Texas A&M University-Central Texas
Math 4302: College Geometry
Online

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Office Hours: M W 5pm – 6pm online over Webex

Canvas access:
http://tamuct.instructure.com

Mymathlab access:
https://www.pearsonmylabandmastering.com/northamerica/mymathlab/

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

UNILERT 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 UNILERT through their myCT email account. Connect at www.TAMUCT.edu/UNILERT to change where you receive your alerts or to opt out. By staying enrolled in UNILERT, university officials can quickly pass on safety-related information, regardless of your location.
COURSE INFORMATION

1.0 Course Overview and description:
Introduction to Euclidean geometry. Topics will include an introduction to logic, properties of parallel lines, triangles, quadrilaterals, and measurement. Similarity and proportionality will also be addressed. Properties of circles and transformations, projective and non-Euclidean geometry. Technology including the GeoGebra software will be incorporated where appropriate.

2.0 Course Objective:
2.1 Student Learning Outcomes
Math 4302 prepares aspiring secondary mathematics teachers for the geometry and measurement domain on the 4-8 and 7-12 state certification exams. Topics covered are in accordance with standards and competencies covered on the TExES exams. Students will learn both content and methods of teaching mathematics.

2.2 Competency Goals Statements
The aim of this course is to equip students with the content knowledge required for the “Geometry and Measurement” domain on the state certification exams. Students will utilize applets on Geogebra to visualize abstract mathematical concepts.

Competencies:

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.

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 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.
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).
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.
3.0 Required Reading and Textbook(s):
No textbook is required for this course. Students are required to purchase an access code to mymathlab. The access code will grant students access to an e-book and most of the assignments.

Instructions are below:

To register for College Geometry:

2. Under Register, select Student.
3. Confirm you have the information needed, then select OK! Register now.
4. Enter your instructor’s course ID: roberts94093, and Continue.
5. Enter your existing Pearson account username and password to Sign In.
   You have an account if you have ever used a MyLab or Mastering product.
   » If you don’t have an account, select Create and complete the required fields.
6. Select an access option.
   » Enter the access code that came with your textbook or that you purchased separately from the bookstore.
   » If available for your course,
     • Buy access using a credit card or PayPal.
     • Get temporary access.
7. From the You’re Done! page, select Go To My Courses.
8. On the My Courses page, select the course name College Geometry to start your work.

To sign in later:

2. Select Sign In.
3. Enter your Pearson account username and password, and Sign In.
4. Select the course name College Geometry to start your work.

To upgrade temporary access to full access:

2. Select Sign In.
3. Enter your Pearson account username and password, and Sign In.
4. Select Upgrade access for College Geometry.
5. Enter an access code or buy access with a credit card or PayPal.
4.0  **Course Requirements:**

**Homework:**

- Homework will be assigned using mymathlab and the due date will be provided with the assignment and is also available on the weekly schedule.
- **NO LATE HOMEWORK WILL BE ACCEPTED.**
- All homework assignments are online.

**Projects:**

3 projects assignments in Geogebra.

**Quizzes:**

12 Review Quizzes available on mymathlab

**Comprehensive Final exam:**

1 Comprehensive final exam

**Lecture videos:**

All lecture videos can be found on mymathlab under “Multimedia Library”.

**Technology requirements:**

Every student is required to have access to a laptop/desktop and download the webex application in order to have online meetings with the instructor. Students are also required to have internet access to use the Geogebra software.

**The student is required to check Announcements on Canvas on a daily basis.**

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**COURSE OUTLINE AND CALENDAR**

6.0  **Complete Course Calendar**
<table>
<thead>
<tr>
<th>Week</th>
<th>June 3</th>
<th>June 4</th>
<th>June 5</th>
<th>June 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Get registered on mymathlab.</td>
<td>Watch the online lecture videos on Chapters 1-2</td>
<td>Watch the online lecture videos on Chapters 3</td>
<td>Homework on Chapter 1 due</td>
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<tr>
<td>Week 2</td>
<td>Watch the online lecture videos on Chapter 4</td>
<td>Watch the online lecture video on Chapter 5</td>
<td>Watch the online lecture video on Chapter 6</td>
<td>Homework on Chapters 2+3 due</td>
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<td>Review Quiz Chapter 1 due</td>
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<td>Week 3</td>
<td>June 17</td>
<td>June 18</td>
<td>June 19</td>
<td>June 20</td>
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<td></td>
<td>Project 1 due</td>
<td>Watch the online lecture video on Chapter 7</td>
<td>Watch the online lecture video on Chapter 8</td>
<td>Homework on Chapters 4+5 due</td>
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<td>Review Quiz on Chapter 2 due</td>
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<td>Week 4</td>
<td>June 24</td>
<td>June 25</td>
<td>June 26</td>
<td>June 27</td>
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<td></td>
<td>Project 2 due</td>
<td>Watch the online lecture video on Chapter 10</td>
<td>Homework on Chapter 6 due</td>
<td>Review Quiz on Chapter 3 due</td>
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<td>Week 5</td>
<td>July 1st</td>
<td>July 2nd</td>
<td>July 3rd</td>
<td>July 4th</td>
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<td></td>
<td>Homework on Chapter 7 due</td>
<td>Watch the online lecture videos on Chapters 11</td>
<td>Homework on Chapter 8 due</td>
<td>Review Quiz on Chapter 4 due</td>
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<td>Week 6</td>
<td>July 8th</td>
<td>July 9th</td>
<td>July 10th</td>
<td>July 11th</td>
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<td>Review Quiz on Chapter 5 due</td>
<td>Review Quiz on Chapter 6 due</td>
<td>Watch the online lecture videos on Chapters 12</td>
<td>Review Quiz on Chapter 7 due</td>
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<td>Week 7</td>
<td>July 15th</td>
<td>July 16th</td>
<td>July 17th</td>
<td>July 18th</td>
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<td>Project 3 due</td>
<td>Review Quiz on Chapter 8 due</td>
<td>Homework on Chapter 9 due</td>
<td>Review Quiz on Chapter 9 due</td>
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<tr>
<td>Week 8</td>
<td>July 22nd</td>
<td>July 23rd</td>
<td>July 24th</td>
<td>July 25th</td>
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<tr>
<td></td>
<td>Homework on Chapter 10 due</td>
<td>Review Quiz on Chapter 10 due</td>
<td>Homework on Chapter 11 due</td>
<td>Review Quiz on Chapter 11 due</td>
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<tr>
<td>Week 9</td>
<td>July 29th</td>
<td>July 30th</td>
<td>July 31st</td>
<td>August 1st</td>
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<tr>
<td></td>
<td>Homework on Chapter 12 due</td>
<td>Review Quiz on Chapter 12 due</td>
<td>Review</td>
<td>Review</td>
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**UNIVERSITY RESOURCES, PROCEDURES, AND GUIDELINES**

