



TEXAS A&M
UNIVERSITY
CENTRAL TEXAS™

MTHK 5378.110 Technology-aided Mathematics I Spring 2018

Instructor & Contact Information

Mienie Roberts, PhD
Associate Professor in Mathematics
College of Arts and Sciences
1001 Leadership Place, Killeen TX 76549

Office: Warrior Hall 420M

Office Hours: Face-to-face: Monday 1:00pm-2:00pm, 4:45pm-6:00pm
Tuesday 12:00pm-2:00pm

Online: Monday 1:00pm-2:00pm, 4:45pm-6:00pm
Tuesday 12:00pm-2:00pm

Or by appointment

We will use web conferencing software for online office hours.

Class meeting times: Mondays from 6:00pm-9:00pm in Founder's Hall, Room 412.

Work email: dekock@tamuct.edu or email me on Canvas (preferred).

Cell Phone: 903-705-9703 Feel free to call or text me during my office hours (or any other time) if you have questions.

Texas A&M University-Central Texas Mission Statement

Texas A&M University-Central Texas is an upper-level university offering junior and senior-level coursework needed to successfully complete baccalaureate degrees and all coursework leading to the completion of graduate degrees. The University is committed to high quality, rigorous, and innovative learning experiences, and prepares students for lifelong learning through excellence in teaching, service, and scholarship.

Mode of Instruction & Course Access

This course is a hybrid course and uses the Canvas Learning Management System [<https://tamuct.instructure.com>] as a supplement to the face-to-face learning opportunities. You will use the Canvas username and password communicated to you separately to login to this system. You will also use the R/RStudio software. Student will need access to a computer and internet to fulfill the requirements of the course. All course materials will be posted on:

<http://rpubs.com/mroberts/351301>

The course will also utilize the GeoGebra software at:

<https://www.geogebra.org/>

Student-Instructor Interaction

I will respond to emails and text messages within 24 hours.

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

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 5378.110

This course centers on the identification, exploration, and description of new patterns contained within data sets using R. Students will engage in mathematical problem-solving using technological tools which will include the R/RStudio and GeoGebra software. The focus will be on applications in probability and statistics and geometry.

Course Objectives:

- Understand the fundamentals of 'R' programming.
- Explore data manipulation with the following functions: `grep()`, `sub()`, `apply()`, etc.
- Apply various data importing techniques in 'R'.
- Apply data visualization to create plots.
- Use regular expressions in data transfer and mining techniques.
- Work on a real-life project and apply 'R' to perform data analysis and data mining.
- Perform statistical analysis with R.
- Use static and dynamic text in GeoGebra to explain geometric concepts.
- Create virtual manipulatives in GeoGebra to explain abstract geometric concepts.

Prerequisite: 24 hours of MATH coursework, including MATH 2413, are required before registering for MATH 5378.

Course Objective

Students will become thoroughly proficient in the following areas:

- Data and Statistics
- Descriptive Statistics
- Probability
- Discrete Probability distributions
- Continuous Probability distributions
- Simple linear regression
- Multiple regression
- Regression analysis (model building)
- Topics in Euclidean geometry
- Pythagorean Theorem
- Properties of polygons

Required Reading and Textbook(s)

The student is not required to purchase a textbook. All required materials (including the e-book) can be found at:
<http://rpubs.com/mroberts/351301>

***A student of this institution is not under any obligation to purchase a textbook from a university-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer. You will be provided additional required course readings from the professor.**

Course Requirements

Student Learning and Assessment

Projects	15 projects each worth 100 points
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Testing Center

The Office of Academic Support Programs (ASP) provides proctoring, or supervised testing, services for students enrolled in TAMUCT online classes. It is also a part of the Tarleton State and Central Texas College testing networks, serves as a general testing center for Killeen, and is the university resource for verifying and coordinating with proctors at other testing locations.

Testing at TAMUCT is provided free of charge for active TAMUCT students. For non-TAMUCT students, there is a \$15 administration fee, which can be paid on the day of the exam. The student is solely responsible for all testing fees.

All testing requests need to be submitted at least 5 business days before the day of the exam. If submitted in less than 5 business days, Academic Support Programs cannot guarantee the administration of that exam.

To take a proctored exam at TAMUCT:

Submit the TAMUCT Testing Form online. <https://www.tamuct.edu/departments/academicsupport/proctoring.php>

ASP will confirm your requested test time or suggest a new one within two business days.

