

MATH 5378-110, 11328, TECHNOLOGY-AIDED MATHEMATICS

Spring 2021

Texas A&M University-Central Texas

COURSE DATES, MODALITY, AND LOCATION

January 19th, 2021-May 14th, 2021

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

<https://tamuct.instructure.com/>

INSTRUCTOR AND CONTACT INFORMATION

Instructor Dr. Mienie Roberts

Office Heritage Hall Room 302K

Phone: 903.705.9703

Email: Preferred: Canvas Inbox

Other: decock@tamuct.edu

Office Hours

Virtual office hours:

Monday: 12:00 pm-2:00 pm

Wednesday: 12:00 pm – 2:00 pm

Link to virtual room:

<https://tamuct.webex.com/join/decock>

Student-instructor interaction

Instructor will reply to emails within 24 hours. Please use the Canvas inbox for any email correspondence. If the student is in need of a synchronous session with the instructor, please meet with the instructor during her office hours or request a session via email. All synchronous sessions will be available at:

<https://tamuct.webex.com/join/decock>

The instructor will post announcements with respect to the class to CANVAS announcements. It is the responsibility of the student to check the announcements on a daily basis.

WARRIOR SHIELD

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

Warrior Shield 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 Warrior Shield through their myCT email account.

Connect to Warrior Shield by [911Cellular](https://portal.publicsafetycloud.net/Account/Login) [https://portal.publicsafetycloud.net/Account/Login] to change where you receive your alerts or to opt out. By staying enrolled in Warrior Shield, university officials can quickly pass on safety-related information, regardless of your location.

COVID-19 SAFETY MEASURES

To promote public safety and protect students, faculty, and staff during the coronavirus pandemic, Texas A&M University-Central Texas has adopted policies and practices to minimize virus transmission. All members of the university community are expected to adhere to these measures to ensure their own safety and the safety of others. Students must observe the following practices while participating in face-to-face courses, course-related activities (office hours, help sessions, transitioning to and between classes, study spaces, academic services, etc.) and co-curricular programs:

- Self-monitoring—Students should follow CDC recommendations for self-monitoring. Students who have a fever or exhibit symptoms of COVID-19 should participate in class remotely and should not participate in face-to-face instruction. Students required to quarantine must participate in courses and course-related activities remotely and must not attend face-to-face course activities. Students should notify their instructors of the quarantine requirement. Students under quarantine are expected to participate in courses and complete graded work unless they have symptoms that are too severe to participate in course activities.
- Face Coverings— Face coverings must be worn inside of buildings and within 50 feet of building entrances on the A&M-Central Texas Campus. This includes lobbies, restrooms, hallways, elevators, classrooms, laboratories, conference rooms, break rooms, non-private office spaces, and other shared spaces. Face coverings are also required in outdoor spaces where physical distancing is not maintained. The university will evaluate exceptions to this requirement on a case by case basis. Students can request an exception through the Office of Access and Inclusion in Student Affairs.
 - o If a student refuses to wear a face covering, the instructor should ask the student to leave and join the class remotely. If the student does not leave the class, the faculty member should report that student to the Office of Student Conduct. Additionally, the faculty member may choose to teach that day's class remotely for all students.

- Physical Distancing—Physical distancing must be maintained between students, instructors, and others in the course and course-related activities.
- Classroom Ingress/Egress—Students must follow marked pathways for entering and exiting classrooms and other teaching spaces. Leave classrooms promptly after course activities have concluded. Do not congregate in hallways and maintain 6-foot physical distancing when waiting to enter classrooms and other instructional spaces.
- The university will notify students in the event that the COVID-19 situation necessitates changes to the course schedule or modality.

COURSE INFORMATION

Course Overview and description

Students will engage in mathematical problem-solving using technological tools. Technologies may include graphing handhelds, data collection devices, computer software packages, and internet resources. This course may be repeated for credit as the topic changes. Prerequisite(s): 24 hours of MATH, including MATH 120. The course will use the R/RStudio software.

Course Objective or Goal

Student Learning Outcomes

Students will become thoroughly proficient in the following areas:

- How to create R Markdown files (Project 1 and Final)
- How to add and format text in an R Markdown file (Project 1 and Final)
- Including links and images to an R Markdown file (Project 1 and Final)
- Editing the YAML header in an R Markdown file (Project 1 and Final)
- Use R to perform analyses and visualizations in R (Project 1 and Final)
- How to add a table of contents and a CSS file to the YAML header, to personalize reports (Project 1 and Final)
- Use the Tidyverse-package for data wrangling (Project 2 and Final)
- Understanding dataframes (Project 2 and Final)
- Learn how to filter and arrange data (Project 2 and Final)
- How to use the “mutate” function to change or create a column (Project 2 and Final)
- Visualize data with the “ggplot2”-package (Project 3 and Final)
- How to put the x and y-axes on a log-scale (Project 3 and Final)
- How to add color and sizing to a plot (Project 3 and Final)
- How to visualize data with facets (Project 3 and Final)
- How to use the “summarize” verb (Project 4 and Final)
- How to visualize summarized data (Project 4 and Final)
- How to create line plots, histograms, boxplots (Project 4 and Final)
- How to use the “dplyr”-package for data manipulation (Project 5 and Final)
- How to aggregate data (Project 5 and Final)
- How to select and transform data (Project 5 and Final)
- How to scrape data from the web (Project 6 and Final)
- How to use the rvest library, query simple HTML elements (Project 6 and Final)

