

Course number, Course CRN, COURSE TITLE

MATH 3350-110, 80716, PRINCIPLES OF BIOSTATISTICS

Fall 2021

Texas A&M University-Central Texas

COURSE DATES, MODALITY, AND LOCATION

This course will run from: 08/23/2021 – 12/10/2021

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

I will hold an open office hour every Friday. The time will be posted every Monday in a weekly announcement.

INSTRUCTOR AND CONTACT INFORMATION

Instructor: Dr. Audrie Cruz-Sealey

Office: Virtual Office Hours by Appointment

Email: a.cruz-sealey@tamuct.edu

Office Hours

By Appointment Only.

Office hours will take place in the WebEx conference room.

Student-instructor interaction

Responses to emails will take place within 24 hours, including weekends.

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) [<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/) [https://www.tamuct.edu/covid19/]

COURSE INFORMATION

Course Overview and description

An introduction to statistical methods that are applied in Biology and Agriculture to support findings with reliable evidence. Use of technology and hands-on spreadsheet assignments are required in this course. This course covers, collection, description, analysis and presentation of data. Topics covered include: study design, probability, confidence intervals, hypothesis testing, discrete vs. continuous data, ANOVA, correlation and regression. Prerequisite: Math 2413-Calculus I.

Course Objective or Goal

Student Learning Outcomes

1. Describe how biostatistics plays a role in different professional areas such as public health and biomedical research;
2. Design an appropriate study and use statistical tools to reach and communicate reasonable conclusions.
3. Select an appropriate sampling method to determine a sample size given a word problem and accompanying data set and calculate numerical summaries, including measures of central tendency, such as mean, median and mode and measures of variation, such as range and standard deviation.
4. Compute and interpret empirical, theoretical and subjective probabilities using appropriate rules.
5. Examine, analyze and compare various sampling distributions for both discrete and continuous data.
6. Construct a confidence interval and interpret the meaning of the bounds of the interval given a real-life application.
7. Implement the appropriate hypothesis test given a situation when a claim is stated and be able to identify Type 1 and Type 2 errors.
8. Construct a best-fit regression model with single or multiple independent variables and assess its validity and explain how it applies to a given word problem or case study.
9. Apply the One-Way and Two-Way analysis of variance and focus on the interpretation of results from technology.

Required Reading and Textbook(s)

Biostatistics for the Biological and Health Sciences. Triola, Triola and Roy. Pearson. 2nd Edition.

COURSE REQUIREMENTS

Grading Criteria Rubric and Conversion

Category	Weight (%)	Points
Homework (MyMathLab)	10%	100 points
Quizzes (MyMathLab)	10%	5 Quizzes @ 20 pts each
R-Labs	20%	10 labs @ 20 pts each
Exam I (MyMathLab)	15%	150 points
Exam II (MyMathLab)	15%	150 points
Final Exam (MyMathLab)	30%	300 points
Total	100%	1000 points

Posting of Grades

- **MyMathLab Homework and Quizzes will be auto graded.**
- **Exams and labs will be graded and returned to the student no later than one week after the due date.**

Grading Policies

MyMathLab Homework & Quizzes—One extension is permitted for the entire course. The homework and quiz for one chapter will be extended for one week past the original due date.

Exams—Make up exams can only be taken after documentation of an emergent situation is submitted to the instructor.

Exams will be proctored using Proctorio. You will need to have a webcam and audio set up in order for your test to be proctored.

Labs—Labs will NOT be accepted after the due date.

