Math 4302-115, 60035, College Geometry

Summer 2022

Texas A&M University-Central Texas

COURSE DATES, MODALITY, AND LOCATION

Jun 06, 2022 - Jul 29, 2022

This is a 100% online course, and uses the A&M-Central Texas Canvas Learning Management System [https://tamuct.instructure.com/].

All course materials will be posted on Canvas.

Students are required to use the following platform for certain assignments:

www.geogebra.org

INSTRUCTOR AND CONTACT INFORMATION

Instructor: **Mienie Roberts (Ph.D.)**
Office: **Heritage Hall, Room 302K or Online**

Phone: **(903) 705-9703**
Email: **Preferred: Canvas Inbox**
Other: dekock@tamuct.edu

Office Hours online over Webex:

Mondays: 1 pm – 2 pm

Wednesdays: 1 pm – 2 pm
https://tamuct.webex.com/join/dekock

Student-instructor interaction

I will check messages once a day on the CANVAS inbox system and reply within 24 hours. Students are expected to check their CANVAS email and announcements on a daily basis. NO LATE ASSIGNMENTS WILL BE ACCEPTED.

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](#) website [www.safezoneapp.com].

To register SafeZone on your phone, please follow these 3 easy steps*:*
1. Download the SafeZone App from your phone store using the link below:
   o [iPhone/iPad](#): [https://apps.apple.com/app/safezone/id533054756]
   o [Android Phone / Tablet](#)
   [https://play.google.com/store/apps/details?id=com.criticalarc.safezoneapp]
2. Launch the app and enter your myCT email address (e.g. {name}@tamuct.edu)
3. Complete your profile and accept the terms of service

COURSE INFORMATION
1.0 Course overview and description:

Program Goal
Texas A&M University-Central Texas students, upon completion of certification requirements, will be reflective professional educators who make effective educational decisions that support the creation of dynamic learning environments.

Course Overview and Description: MTHK 4302.110
Math 4302 (College Geometry) is designed to prepare students for the Geometry and Measurement domain on the TExES Math 7-12 exam. The class aims to equip students with the requisite knowledge and skills that an entry-level educator in this field in Texas public schools must possess. The class also incorporates GeoGebra as a tool for understanding and teaching geometric concepts.

Course Objective
Math 4302 prepares aspiring secondary mathematics teachers for the "Geometry and measurement" domain on the 4-8 and 7-12 state certification examinations. Topics covered are in accordance with the standards and competencies covered in the TExES examinations. Students will learn both content and methods of teaching geometry with technology (including the GeoGebra platform).

Student learning outcomes as per the Core Subjects 7-12 Mathematics Math Standards

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.

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.

4.0   Required Reading and Textbook:

All required materials and resources will be available on the Canvas LMS. Student needs access to the GeoGebra platform at:
www.geogebra.org

5.0 Course Requirements:

Quiz 1: Competency 11 A, C   20 points
Quiz 2: Competency 11 A, B, C   20 points
Quiz 3: Competency 12 A, B, C, D, E, F   20 points
Quiz 4: Competency 12 A, B, C, D, E, F   20 points
Quiz 5: Competency 11 A, B, C, D, 12 A, B, C, D, E, 9   20 points
Quiz 6: Competency 12, 9   20 points
Quiz 7: Competency 12, 9   20 points
Quiz 8: Competency 13 B, C, D   20 points
Quiz 9: Competency 13 A, B, D, G   20 points
Quiz 10: Competency 13   20 points
Quiz 11: Competency 13   20 points
Quiz 12: Competency 12, 13, 14   20 points
Quiz 13: Competency 12, 13, 14   20 points
Quiz 14: Competency 13, 14   20 points
Midterm: Competency 11, 12.   300 points
Final: Comprehensive on Competencies 11, 12, 13, 14, 9   300 points
Project 1: Competency 11   20 points
Project 2: Competency 12   20 points
Project 3: Competency 13   20 points
Project 4: Competency 14, 9   20 points
Discussions (4 x 10): Competencies 11,12,13,14,9   40 points

Total: **1000 points**

Projects:
1. Student needs to complete courses on the GeoGebra platform and submit a lecture video with screen capturing software.
2. No credit will be awarded if the recording does not include audio and an explanation of the concepts.

Rubric for Projects:

	Excellent	Average	Poor	Score
Understanding of mathematical concepts (30%)				
Understanding of coding concepts (50%)				
Professional decorum (Presentation/Audio/Quality of video, etc.) (20%)				

Readings/Discussions:

Readings should be completed on Canvas. Discussions will be posted on the Canvas LMS.

