

Math 5305, 81158, PROBABILITY & STATISTICS

Fall 2021

Texas A&M University-Central Texas

COURSE DATES, MODALITY, AND LOCATION

August 23rd, 2021-December 10th, 2021

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

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

“Fully Online Course – Fully online courses have no on-campus, classroom, or synchronous activity. All course activity is done online. These courses may require virtual proctored exams”. Although no classroom or synchronous activity is required, there will be opportunities for classroom and synchronous interaction to provide students with additional support if desired. All classroom and synchronous activities will be recorded.

INSTRUCTOR AND CONTACT INFORMATION

Instructor Dr. Mienie Roberts

Office 302-K

Phone: 903.705.9703

Email: Preferred email is the Canvas Inbox, but you can use: decock@tamuct.edu

Office Hours

Online video conferencing link:

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

Office hours:

Monday 12pm-1pm, 6pm-7pm

Wednesday 12pm-2pm

Also by appointment.

Student-instructor interaction

Instructor will follow the weekly schedule on the syllabus. Daily announcements will be sent out on Canvas. It is the student's responsibility to monitor the announcements posted under the "Announcements"-tab.

No late assignments will be accepted in this class.

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

Instructor will respond within 24 hours to emails.

Student will receive immediate feedback on most assignments on Canvas. Instructor will provide feedback on presentations within a week.

All meetings will be conducted over webex at the link:
<https://tamuct.webex.com/join/decock>

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://www.tamuct.edu/police/911cellular.html>

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.

Fall 2021 Return to Campus Plan. For the most recent campus information regarding COVID-19 see the Texas A&M University-Central Texas [Fall 2021 Return to Campus Plan](#)
<https://www.tamuct.edu/covid19/>

COURSE INFORMATION

Course Overview and description

In this course, you will develop a working familiarity with the grounding principles of probability

and statistics from a data analysis perspective. We will review fundamental probability and statistical concepts and introduce data analysis from the Bayesian perspective. This course will also use a high-level programming language for statistical data analysis to study and practice the following methodologies: data cleaning, feature extraction; web scrubbing, text analysis; data visualization; fitting statistical models; simulation of probability distributions and statistical models; statistical inference methods that use simulations. Prerequisite(s): [MATH 3311](#) or equivalent undergraduate course in probability, or permission of instructor.

Course Objective or Goal

Student Learning Outcomes:

Upon successful completion of MATH 5305, students will be able to:

1. State and contextualize fundamental mathematical definitions (Midterm and Final)
2. Recognize and compare properties of mathematical structures (Tests, Midterm, and Final)
3. Recognize and interpret hypotheses and conclusions of theorems. (Tests, Midterm, and Final)
4. Evaluate the truth of mathematical statements based on definitions and theorems. (All assignments)
5. Perform standard computations related to the material, and interpret the results of those computations. (All assignments)
6. Compose and critique mathematical proofs using sound logical argument and appropriate notation. (Quiz 4, Test 4, Quiz 5, Test 5, Quiz 6, Test 6, Midterm, Final)
7. Demonstrate the use of the theoretical results and computational aspects on required applications; and (All quizzes)
8. Connect the material to concepts in other courses. (Quiz 1, Test 1, Quiz 2, Test 2, Quiz 3, Test 3)
9. Recognize and apply inference techniques (Quiz 6, Quiz 7, Quiz 8, Test 6, Test 7, Test 8, Final).

Required Reading and Textbook(s)

During the first week, we will review concepts typically covered in an undergraduate class and the materials for this part of the class can be found at:

Register for the class at:

<https://www.khanacademy.org/join/RMPBWWU2>

This is material that you're expected to already know at the start of the class. During the second week of class, there will be a test on this material to make sure that your foundation is solid enough to continue. The test will be early enough so that if you find that you're not ready, you can drop the class with no penalty.

For this class, I've extracted only the quizzes and tests from Khan Academy's complete probability class. You can take the quizzes directly and see if you know the material (you get multiple chances). If you find you need brushing up, you can go to the complete probability class on Khan Academy that includes videos. The link to the full Khan Academy class is:

<https://www.khanacademy.org/math/statistics-probability>

Your knowledge of the above material will be assessed in Test 1.

For the rest of the class, we will use the following textbook:
[book.pdf \(toronto.edu\)](#)

The above textbook can be downloaded for free. The rest of the assignments will cover material from Chapters 1-7.

