

Math 3311, 10135, Probability and Statistics I

Spring 2020

Texas A&M University-Central Texas

COURSE DATES, MODALITY, AND LOCATION

Math 3311 will meet on Mondays from 2:00pm-4:45pm in Founders Hall, Room 210 from January 13th, 2020 – May 8th, 2020.

This is a blended course which meets 50% online.

Face-to-face meetings on:

January 13th, January 27th, February 24th, March, 2nd, April 27th, May 4th

For online classes and online office hours click on the following link:

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

Online meetings:

February 3rd, February 17th, February 24th, March 23rd, March 30th, April 6th, April 20th

INSTRUCTOR AND CONTACT INFORMATION

Instructor **Dr. Mienie Roberts**

Office **Heritage Hall Room 302K**

Phone: **903.705.9703**

Email: dekock@tamuct.edu, but the preferred method of contact is via the Canvas Inbox.

Tutoring

1. Face-to-face tutoring available in WH Room 111. Here is the schedule:

	Advanced Math
Tutor	Trey Austin Teter tt027@my.tamuct.edu
Tuesday	10:00 am—2:00 pm
Wednesday	
Thursday	10:00 am - 2:00 pm

Graduate Assistant hours:

Tuesdays

1p - 3p In-Person Office Hours

Thursdays

11a - 1p In-Person Office Hours

Saturday

9a - 11a Online Office Hours

Sunday

4p - 6p Online Office Hours

Online office hours:

Webex link:

<https://tamuct-math.my.webex.com/join/am078> for online office hours.

Instructor Office Hours:

Face-to-face office hours (HH Room 302K):

Mondays from 12:00pm-2:00pm on the following dates:

January 13th, January 27th, February 10th, March, 2nd, April 27th, May 4th

Online office hours:

Webex link:

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

Every Monday and Wednesday from 12:00 pm-2:00 pm

Also by appointment.

Student-instructor interaction

The instructor will check her email on a daily basis and will respond within 24 hours to any correspondence. The instructor will post announcements in regards 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.

COURSE INFORMATION

Course Overview and description

Math 3311(Probability and Statistics) is designed to prepare students for the Probability and Statistics domain on the TExES Math 7-12 and 4-8 exams. 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 R/RStudio as tools for statistical analysis techniques. Prerequisite(s): MATH 2414 and either MTHK 3305 or an elementary probability course.

Course Objective or Goal

Student Learning Outcomes

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
- The use of R/RStudio for data analysis and visualization

Competency Goals Statements (certification or standards) per the Texas Education Agency:

Mathematics Standard IV Probability and Statistics:

The mathematics teacher understands and uses probability and statistics, their applications and technology appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in order to prepare students to use mathematics.

Competencies:

Domain IV — Probability and Statistics

Competency 015 (Covered on Discussion 1, Homework, Test 1, Test 2, Project 1, Midterm,

Final):

The teacher understands how to use appropriate graphical and numerical techniques to explore data, characterize patterns and describe departures from patterns. The beginning teacher:

- A. Selects and uses an appropriate measurement scale (i.e., nominal, ordinal, interval, ratio) to answer research questions and analyze data.
- B. Organizes, displays and interprets data in a variety of formats (e.g., tables, frequency distributions, scatter plots, stem-and-leaf plots, box-and-whisker plots, histograms, pie charts).
- C. Applies concepts of center, spread, shape and skewness to describe a data distribution.
- D. Understands measures of central tendency (i.e., mean, median, mode) and dispersion (i.e., range, interquartile range, variance, standard deviation).
- E. Applies linear transformations (i.e., translating, stretching, shrinking) to convert data and describes the effect of linear transformations on measures of central tendency and dispersion.
- F. Analyzes connections among concepts of center and spread, data clusters and gaps, data outliers and measures of central tendency and dispersion.
- G. Supports arguments, makes predictions and draws conclusions using summary statistics and graphs to analyze and interpret one-variable data.

Competency 016 (Covered on Discussion 2, Discussion 3, Homework, Test 3, Test 4, Project 2, Midterm, Final):

The teacher understands concepts and applications of probability. The beginning teacher:

- A. Understands how to explore concepts of probability through sampling, experiments and simulations and generates and uses probability models to represent situations.
- B. Uses the concepts and principles of probability to describe the outcomes of simple and compound events.
- C. Determines probabilities by constructing sample spaces to model situations.
- D. Solves a variety of probability problems using combinations and permutations.
- E. Solves a variety of probability problems using ratios of areas of geometric regions.
- F. Calculates probabilities using the axioms of probability and related theorems and concepts such as the addition rule, multiplication rule, conditional probability and independence.
- G. Understands expected value, variance and standard deviation of probability distributions (e.g., binomial, geometric, uniform, normal).

