

Texas A&M University--San Antonio
One University Way, San Antonio, TX 78224
Department of Sciences & Mathematics
Spring 2024



MATH 1324: Math for Business & Social Sci. I
Meeting Time: M, W, F 10 – 10:50
M 11 – 11:50
Classroom Hall 205

Credit Hours: 3 credits

Instructor: Emilio Cruz
Office: Classroom Hall 214Z
Phone: (210) 784 – 2247
e-mail: ecruz1@tamusa.edu

Office hours: W: 12pm – 1pm
Th: 3pm – 4pm
F: 12pm – 1pm
S: one hour by appt

COURSE DESCRIPTION & MATERIALS:

Catalog Description: Students will study topics from college algebra (linear equations, quadratic equations, functions and graphs, inequalities), mathematics of finance (simple and compound interest, annuities), linear programming, matrices, systems of linear equations, and applications to management, business and social sciences. This course meets the standards for the Mathematics category of courses under the core curriculum. Prerequisite: Evidence of math equivalent to High School Algebra II ('C' or above) or placement.

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Required E-Textbook: *Mathematics for Business and Social Sciences* by Kathryn Bollinger and Vanessa Coffelt. You can access this book for free from <https://oaktrust.library.tamu.edu/handle/1969.1/188687>

Calculator Policy: Scientific and graphing calculators are permitted. Many topics will be covered with the aid of the TI-84 plus graphing calculator. **NOTE:** Laptops, cell phone, & other mobile devices are NOT acceptable calculators.

Co Req Labss: As a co-requisite MATH 1324, students are required to attend the co-req labs after every class. During the Co-Req portion of the class, you will be allowed to ask questions on the homework and clarification on any lecture.

Student Learning Outcomes: Upon completion of this course, students will:

1. Apply elementary functions, including linear, quadratic, polynomial, rational, logarithmic, and exponential functions to solve and interpret real-world problems.
2. Recognize and solve mathematics of finance problems, including the computation of interest, annuities, and amortization of loans.
3. Apply and explain basic matrix operations, including linear programming methods, to solve application (business) problems.
4. Demonstrate fundamental probability techniques and application of those techniques, including expected value, to solve problems.
5. Interpret and apply matrix techniques and probability analyses to model applications to management, economics, and business problems

MATH 1324 helps students develop critical thinking, communication, and empirical and quantitative skills by focusing on student understanding of key algebraic concepts to include recognizing, identifying, solving, analyzing, and explaining applications of various mathematical functions in management, economics, and business problems.

List of Topics: Topics to be covered include but are not limited to the following:

1. Basic Matrix Operations (Section 1.1)
2. Matrix Multiplication (Sections 1.2)

3. Review of Lines (Section 2.1)
4. Functions, Graphs, and Transformations (Sections 2.1-2.2)
5. Quadratic Functions (Section 2.3)
6. Polynomial and Rational Functions (Section 2.4)
7. Exponential and Logarithmic Functions (Sections 2.5-2.6)
8. Simple and Compound Interest (Sections 3.1-3.2)
9. Future Value of an Annuity; Sinking Funds (Section 3.3)
10. Present Value of an Annuity; Amortization (Section 3.4)
11. Systems of Linear Equations and Augmented Matrices (Sections 4.1-4.3)
12. Matrix Operations and Equations (Sections 4.4-4.6)
13. Linear Inequalities and Linear Programming (Sections 5.1-5.3)
14. Simplex Method (Sections 6.1-6.4)
15. Probability and Expected Value (Sections 8.1, 8.5)

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

COURSE WORK & GRADE DISTRIBUTION:

Participation: Active participation & cooperation in class is essential for your success as an individual student & our success as a class. If you miss class, you are responsible for finding out what you missed on that day. You are welcome to ask questions on the topics that you missed AFTER you go over the material.

Homework: Homework will be assigned for every section. You will be given a quiz after every 3 sections. I will choose 4 to 6 problems from your homework to put on your quiz. The exams will also be made up of questions that are in your homework. Since the quizzes and the exams will be made up of homework assignments, you can see the importance of completing every homework assignment or ask for guidance during class.

