

**MATH 3350-110, 80574, Principles of Bio-Statistics
Fall 2019**

Texas A&M University-Central Texas

COURSE DATES, MODALITY, AND LOCATION

This course meets face-to-face from August 26th, 2019 – December 13th, 2019 in Heritage Hall, Room 219, with supplemental materials made available online through the A&M-Central Texas Canvas Learning Management System [<https://tamuct.instructure.com/>].

INSTRUCTOR AND CONTACT INFORMATION

Instructor: Dr. Audrie Cruz-Sealey

Office: Located on CTC Campus/Planetarium/2nd Floor/Room 233

Phone: 254-526-1859

Email: a.cruz-sealey@tamuct.edu

Office Hours

Walk-In Hours

Heritage Hall Room 219: T/Th 9 a.m. – 9:30 a.m.

CTC Office: Planetarium/2nd Floor/Room 233

M & W: 11:30 a.m. – 1:30 p.m.

T & Th: 11:30 a.m. – 1:30 p.m and 3 p.m. – 4:30 p.m.

By Appointment Only

CTC Office: Planetarium/2nd Floor/Room 233

Fri: 9 a.m. – 12 p.m.

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://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

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 Objectives

- Describe how biostatistics plays a role in different professional areas such as public health and biomedical research;
- Design an appropriate study and use statistical tools to reach and communicate reasonable conclusions.
- 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.
- Compute and interpret empirical, theoretical and subjective probabilities using appropriate rules.
- Examine, analyze and compare various sampling distributions for both discrete and continuous data.
- Construct a confidence interval and interpret the meaning of the bounds of the interval given a real-life application.
- Implement the appropriate hypothesis test given a situation when a claim is stated and be able to identify Type 1 and Type 2 errors.
- 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.
- Apply the One-Way and Two-Way analysis of variance and focus on the interpretation of results from technology.

Student Learning Outcomes

Upon the successful completion of Biostatistics, you will be able to:

1. Explain the use of data collection and use descriptive methods to reach conclusions given a data set.
2. Recognize, examine and interpret scientific data and be able to describe and present the data using statistics and different types of graphs.
3. Compute and interpret empirical, theoretical and subjective probabilities using concepts such Addition and the Multiplication Rule taking into consideration Independent, Dependent, Mutually Exclusive and Non-Mutually Exclusive events.

4. Examine, analyze and compare sampling distributions for both discrete and continuous random variables.
5. Describe and compute Confidence Intervals.
6. Perform hypothesis testing using statistical methods.
7. Solve linear regression and correlation problems.
8. Apply the correct analysis of variance and interpret results.
9. Use statistical software to reinforce and supplement the learning process.
10. Demonstrate critical thinking, communication, and derive correct conclusions when demonstrating quantitative statistical skills.

Required Reading and Textbook(s)

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

Grading Criteria Rubric and Conversion

Category	Weight (%)	Points	SLO's Covered
Homework (MyMathLab)	10%	100 points	1 – 10
Quizzes (MyMathLab)	10%	5 Quizzes @ 20 pts each	1 – 10
R-Labs	20%	10 labs @ 20 pts each	1 – 10
Exam I (MyMathLab)	15%	150 points	1 – 3 and 9 & 10
Exam II (MyMathLab)	15%	150 points	4 – 6 and 9 & 10
Final Exam (MyMathLab)	30%	300 points	1 – 10
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.

COURSE OUTLINE AND CALENDAR

Complete Course Calendar

Day	Topic	Reading	Due Date
August 27 th	Intro to Course/ Download R/ Lab #1		
August 29 th	Types of & Collecting Data	Section 1.2 and 1.3	Chap 1 Due: 09/02/19
September 3 rd	Frequency Distributions & Histograms	Section 2.1 and 2.2	
September 5 th	More Graphs & Misleading Graphs	Section 2.3	
September 10 th	Scatterplots & Lab #2	Section 2.4	Chap 2 Due: 09/16/19

