

Scottsdale Community College (SCC) credits the diverse Indigenous people still connected to the land on which we gather. Our college resides on the ancient lands of the Huhugam, ancestors to the O'odham and tribal territory of the Salt River Pima-Maricopa Indian Community (SRP-MIC). SRP-MIC is a federally recognized tribe - one of 22 Arizona Indigenous tribes and one of 575 across the United States. Attached to this physical space is a painful history of forced removal and the resulting intentional genocide of its Indigenous people. We remain appreciative of our ability to teach, learn and serve in a space of such importance and reverence.

SCC acknowledges the land on which we are situated today as the traditional land and home of two distinct tribal nations: the Onk Akimel O'odham (Pima) and the Xalychidom Piipaash (Maricopa). We take this opportunity to thank the original caretakers of this land, the Huhugam. We offer our respect to all O'odham and Piipaash of the past, present and future.

Syllabus

Course Information

- Semester and Year: Fall 2026
- Course Title: Elementary Linear Algebra
- Course Prefix and Number: MAT 225
- Section Number: 18675
- Credit Hours: 3
- Start Date: September 8th, 2026
- End Date: December 18th, 2026
- Room Number: CM 465
- Meeting Days: Tuesday and Thursday
- Meeting Times: 3:30 PM – 4:55 PM
- Class Format: In-Person

Instructor Information

- Instructor: Dr. Gabriel Tarr
- Email: gabriel.tarr@scottsdalecc.edu
- Phone: 4804256746
- Office Location: CM 419
- Office Hours: Monday and Wednesday 1:00 PM – 2:30 PM
Tuesday and Thursday 2:00 PM – 3:00 PM

Course Description

Introduction to matrices, systems of linear equations, determinants, vector spaces, linear transformations and eigenvalues. Emphasizes the development of computational skills.

Prerequisites and/or Corequisites

A grade of C or better in MAT212 or MAT213 or MAT220 or MAT221, or equivalent.

Course Competencies

1. Apply matrices to solve a system of linear equations. (I)
2. Analyze the existence and nature of the solution of a system of linear equations using the determinant of an appropriate matrix. (I, II)
3. Use current technology to solve problems within the context of the course. (I, II, III, IV, V, VI)
4. Write the solution of a system of linear equations as a linear combination of vectors. (I, III)
5. Determine if a set of vectors forms a vector space and find a basis. (III)
6. Determine the dependence of a set of vectors. (III)
7. Identify the four fundamental subspaces of a matrix. (III)
8. Construct an orthonormal set of vectors by using the Gram-Schmidt process. (IV)
9. Find eigenvalues and eigenvectors of a square matrix. (V)
10. Define a linear transformation and its range. (VI)
11. Find the Kernel of a linear transformation. (VI)
12. Analyze linear algebra real world applications. (VII)

General Education & Institutional Learning Outcomes

General Education provides foundational learning experiences that contribute to academic and career success. It is reflected in [Scottsdale Community College's Institutional Learning Outcomes](#): Arts & Humanities Awareness, Career Readiness, Critical Thinking and Problem Solving, Effective Communication, Information Literacy, and Social Responsibility. In MAT 225, the focus will be on developing students' critical thinking and problem solving.

Program Learning Outcomes

Credit-bearing courses at Scottsdale Community College can count toward the completion of a degree or certificate program. Each program has Program Learning Outcomes, which are learned assets that students can claim to have acquired by completing their academic or occupational program at SCC. Program Learning Outcomes can be found on the [Degrees and Certificates page](#) of the SCC Website. For each degree, look under "What You'll Learn."

This course is a General Education course that is foundational to many degree programs and a key component of the Arizona General Education Curriculum (AGEC) certificate program. This course fulfills a mathematics requirement for the [AGEC – S](#) (for Science and Math-based Majors).

Texts and Course Materials

Textbook: A First Course in Linear Algebra by Kuttler. A pdf of this book can be found in MOER.

Online Course Management System: This course uses MOER, an Online Course Management System developed by David Lippman and the State of Washington. All of the Online Homework will be accessed through this system. Grades will also be posted through this system. The software is free to use and can be accessed here at moer.maricopa.edu. Failure to enroll in MOER and complete the required syllabus quiz by the due date will result in being withdrawn from the course.