Rubric for online discussions:

	Excellent	Average	Poor	Score
Understanding of mathematical concept (50%)				
Grammar (25%)				
Spelling (25%)				

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 should use the GeoGebra software which can be found at:

www.geogebra.org

Grading Criteria Rubric and Conversion
Posting of Grades

Grades will be available on the Canvas Gradebook.

Grading Policies

No late assignment will be accepted.

COURSE OUTLINE AND CALENDAR

Complete Course Calendar

	Monday	Tuesday	Wednesday	Thursday

Week 1	**June 6th**
	`Reading`
	`Module 1`
		June 7thth	**June 8th**
			`Quiz 1 due`
				June 9th

Week 2	**June 13th** Quiz 2 due Reading Module 2 **`Discussion 1`** **`due`**	**June 14th**	**June 15th** `Quiz 3 due`	**June 16th**
Week 3	**June 20th** Reading Module 3 Quiz 4 due Reading Module 3 due Discussion 2 due **`Project 1`** **`due`**	**June 21st**	**June 22nd** `Quiz 5 due`	**June 23rd**
Week 4	**June 27th** Project 2 due Reading Module 4 due **`Quiz 6 due`**	**June 28th**	**June 29th** Quiz 7 due **`Midterm due`**	**June 30th**
Week 5	**July 4th** **No class**	**July 5th**	**July 6th** Reading Module 5 due Project 3 due Quiz 8 due **`Discussion 3`** **`due`**	**July 7th**
Week 6	**July 11th**	**July 12th**	**July 13th**	**July 14th**

	Quiz 9 due Reading Module 6 due Project 4 due Quiz 10 due **Discussion 4 due**		**Quiz 11 due**	
Week 7	**July 18th** Quiz 12 due **Reading Module 7 due**	**July 19th**	**July 20th** **Quiz 13 due**	**July 21st**
Week 8	**July 25th** **Quiz 14 due**	**July 26th**	**July 27th** **Final due**	**July 28th**

Important University Dates
> *https://www.tamuct.edu/registrar/academic-calendar.html*

TECHNOLOGY REQUIREMENTS AND SUPPORT

Student needs
- A computer and R/RStudio software.
- Internet connection for meetings on webex (with audio)
  https://tamuct.webex.com/join/dekock

- Internet connection to access the websites:
  www.coursera.org
  https://nebigdatahub.org/about/

This course will use the A&M-Central Texas Instructure Canvas learning management system. **We strongly recommend the latest versions of Chrome or Firefox browsers. Canvas no longer supports any version of Internet Explorer.**

Logon to A&M-Central Texas Canvas [https://tamuct.instructure.com/] or access Canvas through the TAMUCT Online link in myCT [https://tamuct.onecampus.com/]. You will log in through our Microsoft portal.

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

Canvas Support

Use the Canvas Help link, located at the bottom of the left-hand menu, for issues with Canvas. You can select "Chat with Canvas Support," submit a support request through "Report a Problem," or call the Canvas support line: 1-844-757-0953.

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

Online Proctored Testing

A&M-Central Texas uses Proctorio for online identity verification and proctored testing. This service is provided at no direct cost to students. If the course requires identity verification or proctored testing, the technology requirements are: Any computer meeting the minimum computing requirements, plus web camera, speaker, and microphone (or headset). Proctorio also requires the Chrome web browser with their custom plug in.

Other Technology Support

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

>Email: helpdesk@tamu.edu
>Phone: (254) 519-5466
>Web Chat: [http://hdc.tamu.edu]
>*Please let the support technician know you are an A&M-Central Texas student.*

UNIVERSITY RESOURCES, PROCEDURES, AND GUIDELINES

Drop Policy

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

[https://federation.ngwebsolutions.com/sp/startSSO.ping?PartnerIdpId=https://eis-prod.ec.tamuct.edu:443/samlsso&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 Registrar's Office will provide a deadline on the Academic Calendar for which the form must be completed. Once you submit the completed form to the Registrar's Office, you must go into Warrior Web and confirm that you are no longer enrolled. If you still show as enrolled, FOLLOW-UP with the Registrar's Office immediately. You are to attend class until the procedure is complete to avoid penalty for absence. Should you miss the drop deadline or fail to follow the procedure, you will receive an F in the course, which may affect your financial aid and/or VA educational benefits.