Plan to arrive at the testing location at least fifteen minutes before the scheduled time. Remember to bring a photo ID, a pencil or pen, and any other supplies that are allowed by your instructor. The proctor is not responsible for providing materials for your test other than scratch paper.

For questions, or if you need testing accommodations, please contact Cecilia Morales in room WH 212C or by:

Phone: 254.501.5830

Fax: 254.501.5807

Email: cecilia.morales@tamuct.edu

Evaluation & Assessment (Grading Criteria)

1. Projects (15x100).....	100% (1500 points)
Total	100% (1500 points)

Evaluation Summary:

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

A = 90-100

B = 80-89

C = 70-79

D = 60-69

F = 59 and below

Posting of Grades

Grades will be updated regularly and posted to Canvas under “Gradebook” after completion of course assignments.

Course Outline & Calendar

MTHK 5378 The instructor reserves the right to modify the calendar for the benefit of the students.

Week 1	Jan 15 Martin L. King Jr. Day No class	Jan 16	Jan 17	Jan 18
Week 2	Jan 22 Face-to-face meeting	Jan 23	Jan 24	Jan 25 Project 1 due
Week 3	Jan 29 Face-to-face meeting	Jan 30	Jan 31	Feb 1 Project 2 due
Week 4	Feb 5 Face-to-face meeting	Feb 6	Feb 7	Feb 8 Project 3 due
Week 5	Feb 12 Face-to-face meeting	Feb 13	Feb 14	Feb 15 Project 4 due
Week 6	Feb 19 Face-to-face meeting	Feb 20	Feb 21	Feb 22 Project 5 due
Week 7	Feb 26 Online class	Feb 27	Feb 28	March 1 Project 6 due
Week 8	March 5 Online class	March 6	March 7	March 8 Project 7 due
Spring Break	March 12 No class	March 13	March 14	March 15
Week 9	March 19 Online class	March 20	March 21	March 22 Project 8 due
Week 10	March 26 Online class	March 27	March 28	March 29 Project 9
Week 11	April 2 Online class	April 3	April 4	April 5 Project 10 due
Week 12	April 9 Online class	April 10	April 11	April 12 Project 11
Week 13	April 16 Online class	April 17	April 18	April 19 Project 12 due
Week 14	April 23 Online class	April 24	April 25	April 26 Project 13 due
Week 15	April 30 Face-to-face meeting	May 1	May 2	May 3 Project 14 due
Week 16	May 7 Face-to-face meeting Project 15 due	May 8	May 9	May 10

University Procedures & Policies

TAMUCT Department of Curriculum & Instruction Professional Expectations

Texas A&M University-Central Texas clinical teachers are guests in the schools in which they are placed. Each clinical teacher must abide by all regulations and policies established by the district, central administration, campus administrators, and cooperating teachers.

Candidates for teacher certification at TAMUCT will demonstrate the following qualities and behaviors in pursuit of their goal of becoming a

professional educator.

Quality	Behavior
Communication	communicate appropriately and effectively with colleagues, supervisors, students, parents, caregivers and community members using various forms
Collaboration	work collaboratively with colleagues, mentors and supervisors to achieve the local, state, and national goals of education
Commitment	demonstrate commitment to the teaching profession and exercise leadership for the advancement of the profession and public education; be responsible, punctual, regular in attendance, and prepared to participate in all aspects of professional development
Professional Development	Take responsibility for utilizing professional teaching practices and constantly strive to improve through professional growth
Ethical Conduct	Uphold the Code of Ethics for Texas Educators and abide by local, state, federal rules, regulations, and policies; demonstrate respect and maintain ethical conduct in relations with professional colleagues, students, parents and members of the community

Attendance Policy

Professional behavior and commitment to teaching are expectations. Attendance and punctuality are required. Not only is your attendance required it is expected that you will come to class prepared to engage in your learning process. Being prepared to participate includes completing assigned reading and bringing necessary assignments and materials to class. It is NOT possible to make up the work missed during the class period since it involves the interactions of students, professor, and content. I will not provide “make-up” work. You may access this work through collaboration with a peer.

You are responsible for asking a classmate to take notes, and gather handouts for missed classes. It is your responsibility to find out what you missed. Being prepared to participate includes completing assigned reading and bringing necessary assignments and materials to class.

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. Honesty and integrity are essential characteristics for teachers. Students are required to act honestly and professionally at all times.

Any Violation of the Academic Integrity Policy will result in failure of the class (student will receive an “F”).