Quizzes: The quiz questions will come from questions on your homework.

Exams: There will be three in class exams. All exams are closed books and closed notes to be completed during class time. The questions will come directly from your homework assignments.

Final Exam: In order to pass this class, students *must* take a comprehensive final exam scheduled during Finals Week. Finals cannot be rescheduled or missed (for dire & unforeseen medical or family emergencies, students must consult with me). The final exam may be used to replace your lowest regular exam grade. **The final exam must be completed by the announced due date. NO EXCEPTIONS.**

Course Grade Evaluation: That student should perform at a 70% or better average on exams, homework, class participation, worksheets and quizzes covering the topics listed in the course description and those topics included in the daily schedule.

Exams: 45%

Quizzes: 25%

Final Exam : 30%

COURSE REQUIREMENTS & EXPECTATIONS

Class Attendance: Attending class is **mandatory** & attendance will be taken daily. Absences of students are recorded without exception, from the official date of enrollment. Both tardiness and early departure from class may be considered forms of absenteeism. In all cases, students will be held responsible for completion of course requirements covered in their absence. Students are expected to attend class as scheduled and be prepared to participate in discussions, in-class exercises, quizzes and problem presentation. If you miss class, you are responsible for finding out what you missed on that day. You are welcome to ask questions on the topics that you missed; however, it is your responsibility to learn the material. You are strongly encouraged to attend all classes. In addition, if an unavoidable situation prevents you from being on time or if you must leave early, please minimize class interruption.

Make-up Policy: You are expected to always be present for major exams. Exams must be taken on the date specified. **No make-up exams will be given.** However, the lowest of the three regular exams may be replaced by the final exam score.

Dropping the Course: It is the student's responsibility to drop a course. The instructor may not automatically drop you. Please check the academic calendar webpage of TAMU-SA for the last day to drop a course or withdraw from the university. Please contact the Welcome Center at 784-1300 if you desire to drop the course.

Blackboard: Students are responsible for checking Blackboard regularly for announcements, assignments, & other support materials posted there. However, students are also responsible for all announcements & assignments which are given in the classroom. Please use my TAMUSA e-mail if you need to communicate with the instructor about the lecture.

NOTE: There will NOT be an extra credit assignment, please DO NOT asks for it at the end of the semester. Start studying today! You have enough time to get the perfect grade. To be successful in this course, take responsibility for your learning & plan to study at least 2 hours for each class hour. Do not get behind; do not hesitate to ask for help. Make good use of the resources that are available to you, especially your book & your instructor. Save all your graded assignments, exams & quizzes until you receive your final grade.

Electronic Devices: The use of phones or other electronic devices for non-class related activities is not allowed. Anyone who is observed text messaging or using an electronic device during class for a non-class related purpose will be given a warning, and as a further action that person will be asked to drop the class. Devices should be turned off and put away during class.

University Email Policy and Course Communications: All correspondence between professors and students must occur via University email accounts. You must have your Jaguar email account ready and working. If it is not working, contact the help desk at helpdesk@tamusa.edu or at 210-784-HELP (4357). If you don't hear back within 48 hours, contact them again. They

have a lot of requests during the first part of the semester, so you may need to follow up with them.

Academic Accommodations for Persons with Disabilities: The Americans with Disabilities Act Amendments Act (ADAAA) of 2008 and the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights protection for persons with disabilities. Title II of the ADAAA and Section 504 of the Rehabilitation Act require that students with disabilities be guaranteed equal access to the learning environment through the provision of reasonable and appropriate accommodation of their disability. If you have a diagnosed disability that may require an accommodation, please contact Disability Support Services (DSS) for the coordination of services. The phone number for DSS is (210) 784-1335 and email is dsupport@tamusa.edu.

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/or 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 Modular C, Room 166 (Rear entrance).

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.