COURSE OUTLINE AND CALENDAR

Complete Course Calendar

Day	Topic	Student Outcome	Reading	Due Date
August 24 th	Intro to Course/ Download R/ Lab #1	1		
August 26 th	Types of & Collecting Data	2	Section 1.2 and 1.3	Chap 1 & Lab #1 Due: 09/06/21
August 31 st	Frequency Distributions & Histograms	2	Section 2.1 and 2.2	
September 2 nd	More Graphs & Misleading Graphs	2	Section 2.3	
September 7 th	Scatterplots & Lab #2	2	Section 2.4	Chap 2 Due & Lab #2: 09/13/21
September 9 th	Measures of Center & Variation	3	Section 3.1 and 3.2	
September 14 th	Measures of Relative Standing & Boxplots & Lab #3	3	Section 3.3	Chap 3 Due & Lab #3: 09/20/21
September 16 th	Basics of Prob. & Addition/Mult Rule	4	Section 4.1 and 4.2	
September 21 st	Complements and Conditional Prob.	4	Section 4.3	Chap 4 Due: 09/27/21
September 23 rd	Unit 1 Exam Review	1 – 4	Chap 1 – 4	
	Unit 1 Exam	1 – 4	Opens: 09/27/21	Closes/Due: 10/01/21
September 28 th	Prob. Distributions & Binomial Distributions	5	Section 5.1 and 5.2	
September 30 th	Poisson Distributions & Lab #4	5	Section 5.3	Chap 5 Due & Lab #4: 10/04/21
October 5 th	Normal Distribution	5	Section 6.1 and 6.2	
October 7 th	The Central Limit Thm & Lab #5	5	Section 6.4	Chap 6 Due & Lab #5: 10/11/21
October 12 th	Confidence Intervals: Population Mean & Proportion	6	Section 7.1 and 7.2	
October 14 th	Confidence Intervals: Population Standard Deviation or Variance	6	Section 7.3	Chap 7 Due & Lab #6: 10/18/21
October 19 th	Hypothesis Testing: Proportion	7	Section 8.1 and 8.2	
October 21 st	Hypothesis Testing: Mean	7	Section 8.3	
October 26 th	Hypothesis Testing: Standard Deviation or Variance	7	Section 8.4	Chap 8 Due & Lab #7: 11/01/21
October 28 th	Unit 2 Exam Review	5 – 7	Chap 5 – 8	
	Unit 2 Exam	5 – 7	Opens: 11/01/21	Closes/Due: 11/05/21
November 2 nd	Two Proportions and Means	8	Section 9.1 and 9.2	
November 4 th	Two Dependent Samples	8	Section 9.3	Chap 9 Due & Lab #8: 11/08/21
November 9 th	Correlation and Regression	8	Section 10.1 and 10.2	

November 16 th	Prediction Intervals	8	Section 10.3	
November 18 th	Multiple Regressions	8	Section 10.4	Chap 10 Due & Lab #9: 11/29/21
November 30 th	Goodness of Fit & Contingency Tables	9	Section 11.1 and 11.2	Chap 11 Due & Lab #10: 12/06/21
December 2 nd	One-Way Anova	9	Section 12.1	
December 7 th	Two-Way Anova	9	Section 12.2	Chap 12 Due: 12/12/21
December 9 th	Final Exam Review	1 – 9	Chap 1 - 12	
	Final Exam	1 – 9		Closes/Due: 12/12/21

Important University Dates

August 23, 2021	Classes Begin for Fall Semester
August 25, 2021	Deadline for Add, Drop, and Late Registration for 16- and First 8-week
September 6, 2021	Labor Day (University Closed)
September 7, 2021	Deadline to drop 16-week Classes with No Record
October 18, 2021	Class Schedule Published for Spring Semester
October 19, 2021	Deadline for Graduation Application for Ceremony Participation
November 1, 2021	Registration Opens for Spring Semester
November 5, 2021	Deadline to Drop 16-Week Classes with a Quit (Q) or Withdraw (W)
November 11, 2021	Veteran's Day (University Closed)
November 25-26, 2021	Thanksgiving (University Closed)
December 10, 2021	Deadline for Applications for Tuition Rebate for Fall Graduation (5pm)
December 10, 2021	Deadline to Withdraw from University for 16- and Second 8-Week Classes
December 10, 2021	Deadline for Degree Conferral Applications to the Registrar's Office \$20 Late Application Fee
December 10, 2021	Fall Semester Ends
December 10, 2021	Fall Commencement Ceremony
December 14, 2021	Deadline for Faculty Submission of 16-Week and Second 8-Week Final Class Grades (due by 3pm)
December 24, 2021 – December 31, 2021	Winter Break (University Closed)

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.

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.

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>].

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](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/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.

INSTRUCTOR POLICIES

Homework and Quizzes: may be accessed after due date with a 30% deduction. The final day to access homework and quizzes is Sunday of Week 15.

Exams: In order to make up an exam, documentation must be provided by a physician or the professor will decide if the situation deems an extension.

Labs: Labs will **NOT** be accepted after the due date.

VIRTRUAL CLASSROOM SETUP

1. Please keep your cell phones on vibrate.
2. Sign into Webex Lectures using your First and Last Name.

Copyright Notice

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