H. Applies concepts and properties of discrete and continuous random variables to model and solve a variety of problems involving probability and probability distributions (e.g., binomial, geometric, uniform, normal).

Competency 017 (Covered on Discussion 4, Discussion 5, Homework, Test 5, Test 6, Project 3, Project 4, Final):

The teacher understands the relationships among probability theory, sampling and statistical inference and how statistical inference is used in making and evaluating predictions. The beginning teacher:

- A. Applies knowledge of designing, conducting, analyzing and interpreting statistical experiments to investigate real-world problems.
- B. Analyzes and interprets statistical information (e.g., the results of polls and surveys) and recognizes misleading as well as valid uses of statistics.
- C. Understands random samples and sample statistics (e.g., the relationship between sample size and confidence intervals, biased or unbiased estimators).
- D. Makes inferences about a population using binomial, normal and geometric distributions.
- E. Describes and analyzes bivariate data using various techniques (e.g., scatterplots, regression lines, outliers, residual analysis, correlation coefficients).
- F. Understands how to transform nonlinear data into linear form to apply linear regression techniques to develop exponential, logarithmic and power regression models.
- G. Uses the law of large numbers and the central limit theorem in the process of statistical inference.
- H. Estimates parameters (e.g., population mean and variance) using point estimators (e.g., sample mean and variance).
- I. Understands principles of hypotheses testing.

Required Reading and Textbook(s)

Students need to purchase an access code to mystatlab. The e-book, homework assignments, and tests will be available through this online account. Here are the details to sign up:

Student Registration Instructions

To register for **Prob and Stats**:

1. Go to www.pearson.com/mylab.
2. Under Register, select **Student**.
3. Confirm you have the information needed, then select **OK! Register now**.
4. Enter your instructor's course ID: **roberts03219**, and **Continue**.
5. Enter your existing Pearson account **username** and **password** to **Sign In**.
You have an account if you have ever used a MyLab or Mastering product.
 - » If you don't have an account, select **Create** and complete the required fields.
6. Select an access option.
 - » Enter the access code that came with your textbook or that you purchased separately from the bookstore.
 - » If available for your course,
 - Buy access using a credit card or PayPal.
 - Get temporary access.

If you're taking another semester of a course, you skip this step.
7. From the You're Done! page, select **Go To My Courses**.
8. On the My Courses page, select the course name **Prob and Stats** to start your work.

To sign in later:

1. Go to www.pearson.com/mylab.
2. Select **Sign In**.
3. Enter your Pearson account **username** and **password**, and **Sign In**.
4. Select the course name **Prob and Stats** to start your work.

To upgrade temporary access to full access:

1. Go to www.pearson.com/mylab.
2. Select **Sign In**.
3. Enter your Pearson account **username** and **password**, and **Sign In**.
4. Select **Upgrade access** for **Prob and Stats**.
5. Enter an access code or buy access with a credit card or PayPal.

COURSE REQUIREMENTS

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

- Homework assignments on mystatlab. Students will have infinitely many attempts at each homework problem and will receive instant feedback on progress via the mystatlab software.
- All tests, midterm, and final exam will be available on mystatlab. Students will have 3 attempts at each test and one attempt at the midterm and final exam respectively. Both the midterm and final exams will be proctored exams. The final exam is a comprehensive exam.
- The projects will be done in R/RStudio.
- Both the midterm and final exams will consist of two parts: For the first part the student will not be allowed any software/calculator. For the second part of the exam, the student will be allowed a calculator and software including R/RStudio.
- Students will receive a participation grade for:
 1. Reading announcements on Canvas on a daily basis.
 2. Playing the quiz game that can be found on quizizz.com. Make sure to download the app. Every Monday the instructor will send out a code for students to join the game.

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 for the homework assignments, tests, midterm, and final exam will be immediately available on the “Gradebook” on mymathlab.
- The grades for the discussions and projects will be available within 3 days of the due date on mymathlab.

