions, and/or parenting by provide flexible and individualized reasonable accommodations. Students should seek out assistance as early in the pregnancy as possible through the [Pregnancy & Parenting webpage](#) [<https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html>]. For more information, please visit [Student Affairs](#) [<https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html>]. 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](#) specifically prohibits discrimination against a student based on pregnancy, childbirth, false pregnancy, termination of pregnancy, or recovery from any of these conditions [<https://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.html>].

Students experiencing any form of discrimination due to any of these conditions are encouraged to reach out to the Title IX Coordinator, 254.519.5716, [titleix@tamuct.edu](mailto:titleix@tamuct.edu), Founders Hall 317B, or the Associate Dean of Student Affairs, 254.501.5909, Warrior Hall 105.

### **Title IX Rights and Reporting Responsibilities**

Texas A&M University-Central Texas is committed to creating a safe and open learning environment for all students. If you or another student has experienced any form of gender discrimination or sexual misconduct, including sexual harassment, sexual assault, dating/domestic violence, and/or sex-based stalking, help and support are available. Our university strongly encourages all members of our campus community to report incidents and seek support for gender discrimination and sexual misconduct through the Title IX Office. You may contact the Title IX Office at 254.519.5716, [titleix@tamuct.edu](mailto:titleix@tamuct.edu), Founders Hall 317B, or learn more by visiting the [Title IX webpage](#) [<https://www.tamuct.edu/compliance/titleix.html>].

Please be aware that that under [Title IX](#), [Texas Senate Bill 212](#), and [System Regulation 08.01.01](#), [<https://policies.tamus.edu/08-01-01.pdf>] all university employees are mandated reporters and are required to disclose information about suspected or alleged violations as listed above and



defined in System Regulation 08.01.01. If the Title IX Office receives information about an incident, they will reach out to offer information about resources, rights, and procedural options as a member of the campus community. Although I have an obligation to report, you will, in most cases, control how your case will be handled. When working with the Title IX Office you will have access to resources and accommodations but also have the opportunity to express if you wish to move forward with an investigation. Our goal is to make sure you are aware of the options available to you as a student. Community members are not required to respond to this outreach.

If you or another student wishes to speak to a confidential employee who does not have this reporting responsibility, you can contact the [Student Wellness & Counseling Center](https://www.tamuct.edu/student-affairs/student-counseling.html), [https://www.tamuct.edu/student-affairs/student-counseling.html], 254.501.5955, or [swacc@tamuct.edu](mailto:swacc@tamuct.edu), located in Warrior Hall Room 207L or the Student Support Advocate, 254.501.5978 or [ssa@tamuct.edu](mailto:ssa@tamuct.edu), located in founder Hall Room 317D.

### **University Library & Archives**

The University Library & Archives provides many services in support of research across campus and at a distance. We offer over 350 electronic databases containing approximately 1,203,947 eBooks and 134,750 journals, in addition to the 96,879 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]. 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 workspaces, 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/index]

### **University Writing Center**

Located in Warrior Hall 416 and online, 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 face-to-face hours of operation are from 10:00 a.m.-5:00 p.m. Monday and

Thursday in Warrior Hall 416. Online tutoring is available Monday thru Thursday from 10:00 a.m.-5:00 p.m. and from 6:00-9:00 p.m. and on Saturdays from 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](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.

## **OTHER 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/reporting.php?TAMUCentralTexas) online

[https://cm.maxient.com/reporting.php?TAMUCentralTexas].

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.

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### **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.