- Learn why CSS selectors and combinators are a crucial ingredient for web scraping (Project 6 and Final)
- Learn how to use XPath as a query language
- How to apply throttling to a multi-page crawler

Required Reading and Textbook(s)

The student is required to purchase access to the datacamp learning platform at: www.datacamp.com

COURSE REQUIREMENTS

The student is required to complete the following courses on the datacamp learning platform:

- Reporting with R Markdown
- Introduction to the Tidyverse
- Intermediate Data Visualization with ggplot2
- Data manipulation with dplyr
- Web Scraping in R

Grading Criteria Rubric and Conversion

Homework assignments	100 points
Projects (4 x 25)	100 points
Online discussions (5 x 10)	50 points
Tests (6 x 40)	240 points
Midterm (1 x 250)	250 points
Final exam (1x 250)	250 points
Participation grade (10)	10 points
TOTAL:	1000 points

Posting of Grades

- All grades will be posted to the Canvas learning management system three days after the

due date.

Grading Policies

No late work will be accepted. All the due dates are clearly stated on the weekly schedule. Please follow the schedule. Here are the rubrics for assignments:

Rubric for presentations:

	Excellent	Average	Poor	Score
Understanding of mathematical concept (10 points)				
Use of technology/manipulatives (6 points)				
Interaction with class/audience (4 points)				

COURSE OUTLINE AND CALENDAR

Complete Course Calendar

	Monday	Tuesday	Wednesday	Thursday
Week 1	Jan 18 th Martin Luther King, Jr. Day No class	Jan 19 th	Jan 20 th	Jan 21 st
Week 2	Jan 25 th	Jan 26 th	Jan 27 th	Jan 28 th
Week 3	Feb 1 st Project 1 due	Feb 2 nd	Feb 3 rd	Feb 4 th
Week 4	Feb 8 th	Feb 9 th	Feb 10 th	Feb 11 th
Week 5	Feb 15 th Project 2 due	Feb 16 th	Feb 17 th	Feb 18 th
Week 6	Feb 22 nd	Feb 23 rd	Feb 24 th	Feb 25 th
Week 7	March 1 st	March 2 nd	March 3 rd	March 4 th

Week 8	March 8th Project 3 due	March 9th	March 10th	March 11th
	March 15th Spring Break	March 16th Spring Break	March 17th Spring Break	March 18th Spring Break
Week 9	March 22nd	March 23rd	March 24th	March 25th
Week 10	March 29th Project 4 due	March 30th	March 31st	April 1st
Week 11	April 5th	April 6th	April 7th	April 8th
Week 12	April 12th Project 5 due	April 13th	April 14th	April 15th
Week 13	April 19th	April 20th	April 21st	April 22nd
Week 14	April 26th Project 6 due	April 27th	April 28th	April 29th
Week 15	May 3rd Review for Final	May 4th	May 5th	May 6th
Week 16	May 10th Proctored Final exam	May 11th	May 12th	May 13th

Important University Dates

January 18, 2021	Martin Luther King, Jr Day (University Closed)
January 19, 2021	Add, Drop and Late Registration Begins for 16- and First 8-Week Classes \$25 Fee assessed for late registrants
January 19, 2021	Classes Begin for Spring Semester
January 21, 2021	Deadline for Add, Drop, and Late Registration for 16- and First 8-Week Classes
January 26, 2021	Deadline to Drop First 8-Week Classes with No Record
February 3, 2021	Deadline to Drop 16-Week Classes with No Record
February 26, 2021	Deadline to Drop First 8-Week Classes with a Quit (Q) or Withdraw (W)
March 1, 2021	Deadline for Teacher Education Program Applications
March 12, 2021	Classes end for 1st 8-Weeks Session
March 15, 2021	Deadline for Clinical Teaching/Practicum Applications
March 16, 2021	Deadline for Faculty Submission of First 8-Week Final Class Grades (due by 3pm)
March 15-19, 2021	Spring Break (No Classes - Administrative Offices Open)
March 22, 2021	Class Schedule Published for Summer Semester
March 22, 2021	Add, Drop, and Late Registration Begins for Second 8-Week Classes \$25 Fee assessed for late registrants
March 22, 2021	Classes Begin for Second 8-Week Session
March 24, 2021	Deadline for Add, Drop, and Late Registration for Second 8-Week Classes
March 26, 2021	Deadline for Spring Graduation Application for Ceremony Participation
March 29, 2021	Deadline to Drop Second 8-Week Classes with No Record
April 1, 2021	Deadline for GRE/GMAT Scores to Graduate School Office
April 5, 2021	Registration Opens for Summer Semester
April 9, 2021	Last Day to Drop 16 week classes with a Quit (Q) or a Withdraw (W)
April 16, 2021	Deadline for Final Committee-Edited Theses with Committee Approval Signatures for Spring Semester to Graduate School Office

