



Texas A&M University - San Antonio
Math 4303 Statistical Methods, Section 001
Fall 2024

Instructor:	Dr. Craig McCarron
Office:	Classroom Hall 314V
Office Hours:	Face to face: T 9:30-10:30 and R 14:00-15:00 Virtual: MW 10:00-11:00 (to enter Virtual Office Hours, email the instructor at the address below and he will reply with a link to video conference) or by appointment
Class Meetings:	TR / 11:00 – 12:15 Classroom Hall 309
Phone:	210.784.2648
Email:	Craig.McCarron@tamusa.edu
Course Website:	Blackboard
IMPORTANT NOTE: TO CONTACT THE INSTRUCTOR, USE EMAIL TO EITHER Craig.McCarron@tamusa.edu or cmccarro@tamusa.edu. YOU SHOULD RECEIVE A RESPONSE TO EMAIL IN AT MOST ONE BUSINESS DAY. DO NOT USE BLACKBOARD MESSAGING TO CONTACT THE INSTRUCTOR, IT IS NOT RELIABLE.	

Course Description and Material

Catalog Description: Calculus-based probability, discrete and continuous random variables, joint distributions, sampling distributions, the central limit theorem, descriptive statistics, interval estimates, hypothesis tests, ANOVA, correlation and simple regression.

Prerequisite: MATH 2314 and MATH 2114 both with a grade of “C” or higher.

Required Textbook: Devore, Jay L., Probability and Statistics for Engineering and the Sciences, 9th edition, Cengage. You may rent or purchase an eBook version, hardcover, new or used. You do *not* need to purchase access to WebAssign.

Required Equipment: To be determined.

Student Learning Outcomes: By the end of this course, students will be able to:

1. Perform elementary probability calculations using important probability distributions, both discrete and continuous, and apply them to model real world problems.
2. Estimate sampling distributions of statistics using theoretical and computational methods, and choose appropriately between them for specific data.
3. Calculate point estimates and confidence intervals for unknown parameters using bootstrap and parametric methods.
4. Perform hypothesis tests for unknown parameters using bootstrap and parametric methods.
5. Choose among the various inferential statistical methods from this course to answer specific research questions.
6. Interpret and write up the results of statistical calculations and graphics to answer research questions using appropriate language.

MATH 4303 helps students develop Critical Thinking, Communication, and Empirical and Quantitative Skills by focusing on student understanding of key concepts and techniques in statistics by recognizing, identifying, solving, analyzing and explaining appropriately model applicable real-world situations.

List of Topics: In particular, students who successfully complete this course will be able to demonstrate an understanding and working knowledge of:

- Weeks 1: Introduction to the course; the nature of data; samples; descriptive statistics
- Weeks 2-3: Probability (Chapter 2)
- Week 3-4: Discrete Random Variables (Chapter 3)
- Weeks 4-5: Chapter 3 and Continuous Random Variables (Chapter 4)
- Week 5: Exam 1
- Week 6-7: Continuous Random Variables (Chapter 4)
- Week 8: Sampling Distributions & the Bootstrap (Chapter 5)
- Weeks 8-9: Confidence Intervals (Chapter 7)
- Weeks 10: Exam 2
- Weeks 10-11: Hypothesis Testing I: Single Means (Chapter 8);
- Week 12-13: Hypothesis Testing II: Comparing Two Means & Proportions (Chapter 9)
- Week 13-14: Hypothesis Testing III: Comparing Multiple Means (Chapter 10) Test 2
- Week 14: Correlation and Regression (Chapter 12)
- Week 15: Final

The instructor reserves the right to modify/update the topics as appropriate.

NOTE: The class meets twice per week. Aside from the four hours that you spend in class each week, you should devote at least another 6~8 hours to studying on your own: reading the book and lecture notes, working out your homework assignments, and solving some extra related problems for practice. You are responsible for any and all materials/topics discussed in this class and in the assigned textbook sections.