COURSE REQUIREMENTS

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Grading Criteria Rubric and Conversion

All tests, the midterm, and final exam will be proctored exams and available from 12pm-9pm on the respective scheduled Mondays. Quizzes are not proctored exams and can be taken infinitely many times. Homework assignments will be assigned from the textbook.

The student will be required to complete 6 projects online and complete one proctored midterm and one proctored final exam by using the Proctorio software.

Test 1	(200 points)	20%
Test 2	(45 points)	4.5%
Test 3	(45 points)	4.5%
Test 4	(45 points)	4.5%
Test 5	(45 points)	4.5%
Test 6	(45 points)	4.5%
Test 7	(45 points)	4.5%
Quiz 1	(15 points)	1.5%
Quiz 2	(10 points)	1%
Quiz 3	(10 points)	1%
Quiz 4	(10 points)	1%
Quiz 5	(10 points)	1%
Quiz 6	(10 points)	1%
Quiz 7	(10 points)	1%
Midterm	(200 points)	20%
Homework	(55 points)	5.5%
Final	(200 points)	20%
TOTAL	(1000 points)	100%

Posting of Grades

Students will receive immediate feedback on all assignments.

Grading Policies

NO LATE ASSIGNMENTS WILL BE ACCEPTED IN THIS CLASS.

Course Requirements: (include point values for each- not just a percentage)

- Tests, Midterm, and Final exam are proctored exams. Students need to use the Proctorio software to proctor the exams.

COURSE OUTLINE AND CALENDAR

This is a 16-week class.

Complete Course Calendar

Week 1	Aug 23rd	Aug 24th	Aug 25th	Aug 26th Quiz 1 due
Week 2	Aug 30th Test 1 due	Aug 31st	Sep 1st	Sep 2nd
Week 3	Sep 6th Labor Day Chapter 1	Sep 7th	Sep 8th Homework 1 due	Sep 9th Quiz 2 due
Week 4	Sep 13th Test 2 due	Sep 14th	Sep 15th	Sep 16th
Week 5	Sep 20st Chapter 2	Sep 21st	Sep 22rd Homework 2 due	Sep 23rd Quiz 3 due
Week 6	Sep 27th Test 3	Sep 28th	Sep 29th	Sep 30th
Week 7	Oct 4th Chapter 4	Oct 5th	Oct 6th Homework 3 due	Oct 7th Quiz 4
Week 8	Oct 11th Test 4	Oct 12th	Oct 13th	Oct 14th
Week 9	Oct 18th Midterm	Oct 19th	Oct 20th	Oct 21st
Week 10	Oct 25th Chapter 5	Oct 26th	Oct 27th Homework 4 due	Oct 28th Quiz 5
Week 11	Nov 1st Test 5	Nov 2nd	Nov 3rd	Nov 4th

Week 12	Nov 8th Chapter 6	Nov 9th	Nov 10th Homework 5 due	Nov 11th Quiz 6
Week 13	Nov 15th Test 6	Nov 16th	Nov 17th Homework 6 due	Nov 18th Chapter 7
Week 14	Nov 22nd Test 7	Nov 23rd	Nov 24th	Nov 25th Thanksgiving No class
Week 15	Nov 29th Review	Nov 30th	Dec 1st	Dec 2nd
Week 16	Dec 6th Comprehensive Final exam	Dec 7th	Dec 8th	Dec 9th

Important University Dates

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

TECHNOLOGY REQUIREMENTS AND SUPPORT

Technology Requirements

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. Make sure both audio and webcam works. Student is allowed to use Proctorio's whiteboard for scratch work (online) or a small physical white board for tests, midterm, and final.

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.

Students need a computer with the latest version of R/RStudio installed on it.

Students need internet access to navigate to:

<https://www.khanacademy.org/math/statistics-probability>

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. 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),
[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/pregnant-and-parenting-students.html) [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](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

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 Fall 2021 semester, the hours of operation are from 10:00 a.m.-5:00 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 Saturday 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 WOnline 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 by making an appointment via WOnline 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. 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].

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) [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](https://www.tamuct.edu/bit) website for more information [<https://www.tamuct.edu/bit>]. If a person's behavior poses an imminent threat to you or another, contact 911 or A&M-Central Texas University Police at 254-501-5800.

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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