April 30, 2021	Deadline to drop Second 8-week Classes with a Quit (Q) or Withdraw (W).
May 14, 2021	Deadline to Withdraw from the University for 16- and Second 8-Week Classes
May 14, 2021	Spring Semester Ends
May 14, 2021	Deadline for Applications for Tuition Rebate for Spring Graduation (5pm)
May 14, 2021	Deadline for Spring Degree Conferral Applications to the Registrar's Office. \$20 Late Application Fee.
May 15, 2021	Spring Commencement Ceremony Bell County Expo 7 pm
May 17, 2021	Classes Begin for Minimester
May 18, 2021	Deadline for Faculty Submission of 16-Week and Second 8-Week Final Class Grades (due by 3pm)
May 18, 2021	Deadline for Theses to Clear Graduate School Office for Spring Semester
May 31, 2021	Memorial Day (University Closed)

TECHNOLOGY REQUIREMENTS AND SUPPORT

Students are required to have the ability to interact and connect with the instructor virtually in order to be successful in the class. Additionally, they should feel confident about their ability to navigate online websites and use common word processing software and cloud computing technologies to share and submit assignments.

Technology Requirements

1. 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): [<http://hdc.tamu.edu>]

Please let the support technician know you are an A&M-Central Texas student.

We will use the statistical software R/RStudio in this class. Students will be required to bring their laptops to class and have the software downloaded onto their laptops.

R can be downloaded from:

<https://cran.r-project.org/bin/windows/base/>

RStudio can be downloaded from:

<https://rstudio.com/products/rstudio/download/>

Students are required to connect to:

<https://tamuct.webex.com/join/dekock>

for online classes and online office hours and to:

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://dynamicforms.ngwebsolutions.com/casAuthentication.ashx?InstID=eaed95b9-f2be-45f3-a37d-46928168bc10&targetUrl=https%3A%2F%2Fdynamicforms.ngwebsolutions.com%2Fsubmit%2FForm%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. 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, working with others in an unauthorized manner, 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 referred 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://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 report](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=0),
[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](https://tamuct.instructure.com/courses/717) 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/index.html) [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](http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf) 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, on a remote online basis. Visit the Academic Support Community in Canvas to view schedules and contact information. Subjects tutored on campus include Accounting, Advanced Math, Biology, Finance, Statistics, Mathematics, and Study Skills. Student success coaching is available online upon request.

If you have a question regarding tutor schedules, need to schedule a tutoring session, are interested in becoming a tutor, success coaching, or have any other question, contact Academic Support Programs at (254) 501-5836, visit the Office of Student Success at 212F Warrior Hall, or by emailing studentsuccess@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 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

The University Writing Center (UWC) at Texas A&M University—Central Texas (TAMUCT) is a free service open to all TAMUCT students. For the Spring 2021 semester, all services will be online as a result of the COVID-19 pandemic. The hours of operation are from 10:00 a.m.-5:00 p.m. Monday thru Thursday with satellite hours Monday thru Thursday from 6:00-9:00 p.m. The UWC is also offering hours from 12:00-3:00 p.m. on Saturdays.

Tutors are prepared to help writers of all levels and abilities at any stage of the writing process. 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. While tutors will not write, edit, or grade papers, they will

assist students in developing more effective composing practices. 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 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) [http://tamuct.libguides.com/index].

For Spring 2021, all reference service will be conducted virtually. Please go to our [Library website](http://tamuct.libguides.com/index) [http://tamuct.libguides.com/index] to access our virtual reference help and our current hours.

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/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/reportingform.php?TAMUCentralTexas&layout_id=2) online [https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=2].

Anonymous referrals are accepted. Please see the [Behavioral Intervention Team](https://www.tamuct.edu/student-affairs/bat.html) 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.

OTHER POLICIES

Copyright Notice

Students should assume that all course material is copyrighted by the respective author(s). Reproduction of course material is prohibited without consent by the author and/or course instructor. Violation of copyright is against the law and Texas A&M University-Central Texas' Code of Academic Honesty. All alleged violations will be reported to the Office of Student Conduct.

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