September 12 th	Measures of Center & Variation	Section 3.1 and 3.2	
September 17 th	Measures of Relative Standing & Boxplots & Lab #3	Section 3.3	Chap 3 Due: 09/23/19
September 19 th	Basics of Prob. & Addition/Mult Rule	Section 4.1 and 4.2	
September 24 th	Complements and Conditional Prob.	Section 4.3	Chap 4 Due: 09/30/19
September 26 th	Unit 1 Exam Review	Chap 1 – 4	
	Unit 1 Exam	Opens: 09/27/19	Closes/Due: 10/02/19
October 1 st	Prob. Distributions & Binomial Distributions	Section 5.1 and 5.2	
October 3 rd	Poisson Distributions & Lab #4	Section 5.3	Chap 5 Due: 10/07/19
October 8 th	Normal Distribution	Section 6.1 and 6.2	
October 10 th	The Central Limit Thm & Lab #5	Section 6.4	Chap 6 Due: 10/14/19
October 15 th	Confidence Intervals: Population Mean & Proportion	Section 7.1 and 7.2	
October 17 th	Confidence Intervals: Population Standard Deviation or Variance	Section 7.3	Chap 7 Due: 10/21/19
October 22 nd	Hypothesis Testing: Proportion	Section 8.1 and 8.2	
October 24 th	Hypothesis Testing: Mean	Section 8.3	
October 29 th	Hypothesis Testing: Standard Deviation or Variance	Section 8.4	Chap 8 Due: 11/04/19
October 31 st	Unit 2 Exam Review	Chap 5 – 8	
	Unit 2 Exam	Opens: 11/01/19	Closes/Due: 11/06/19
November 5 th	Two Proportions and Means	Section 9.1 and 9.2	
November 7 th	Two Dependent Samples	Section 9.3	Chap 9 Due: 11/11/19
November 12 th	Correlation and Regression	Section 10.1 and 10.2	
November 14 th	Prediction Intervals	Section 10.3	
November 19 th	Multiple Regressions	Section 10.4	Chap 10 Due: 11/25/19
November 21 st	Goodness of Fit & Contingency Tables	Section 11.1 and 11.2	Chap 11 Due: 12/02/19
November 26 th	One-Way Anova	Section 12.1	
December 3 rd	Two-Way Anova	Section 12.2	Chap 12 Due: 12/06/19
December 5 th	Final Exam Review	Chap 1 - 12	
	Final Exam		Closes/Due: 12/06/19

Important University Dates

August 26, 2019	Classes Begin for Fall Semester
August 26, 2019	Add, Drop, and Late Registration Begins for 16- and First 8-week Classes \$25 Fee assessed for late registrants
August 28, 2019	Deadline for Add, Drop, and Late Registration for 16- and First 8-week
September 2, 2019	Labor Day (University Closed)
September 11, 2019	Deadline to drop 16-week Classes with No Record
October 4, 2019	Deadline for Graduation Application for Ceremony Participation
October 21, 2019	Class Schedule Published for Spring Semester
November 4, 2019	Registration Opens for Spring Semester
November 8, 2019	Deadline to Drop 16-Week Classes with a Quit (Q) or Withdraw (W)
November 11, 2019	Veteran's Day (University Closed)
November 28-29, 2019	Thanksgiving (University Closed)
December 13, 2019	Deadline for Applications for Tuition Rebate for Fall Graduation (5pm)
December 13, 2019	Deadline for Degree Conferral Applications to the Registrar's Office \$20 Late Application Fee
December 13, 2019	Deadline to Withdraw from University for 16- and Second 8-Week Classes
December 13, 2019	Fall Semester Ends
December 13, 2019	Fall Commencement Ceremony
December 17, 2019	Deadline for Faculty Submission of 16-Week and Second 8-Week Final Class Grades (due by 3pm)
December 23, 2019 - January 1, 2020	Winter Break (University Closed)

TECHNOLOGY REQUIREMENTS AND SUPPORT

- * Basic Scientific Calculator is required for the course (Casio FX-115 ES or TI-30X IIS)
- * Student must be able to download R statistical software [Free Software]. Will receive instructions on how to download the software on the first day of class.

Technology Requirements

This course will use the A&M-Central Texas Instructure Canvas learning management system. 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.

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, cheating on an examination or other academic work, plagiarism and improper citation of sources, using another student’s work, collusion, and the abuse of resource materials. All academic misconduct concerns will be reported to the university’s Office of Student Conduct. Ignorance of the university’s standards and expectations is never an excuse to act with a lack of integrity. When in doubt on collaboration, citation, or any issue, please contact your instructor before taking a course of action.

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.

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) 519-5796, or by emailing Dr. DeEadra Albert-Green

at deeadra.albertgreen@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 behaviors that pose a threat to safety, or individuals causing a significant disruption to our community, please make a referral to the Behavioral Intervention Team. 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.

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.

CLASSROOM SETUP

1. Please keep your cell phones on vibrate. If you have to take a call, please take it in the hallway.
2. No laptops can be used in class unless there is permission from the instructor.

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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