Academic Integrity

Texas A&M University-Central Texas values the integrity of the academic enterprise and strives for the highest standards of academic conduct. A&M-Central Texas expects its students, faculty, and staff to support the adherence to high standards of personal and scholarly conduct to preserve the honor and integrity of the creative community. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade

for the course. All academic misconduct concerns will be referred to the Office of Student Conduct. When in doubt on collaboration, citation, or any issue, please contact your instructor before taking a course of action.

For more information regarding the Student Conduct process, [https://www.tamuct.edu/student-affairs/student-conduct.html].

If you know of potential honor violations by other students, you may submit a report, [https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=0].

Academic Accommodations

At Texas A&M University-Central Texas, we value an inclusive learning environment where every student has an equal chance to succeed and has the right to a barrier-free education. The Warrior Center for Student Success, Equity and Inclusion is responsible for ensuring that students with a disability receive equal access to the university's programs, services and activities. If you believe you have a disability requiring reasonable accommodations, please contact the Office of Access and Inclusion, WH-212; or call (254) 501-5836. Any information you provide is private and confidential and will be treated as such.

For more information, please visit our Access & Inclusion Canvas page (log-in required) [https://tamuct.instructure.com/courses/717]

Important information for Pregnant and/or Parenting Students

Texas A&M University-Central Texas supports students who are pregnant and/or parenting. In accordance with requirements of Title IX and related guidance from US Department of Education's Office of Civil Rights, the Dean of Student Affairs' Office can assist students who are pregnant and/or parenting in seeking accommodations related to pregnancy and/or parenting. Students should seek out assistance as early in the pregnancy as possible. For more information, please visit Student Affairs [https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html]. Students may also contact the institution's Title IX Coordinator. If you would like to read more about these requirements and guidelines online, please visit the website [http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf].

Title IX of the Education Amendments Act of 1972 prohibits discrimination on the basis of sex and gender–including pregnancy, parenting, and all related conditions. A&M-Central Texas is able to provide flexible and individualized reasonable accommodation to pregnant and parenting students. All pregnant and parenting students should contact the Associate Dean in the Division of Student Affairs at (254) 501-5909 to seek out assistance. Students may also contact the University's Title IX Coordinator.

Tutoring

Tutoring is available to all A&M-Central Texas students, both virtually and in-person. Student success coaching is available online upon request.

If you have a question, are interested in becoming a tutor, or in need of success coaching contact the Warrior Center for Student Success, Equity and Inclusion at (254) 501-5836, visit the Warrior Center at 212 Warrior Hall, or by emailing WarriorCenter@tamuct.edu.

To schedule tutoring sessions and view tutor availability, please visit Tutor Matching Services [https://tutormatchingservice.com/TAMUCT] or visit the Tutoring Center in 111 Warrior Hall.

Chat live with a remote tutor 24/7 for almost any subject from on your computer! Tutor.com is an online tutoring platform that enables A&M-Central Texas students to log in and receive online tutoring support at no additional cost. This tool provides tutoring in over 40 subject areas except writing support. Access Tutor.com through Canvas.

University Writing Center

Located in Warrior Hall 416, the University Writing Center (UWC) at Texas A&M University–Central Texas (A&M–Central Texas) is a free service open to all A&M–Central Texas students. For the Summer 2022 semester, the hours of operation are from 10:00 a.m.-4:00 p.m. Monday thru Thursday in Warrior Hall 416 (with online tutoring available every hour as well) with satellite hours available online only Monday thru Thursday from 6:00-9:00 p.m. and most 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 WCOnline at [https://tamuct.mywconline.com/]. In addition, you can email Dr. Bruce Bowles Jr. at bruce.bowles@tamuct.edu if you have any questions about the UWC, need any assistance with scheduling, or would like to schedule a recurring appointment with your favorite tutor.

University Library

The University Library provides many services in support of research across campus and at a distance. We offer over 200 electronic databases containing approximately 400,000 eBooks and 82,000 journals, in addition to the 96,000 items in our print collection, which can be mailed to students who live more than 50 miles from campus. Research guides for each subject taught at A&M-Central Texas are available through our website to help students navigate these resources. On campus, the library offers technology including cameras, laptops, microphones, webcams, and digital sound recorders.

Research assistance from a librarian is also available 24 hours a day through our online chat service, and at the reference desk when the library is open. Research sessions can be scheduled for more comprehensive assistance, and may take place virtually through WebEx, Microsoft

Teams or in-person at the library. Schedule an appointment
here [https://tamuct.libcal.com/appointments/?g=6956]. 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
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].

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 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/bit]. If a person's behavior poses an imminent
threat to you or another, contact 911 or A&M-Central Texas University Police at 254-501-5805.

OTHER POLICIES

No late assignments will be accepted in this class.
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.