Course Expectations and Requirements

Examinations: There will be three exams during the semester: Exam 1 (11:00 September 26th), Exam 2 (11:00 October 31st) and the Final Exam (10:00 December 10th). Students are expected to take all three exams at the scheduled time. Exceptions for a legitimate reason may be granted by and must be approved by the instructor beforehand. In the event that a student misses an exam for unforeseen and dire circumstances (hospitalization, death, nuclear war, ...), the final exam score *may* be used to replace the missing exam score at the instructor's discretion.

Problem Sets: There will be ten Problem Sets for this course that should be submitted on their due dates. Problem Sets are collected at the beginning of that day's class. Late homework will **NOT** be accepted. Should the student have to miss that day's class due to dire circumstances (see above), it is the student's responsibility to submit the Problem Set via email to the instructor. (Students are not allowed to send their homework to class with another student since this could facilitate cheating.) If a student cannot finish all the questions, the student should try to finish as much as possible.

Essays: Six short Essays will be required during the semester. Each Essay will revolve around a data set to be analyzed and will require an explanation of the meaning of the resulting analysis. Essays will

be submitted in Blackboard through TurnItIn. Essays should be submitted as word processing documents.

Work on Problem Sets should be legible and neat. No credit will be awarded for illegible work. Please staple the sheets of your assignment together in the upper left corner and please do not use papers torn out of spiral bound notebooks. In the upper right corner of your assignment you should write your name, the class section number, and the assignment number (PS1, PS2, ..., PS9). Answers along with work leading up to the solution must be shown clearly with final answers circled. **NO** credit will be awarded for merely having the right answer. You can have group/team discussions about homework problems. However, you must write up solutions on your own and truly understand the mathematics/algorithms involved. Be mindful of your academic integrity.

Examples of collaboration on Problem Sets and Essays:

1. A group of students studying together read a problem and then discuss verbally the techniques or strategies they will use to solve the problem. They compare final answers and if answers disagree, each student goes back over his/her own work to find errors. **This level of cooperation is allowed.**

2. One student writes a solution to a problem which other students then use (copy) on their own papers. **This level of cooperation is NOT allowed.**

General fact: Cheaters are caught due to duplicated arithmetic errors.

Grading Policy

Category	Number	Points Each	Drops	Total	Percent
Essays	6	10	1	50	9.43%
Problem Sets	10	20	1	180	33.96%
Exam 1	1	100	0	100	18.87%
Exam 2	1	100	0	100	18.87%
Final Exam	1	100	0	100	18.87%
Total				530	100%

(All numbers above are approximate and subject to adjustments.)

Grading Scale:

90.0%-100%	A
80.0%-89.9%	B
70.0%-79.9%	C
60.0%-69.9%	D
59.9% and below	F

Classroom Etiquette: Students are expected to refrain from distracting classmates as a result of off-task conversation, electronic devices, or other class interruptions.

Electronic Communication Devices: Electronic communication devices (e.g., laptop computer, tablet computer, cellular phone, smart phone) can be useful learning tools, but can also be distractions. Mathematical concepts often require *intense concentration* to grasp, so missing even a few words of classroom discussion can leave a student confused and frustrated. During

scheduled classroom times, electronic communication devices are not to be used unless specifically authorized by the instructor. Unauthorized use of electronic communication devices during class time *will result in the student being dismissed from class*. If a student has an urgent situation (e.g., family member in the hospital), inform the instructor at the beginning of class that you wish to leave your cell phone on in case you receive an emergency call.

Recording: If a student wishes to record any part of classroom activity, the student must obtain written permission from the instructor *in advance* of recording. Unauthorized recording can infringe on other class members' rights.