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)				

Rubric for online discussions:

	Excellent	Average	Poor	Score
Understanding of mathematical concept (10 points)				
Grammar (6 points)				
Spelling (4 points)				

COURSE OUTLINE AND CALENDAR
Complete Course Calendar

	Monday	Tuesday	Wednesday	Thursday
Week 1	Jan 13 Face-to-face meeting Quiz 1	Jan 14	Jan 15	Jan 16
Week 2	Jan 20 MLK Junior day No class	Jan 21	Jan 22	Jan 23
Week 3	Jan 27 Face-to-face meeting Quiz 2 Homework assignments on Chapters 1-4 due	Jan 28	Jan 29	Jan 30
Week 4	Feb 3 Online class Quiz 3 Project 1 due Test 1 due	Feb 4	Feb 5	Feb 6
Week 5	Feb 10 Online class Quiz 4 Homework assignments on Chapters 5, 6 due Test 2 due	Feb 11	Feb 12	Feb 13
Week 6	Feb 17 President's day	Feb 18	Feb 19	Feb 20
Week 7	Feb 24 Face-to-face meeting Review for the Midterm	Feb 25	Feb 26	Feb 27
Week 8	Mar 2 Face-to-face meeting Midterm	Mar 3	Mar 4	Mar 5
Spring Break	Spring Break	Spring Break	Spring Break	Spring Break
Week 9	Mar 16 Online class Quiz 5	Mar 17	Mar 18	Mar 19

	Discussion 1 due Homework on Chapter 9 due Project 2 due Test 3 due			
Week 10	Mar 23 Online class Quiz 6 Test 4 Homework on Chapter 10 due	Mar 24	Mar 25	Mar 26
Week 11	Mar 30 Online class Quiz 7 Discussion 2 due Homework on Chapter 11 due	Mar 31	Apr 1	Apr 2
Week 12	Apr 6 Online class Quiz 8 Project 3 due Discussion 3 due	Apr 7	Apr 8	Apr 9
Week 13	Apr 13 Online class Quiz 9 Test 5 due Discussion 4 due	Apr 14	Apr 15	Apr 16
Week 14	Apr 20 Online class Quiz 10 Test 6 due Project 4 due Discussion 5 due	Apr 21	Apr 22	Apr 23
Week 15	Apr 27 Face-to-face meeting Review for final exam	Apr 28	Apr 29	Apr 30
Week 16	May 4 Proctored final exam	May 5	May 6	May 7

Important University Dates

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

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

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.

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 are also required to create an account on

<https://www.pearsonmylabandmastering.com/northamerica/mystatlab/>

All homework assignments, tests, midterm, final exam, and lecture videos will be available and students need to purchase an access code to sign up for the class.

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:
<https://tamuct-math.my.webex.com/join/am078>
for online office hours with the graduate assistant.

Students are also required to download the quizizz app in order to play the quiz game at the beginning of each class.

UNIVERSITY RESOURCES, PROCEDURES, AND GUIDELINES

Drop Policy

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

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

Academic Integrity

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

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, both on-campus and online. Subjects tutored on campus include Accounting, Advanced Math, Biology, Finance, Statistics, Mathematics, and Study Skills. Tutors are available at the Tutoring Center in Warrior Hall, Suite 111. Tutor.com tutoring **will not offer writing support** beginning August 1, 2019, but will continue to offer other tutoring support.

If you have a question regarding tutor schedules, need to schedule a tutoring session, are interested in becoming a tutor, or have any other question, contact Academic

Support Programs at (254) 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. Access Tutor.com through Canvas.

University Writing Center

Located in Warrior Hall 416, the University Writing Center (UWC) at Texas A&M University–Central Texas (TAMUCT) is a free workspace open to all TAMUCT students from 10:00 a.m.-5:00 p.m. Monday thru Thursday with satellite hours in the University Library Monday thru Thursday from 6:00-9:00 p.m. This semester, the UWC is also offering online only 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. 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 visiting the UWC during normal operating hours (both half-hour and hour sessions are available) or by making an appointment via [WOnline](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].

OPTIONAL POLICY STATEMENTS

A Note about Sexual Violence at A&M-Central Texas

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

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

Behavioral Intervention

Texas A&M University-Central Texas cares about the safety, health, and well-being of its students, faculty, staff, and community. If you are aware of individuals for whom you have a concern, who are exhibiting concerning behaviors, or individuals causing a significant disruption to our community, 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

No late assignments will be accepted. All dates are clearly stated in the weekly schedule. Please make sure to complete assignments before the due date.

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.

Copyright. 2020 by Dr. Mienie Roberts at Texas A&M University-Central Texas, College of Arts and Sciences; 1001 Leadership Place, Killeen, TX 76549; 254-5015949); Fax 254.519.5781; dekokk@tamuct.edu