Disability Support and Access Services

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 an education that is barrier-free. The Office of Disability Support and Access is responsible for ensuring that students with a disability enjoy equal access to the University's programs, services and activities. Some aspects of this course or the way the course is taught may present barriers to learning due to a disability. If you feel this is the case, please contact Disability Support and Access at (254) 501-5831 in Warrior Hall, Ste. 212. For more information, please visit their website at www.tamuct/disabilitysupport. Any information you provide is private and confidential and will be treated as such.

Drop Policy

If you discover that you need to drop this class, you must go to the Records Office and ask for the necessary paperwork. Professors **cannot** drop students; this is always the responsibility of the student. The record's office will provide a deadline for which the form must be returned, completed and signed. Once you return the signed form to the records office and wait 24 hours, you must go into Warrior Web and confirm that you are no longer enrolled. Should you still be enrolled, FOLLOW-UP with the records office immediately? You are to attend class until the procedure is complete to avoid penalty for absence. Should you miss the deadline or fail to follow the procedure, you will receive an F in the course.

Tutoring

Tutoring is available to all TAMUCT students, both on-campus and online. Subjects tutored include Accounting, Finance, Statistics, Mathematics, and Writing (APA). Tutors are available at the Tutoring Center in Warrior Hall, Suite 111. Visit www.tamuct.edu/AcademicSupport and click "Tutoring Support" for tutor schedules and contact information. If you have questions, need to schedule a tutoring session, or if you are interested in becoming a tutor, contact Academic Support Programs at 254-501-5836 or by emailing c.garza@tamuct.edu.

Chat live with a tutor 24/7 for almost any subject on your computer! Tutor.com is an online tutoring platform that enables TAMUCT students to log-in and receive FREE online tutoring and writing support. This tool provides tutoring in Mathematics, Writing, Career Writing, Chemistry, Physics, Biology, Spanish, Calculus, and Statistics. To access Tutor.com, click on <http://www.tamuct.edu/departments/academicsupport/tutoring.php>.

University Library

The University Library provides many services in support of research across campus and at a distance. We offer over 200 electronic databases containing approximately 250,000 eBooks and 82,000 journals, in addition to the 72,000 items in our print collection, which can be mailed to students who live more than 50 miles from campus. Research guides for each subject taught at TAMUCT are available through our website to help students navigate these resources. On-campus, the library offers technology including cameras, laptops, microphones, webcams, and digital sound recorders.

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

Our 27,000-square-foot facility on the TAMUCT 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 homepage: <http://www.tamuct.edu/departments/library/index.php>.

The University Writing Center

The University Writing Center at Texas A&M University-Central Texas is a free workspace open to all TAMUCT students. The UWC is located in 416 Warrior Hall. The center is open 1pm-6pm Monday-Thursday during the summer semester. 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. Students may also arrange a one-on-one session with a trained and experienced writing tutor. Tutorials can be arranged by visiting the UWC. Tutors are prepared to help writers of all levels and abilities at any stage of the writing process. Sessions typically last between 20-30 minutes. While tutors will not write, edit, or grade papers, they will help students develop more effective invention and revision strategies.

Technology Requirements & Support

Technology Requirements

This course will use the Canvas learning management system.

Logon to <https://tamuct.instructure.com/> to access the course.

All course materials will be posted to:

<http://rpubs.com/mroberts/350466>

Make sure to navigate to the website on a daily basis, as it will be updated regularly.

Students are required to use R/Rstudio for statistical analyses and data visualization.

Technology Support

For technology issues, 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>

When calling for support please let your support technician know you are a TAMUCT student.

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

Technology issues are not an excuse for missing a course requirement – make sure your computer is configured correctly and address issues well in advance of deadlines.

Your Professor...

What You Can Expect From Me

It is a great privilege to have the opportunity to work with you during this most exciting time of your educational career. I want to ensure your experience is as successful as possible. It is my hope that when the time comes for you to have your own classroom, you will have the skills necessary to make a lasting impact in the lives of your students. As such, I am available to you at all times during this semester. This course has been designed to offer you support in many areas of successful teaching, including the most problematic areas beginning teachers face.

I will:

- Be a resource to you if you need guidance at any time during educational experience.

- Provide feedback in a timely manner.
- Return e-mails and phone calls usually within 48 hours.
- Take writing, grammar, and spelling into consideration on all assignments.
- Treat each of you with the respect afforded a professional.