IMPORTANT POLICIES AND RESOURCES

Academic Accommodations for Individuals with Disabilities: Texas A&M University-San Antonio is committed to providing all students with reasonable access to learning opportunities and accommodations in accordance with The Americans with Disabilities Act, as amended, and Section 504 of the Rehabilitation Act. If you experience barriers to your education due to a disability or think you may have a disability, Disability Support Services is located in the Central Academic Building, Suite 210. You can also contact us via phone at (210) 784-1335, visit us <https://www.tamusa.edu/Disability-Support-Services/index.html> or email us at dss@tamusa.edu. Disabilities may include, but are not limited to, attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability-related needs with Disability Support Services and their instructors as soon as possible.

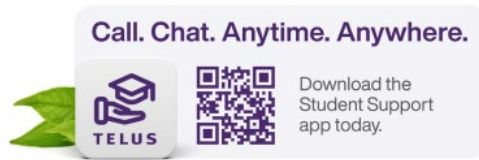
Academic Learning Center: The Academic Learning Center provides free course-based tutoring to all currently enrolled students at Texas A&M University-San Antonio. Students wishing to work with a tutor can make appointments through the Brainfuse online tutoring platform. Brainfuse can be accessed in the *Tools* section of Blackboard. You can contact the Academic Learning Center by emailing tutoring@tamusa.edu, calling (210) 784-1307, or visiting the Central Academic Building, room 202.

Counseling/Mental Health Resources: As a college student, there may be times when personal stressors interfere with your academic performance and negatively impact your daily functioning. If you are experiencing emotional difficulties or mental health concerns, support is available to you through the Student Counseling Center (SCC). To schedule an appointment, call 210-784-1331 or visit Madla 120.

All mental health services provided by the SCC are free and confidential (as the law allows). The Student Counseling Center provides brief individual and group therapy, crisis intervention, consultation, case management, and prevention services. For more information on SCC services visit tamusa.edu/studentcounseling

Crisis support is available 24/7 by calling the SCC at 210-784-1331 (after-hours select option '2').

Additionally, the TELUS Student Support App provides a variety of mental health resources to including support for in the moment distress, an anonymous peer to peer support network, mental health screenings, podcasts, and articles to improve your mental wellbeing.



Emergency Preparedness: JagE Alert is Texas A&M University-San Antonio's mass notification. In the event of an emergency, such as inclement weather, students, staff and faculty, who are registered, will have the option to receive a text message, email with instructions and updates. To register or update your information visit: <https://tamusa.bbcportal.com/>.

More information about Emergency Operations Plan and the Emergency Action Plan can be found here: <https://www.tamusa.edu/about-us/emergency-management/>.

Download the SafeZone App (<https://safezoneapp.com/>) for emergencies or call (210) 784-1911. Non-Emergency (210) 784-1900.

Financial Aid and Verification of Attendance: According to the following federal regulation, 34 CFR 668.21: U.S. Department of Education (DoE) Title IV regulation, a student can only receive Title IV funds based on Title IV eligibility criteria which include class attendance. If Title IV funds are disbursed to ineligible students (including students who fail to begin attendance), the institution must return these funds to the U.S. DoE within 30 days of becoming aware that the student will not or has not begun attendance. Faculty will provide the Office of Financial Aid with an electronic notification if a student has not attended the first week of class. Any student receiving federal financial aid who does not attend the first week of class will have their aid terminated and returned to the DoE. Please note that any student who stops attending at any time during the semester may also need to return a portion of their federal aid.

Writing, Language, and Digital Composing Center: The Writing, Language, and Digital Composing Center supports graduate and undergraduate students in all three colleges as well as faculty and staff. Tutors work with students to develop reading skills, prepare oral presentations, and plan, draft, and revise their written assignments. Our language tutors support students enrolled in Spanish courses and students composing in Spanish for any assignment. Our digital studio tutors support students working on digital projects such as eportfolios, class presentations, or other digital multimedia projects. Students can schedule appointments through JagWire under the Student Services tab. Click on "Writing, Language, and Digital Composing Center" to make your appointment. The Center offers face-to-face, synchronous online, and asynchronous digital appointments. More information about what services we offer, how to make an appointment, and how to access your appointment can be found on our website at <https://www.tamusa.edu/academics/>.