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

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

**Academic Integrity.**
Texas A&M University -Central Texas values the integrity of the academic enterprise and strives for the highest standards of academic conduct. A&M-Central Texas expects its students, faculty, and staff to support the adherence to high standards of personal and scholarly conduct to preserve the honor and integrity of the creative community. Academic integrity is defined as a commitment to honesty, trust, fairness, respect, and responsibility. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade for the course. Academic misconduct is any act...
that improperly affects a true and honest evaluation of a student’s academic performance and includes, but is not limited to, 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.

For more information regarding the Student Conduct process, [https://tamuct.campuslabs.com/engage/organization/tamuct-student-conduct-panel].

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 Office of Access and Inclusion is responsible for ensuring that students with a disability receive equal access to the university’s programs, services and activities. If you believe you have a disability requiring reasonable accommodations please contact the Office of Access and Inclusion, WH-212; or call (254) 501-5836. Any information you provide is private and confidential and will be treated as such.

For more information please visit our Access & Inclusion 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 the Student Affairs web page [https://www.tamuct.edu/student-affairs/index.html]. Students may also contact the institution’s Title IX Coordinator. If you would like to read more about these requirements and guidelines online, please visit the website [http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf].

Title IX of the Education Amendments Act of 1972 prohibits discrimination on the basis of sex and gender— including pregnancy, parenting, and all related conditions. A&M-Central Texas is able to provide flexible and individualized reasonable accommodation to pregnant and parenting students. All pregnant and parenting students should contact the Associate Dean in the Division of Student Affairs at (254) 501-5909 to seek out assistance. Students may also contact the University’s Title IX Coordinator.
Tutoring.
Tutoring is available to all A&M-Central Texas students, both on-campus and online. Subjects tutored on campus include Accounting, Advanced Math, Biology, Finance, Statistics, Mathematics, and Study Skills. Tutors are available at the Tutoring Center in Warrior Hall, Suite 111.

If you have a question regarding tutor schedules, need to schedule a tutoring session, are interested in becoming a tutor, or have any other question, contact Academic Support Programs at (254) 519-5796, or by emailing Dr. DeEadra Albert-Green at deeadra.albertgreen@tamuct.edu.

Chat live with a tutor 24/7 for almost any subject from on your computer! Tutor.com is an online tutoring platform that enables A&M-Central Texas students to log in and receive FREE online tutoring support. This tool provides tutoring in over 40 subject areas. Access Tutor.com through Canvas.

University Writing Center.
Located in Warrior Hall 416, the University Writing Center (UWC) at Texas A&M University–Central Texas (TAMUCT) is a free workspace open to all TAMUCT students from 10:00 a.m.-4:00 p.m. Monday thru Thursday with online only hours Monday thru Thursday from 6:00-9:00 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-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 WCOnline. In addition, you can email Dr. Bruce Bowles Jr. at bruce.bowles@tamuct.edu if you have any questions about the UWC and/or need any assistance with scheduling.

University Library.
The University Library provides many services in support of research across campus and at a distance. We offer over 200 electronic databases containing approximately 250,000 eBooks and 82,000 journals, in addition to the 85,000 items in our print collection, which can be mailed to students who live more than 50 miles from campus. Research guides for each subject taught at A&M-Central Texas are available through our website to help students navigate these resources. On campus, the library offers technology including cameras, laptops, microphones, webcams, and digital sound recorders.

Research assistance from a librarian is also available 24 hours a day through our online chat service, and at
the reference desk when the library is open. Research sessions can be scheduled for more comprehensive assistance, and may take place on Skype or in-person at the library. Assistance may cover many topics, including how to find articles in peer-reviewed journals, how to cite resources, and how to piece together research for written assignments.

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

OPTIONAL POLICY STATEMENTS:

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

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

Behavioral Intervention
Texas A&M University-Central Texas cares about the safety, health, and well-being of its students, faculty, staff, and community. If you are aware of individuals for whom you have a concern, who are exhibiting behaviors that pose a threat to safety, or individuals causing a significant disruption to our community, please make a referral to the Behavioral Intervention Team. You can complete the referral online [https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=2].

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