Crisis support is available 24/7 by calling the SCC at 210-784-1331 (after-hours select option '2'). For more information and self-help resources, please visit www.tamusa.edu/studentcounseling

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 Preparedness and the Emergency Response Guide can be found here:

<https://www.tamusa.edu/uploadfile/folders/sdbowen23/pdf/pdf-635073426137928167-10.100.20.116.pdf>

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

Jaguar Writing Center: The Jaguar Writing Center provides writing assistance to graduate and undergraduate students in all three colleges. Writing tutors work with students to develop reading skills, prepare oral presentations, and plan, draft, and revise their written assignments. The Writing Center is currently holding all appointments digitally. Students can schedule appointments with the Writing Center in JagWire under the student services tab. Students wanting to work in realtime with a tutor can schedule an “Online Appointment.” Students wishing to receive asynchronous, written feedback from a tutor can schedule an “eTutoring” appointment. 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/college-of-arts-and-sciences/language-literature-arts/english/writing-center/index.html>. The Writing Center can also be reached by emailing writingcenter@tamusa.edu.

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 contact the Dean of Students (DOS@tamusa.edu) for support. Furthermore, please notify the professor if you are comfortable in doing so. This will enable them to provide any resources they may possess.

Military Affairs: Veterans and active-duty military personnel are welcomed and encouraged to communicate, in advance if possible, and special circumstances (e.g., upcoming deployment, drill requirements, disability accommodations). You are also encouraged to visit the Patriots’ Casa in-person room 202, or to contact the Office of Military Affairs with any questions at

military@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 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.

Respect for Diversity: We understand that our students represent diverse backgrounds and perspectives. When we are equity-minded, we are aware of differences and inequalities and are willing to discuss them so we can act to resolve them. The University is committed to building cultural competencies, or the attitudes, skills, and knowledge that enable individuals and organizations to acknowledge cultural differences and incorporate these differences in working with people from diverse cultures. Respecting and accepting people different than you is vital to your success in the class, on campus, and as a future professional in the global community.

While working together to build this community we ask all members to:

- Share their unique experiences, values, and beliefs.
- Be open to the views of others.
- Honor the uniqueness of their colleagues.
- Value each other's opinions and communicate respectfully.
- Keep confidential discussions that the community has of a personal (or professional) nature.
- Use this opportunity together to discuss ways in which we can create an inclusive environment in this course and across the A&M-San Antonio community.

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, equality of 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, diversity, pluralism 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, or gender expression. 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 victims 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 or 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 responsibility, you can contact the Student Counseling Center at (210) 784-1331, Modular C. 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, 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, University Catalog and to comply with them, as well as 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 an environment for learning.
5. A student has the responsibility to check their university email for any updates or official university notification.

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. Behaviors that infringe 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](#).

Important Dates:

- ❖ August 28 First day of class
- ❖ November 10 Last day to drop with an automatic “W”
- ❖ November 21 Last day to drop a course or withdraw from the University
- ❖ November 22 Study Day – No classes
- ❖ November 23-25 Thanksgiving Holiday – University closed
- ❖ December 7 Last day of classes
- ❖ December 8 Study Day – No classes
- ❖ December 9 - 15 Final Exams

The complete academic calendar is available online: <https://www.tamusa.edu/provost/academic-calendar.html>

No Use of Generative AI Permitted

MATH 1324 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.

COVID-19 Syllabus Statement:

The safety of our campus community is paramount to our ability to provide our students, faculty, and staff with a productive and secure learning and working environment. While masks are not required, we do encourage everyone to wear a mask, particularly inside the buildings, in order to reduce the spread of covid-19. The university maintains a covid-19 web-site with current data, safety protocols, and reporting guidelines at <https://www.tamusa.edu/community-safety-together/index.html>.

When in doubt, stay at home!

Sources of Help:

- Ask questions in class & in recitation.
- Work with each other.
- Make an appointment to see me.
- Go to Math Free Tutoring
- Get a private tutor.

Names & contact for at least 3 members of our class:

- 1)
- 2)
- 3)