Meeting Basic Needs: Any student who has difficulty affording groceries or accessing sufficient food to eat every day or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to submit a CARE referral (<https://www.tamusa.edu/university-policies/Student-Rights-and-Responsibilities/file-a-report.html>) for support. Furthermore, please notify the professor if you are comfortable in doing so. This will enable them to direct you to available resources.

Military Affairs: Veterans and active-duty military personnel are welcomed and encouraged to visit the Office of Military Affairs for any question involving federal or state VA Education Benefits. Visit the Patriots' Casa building, room 202, or to contact the Office of Military Affairs with any questions at military.va@tamusa.edu or (210)784-1397.

Religious Observances: Texas A&M University-San Antonio recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or course work requirements that may be missed due to a religious observance provided they notify their instructors before the end of the second week of classes for regular session classes.

The Six-Drop Rule: Students are subject to the requirements of Senate Bill (SB) 1231 passed by the Texas Legislature in 2007. SB 1231 limits students to a maximum of six (6) non-punitive course drops (i.e., courses a student chooses to drop) during their undergraduate careers. A non-punitive drop does not affect the student's GPA. However, course drops that exceed the maximum allowed by SB 1231 will be treated as "F" grades and will impact the student's GPA.

Statement of Harassment and Discrimination: Texas A&M University-San Antonio is committed to the fundamental principles of academic freedom, equal opportunity, and human dignity. To fulfill its multiple missions as an institution of higher learning, A&M-San Antonio encourages a climate that values and nurtures collegiality and the uniqueness of the individual within our state, nation, and world. All decisions and actions involving students and employees should be based on applicable law and individual merit. Texas A&M University-San Antonio, in accordance with applicable federal and state law, prohibits discrimination, including harassment, on the basis of race, color, sex, religion, national origin, age, disability, genetic information, veteran status, sexual orientation, gender identity, gender expression, or pregnancy/parenting status. Individuals who believe they have experienced harassment or discrimination prohibited by this statement are encouraged to contact the appropriate offices within their respective units.

Texas A&M University-San Antonio faculty are committed to providing a safe learning environment for all students and for the university as a whole. If you have experienced any form of sex- or gender-based discrimination or harassment, including sexual assault, sexual harassment, domestic or dating violence, or stalking, know that help and support are available. A&M-San Antonio's Title IX Coordinator can support those impacted by such conduct in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more. The university strongly encourages all students to report any such incidents to the Title IX Coordinator. Please be aware that all A&M-San Antonio employees (other than those designated as confidential resources such as counselors and trained victim advocates) are required to report information about such discrimination and harassment to the university. This means that if you tell a faculty member about a situation of sexual harassment, sexual violence, or other related misconduct, the faculty member must share that information with the university's Title IX Coordinator (titleix@tamusa.edu, 210-784-2061, CAB 439K). If you wish to speak to a confidential employee who does not have this reporting requirement, you can contact the Student Counseling Center at (210) 784-1331 or visit them in Madla 120.

Pregnant/Parenting Students: Texas A&M-San Antonio does not require a pregnant or parenting student, solely because of that status or issues related to that status, to (1) take a leave of absence or withdraw from their degree or certificate program; (2) limit the student's studies; (3) participate in an alternative program; (4) change the student's major, degree, or certificate program; or (5) refrain from

joining or cease participating in any course, activity, or program at the University. The university will provide such reasonable accommodations to pregnant students as would be provided to a student with a temporary medical condition that are related to the health and safety of the student and the student's unborn child. These could include maintaining a safe distance from substances, areas, and activities known to be hazardous to pregnant individuals and their unborn child; excused absences because of illness or medical appointments; modified due dates for assignments; rescheduled tests/exams; taking a leave of absence; and being provided access to instructional materials and video recordings of lectures for excused absences, if these would be provided to any other student with an excused absence. Pregnant/parenting students are encouraged to contact the Title IX Coordinator with any questions or concerns related to their status (titleix@tamusa.edu; 210-784-2061; CAB 439K).

Texas A&M-San Antonio has also designated the Title IX Coordinator as the liaison officer for current or incoming students who are the parent or guardian of a child younger than 18 years of age. The Title IX Coordinator can provide students with information regarding support services and other resources.

Students' Rights and Responsibilities: The following statement of students' rights and responsibilities is intended to reflect the philosophical base upon which University Student Rules are built. This philosophy acknowledges the existence of both rights and responsibilities, which is inherent to an individual not only as a student at Texas A&M University-San Antonio but also as a citizen of this country.

Students' Rights

1. A student shall have the right to participate in a free exchange of ideas, and there shall be no University rule or administrative rule that in any way abridges the rights of freedom of speech, expression, petition and peaceful assembly as set forth in the U.S. Constitution.
2. Each student shall have the right to participate in all areas and activities of the University, free from any form of discrimination, including harassment, on the basis of race, color, national or ethnic origin, religion, sex, disability, age, sexual orientation, gender identity, gender expression, and pregnancy/parenting or veteran status in accordance with applicable federal and state laws.
3. A student has the right to personal privacy except as otherwise provided by law, and this will be observed by students and University authorities alike.
4. Each student subject to disciplinary action arising from violations of university student rules shall be assured a fundamentally fair process.

Students' Responsibilities

1. A student has the responsibility to respect the rights and property of others, including other students, the faculty, and administration.
2. A student has the responsibility to be fully acquainted with the published University Student Rules found in the Student Handbook, [Student Code of Conduct](#), on our website, and University Catalog, and to comply with them, as well as with federal, state, and local laws.

3. A student has the responsibility to recognize that student actions reflect upon the individuals involved and upon the entire University community.
4. A student has the responsibility to recognize the University's obligation to provide a safe environment for learning.
5. A student has the responsibility to check their university email for any updates or official university notifications.

We expect that students will behave in a manner that is dignified, respectful, and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation, or disability. Conduct that infringes on the rights of another individual will not be tolerated.

Students are expected to exhibit a high level of honesty and integrity in their pursuit of higher education. Students engaging in an act that violates the standards of academic integrity will find themselves facing academic and/or disciplinary sanctions. Academic misconduct is any act, or attempt, which gives an unfair advantage to the student. Additionally, any behavior specifically prohibited by a faculty member in the course syllabus or class discussion may be considered as academic misconduct. For more information on academic misconduct policies and procedures please review the Student Code of Conduct (<https://www.tamusa.edu/university-policies/student-rights-and-responsibilities/documents/Student-Handbook-2022-23.pdf>) or visit the resources available in the OSRR website (<https://www.tamusa.edu/university-policies/student-rights-and-responsibilities/academic-integrity.html>).

Option 1 - No Use of Generative AI Permitted

MATH 2314 Calculus II assumes that all work submitted by students will be generated by the students themselves, working individually or in groups. Students should not have another person/entity do the writing of any portion of an assignment for them, which includes hiring a person or a company to write assignments and/or using artificial intelligence (AI) tools like ChatGPT. Use of any AI-generated content in this course qualifies as academic dishonesty and violates Texas A&M-San Antonio's standards of academic integrity.

Important Dates:

August 26	First day of class
September 2	Labor Day Holiday
November 11	Last day to drop with an automatic "W"
November 19	Last day to drop a course or withdraw from the University
November 27	Study Day – No classes
November 28-30	Thanksgiving Holiday – No classes
December 5	Last day of classes
December 6	Study Day – No classes
December 7-13	Final exams

The complete academic calendar is available online:

<https://www.tamusa.edu/academics/academic-calendar/index.html>.