Course ID: 24310 Enrollment Key: 18675

Calculator Requirement: A graphing calculator or graphing calculator app is required for this course. The instructor strongly recommends a TI-83/84. Calculators with QERTY keyboards or those that perform symbolic algebra (such as the TI-92/TI89) are not allowed. You are expected to bring your calculator to each class session. Your cell phone may NOT be used as a calculator on your exams.

Computer Access, Webcam, Microphone, and Email: You will need regular access to a computer with online capabilities in order to complete online assignments.

Course Policies

The following are policies specific to this course. Students are also responsible for the college policies included on the [Student Regulations](#) page of the Maricopa Community College District website.

Withdrawing from the Course: If it becomes necessary to withdraw from the course, you should speak with admissions office and fill out the proper forms there. There is a last day to withdraw without an instructor's signature. It is not guaranteed that you will be able to withdraw from the course after this date. The final day receive a W in the course is 2 weeks before the last class meeting.

Email and Contacting the Instructor: It is HIGHLY inappropriate for your family members, guardians, private tutors, former teachers, or any other third-party actors to contact your instructor to discuss anything related to your academic standing in this class. The instructor is more than happy to discuss your academic standing with YOU (the student), but emails, messages, and phone calls from third-party actors on your behalf will not receive a response (except in extreme circumstances as determined by the instructor). In certain cases, these third-party actors may be blocked from contacting the instructor.

Be respectful of your classmates and the instructor. Don't be a jerk!

Attendance Policy

Attendance is very important. Students who obtain more than 3 unexcused absences may be withdrawn from the course. Any student who misses an exam will receive a zero for the exam and may be withdrawn from the course.

Instructional Contact Hours and Minimum Course Expectations

Instructional contact hours are the weekly time students spend directly learning with their instructor or course activities. These activities include, but are not limited to, lectures, discussions, labs, group work, and viewing recordings. Instructional contact hours vary by course; refer to the [MCCCD course bank](#) for your course's details.

Minimum course expectations include the number of hours students are expected to spend outside of class (weekly) completing coursework. Students are encouraged to use the [Time Management Calculator](#) to help estimate their weekly time commitment for classes.

Course Technologies

View the [Accessibility Statements & Privacy Policies](#) of the technologies used in this course. The [SCC Help Desk](#) provides students with a primary point of contact within SCC for college-supported technology services and technical assistance.

Maricopa Systems

This course uses key Maricopa systems for course management and communication.

- Canvas Learning Management System
- Student Maricopa Gmail Account
- Maricopa Open Educational Resource Learning System (MOER)

Streaming Media/Audio/Video Tools

This course uses webcasting, lecture capture systems, YouTube, and/or other streaming media services.

- YouTube

Generative Artificial Intelligence (AI) Policy

The World Economic Forum defines generative AI as “a category of artificial intelligence (AI) algorithms that generate new outputs based on the data they have been trained on. Unlike traditional AI systems that are designed to recognize patterns and make predictions, generative AI creates new content in the form of images, text, audio, and more.”

Some examples of generative AI tools include but are not limited to: ChatGPT, Google Gemini, Microsoft Copilot, Stable Diffusion, GrammarlyGo, and Adobe Firefly.

No Generative Artificial Intelligence (AI) Allowed

In this class, all work submitted must be your own. The use of generative AI tools will be considered academic misconduct (see Administrative Regulation 2.3.11 1.B(b)) and will be treated as such. If you are unsure if the tool or website you are using is a generative AI tool, please contact the instructor for further clarification before using the tool or website.

Grading Standards and Practices

Grade Scale

Table 1 Course Grading Scale

Letter Grade	Points Interval
A	90% or above
B	80 – 89.9999%
C	70 – 79.9999%
D	50 – 69.9999%
F	Below 50%

Assignments

Exams (70% of course grade): There will be two exams in this course. Your exams are meant to test your PERSONAL mathematical aptitude of topics covered prior to each exam in this class, but occasionally you will be required to draw from your PERSONAL aptitude in topics covered in pre-requisite courses, your real-life experiences, and common sense.

Make up exams will only be granted under extreme circumstances. You should meet with your instructor AT LEAST TWO WEEKS BEFORE THE SCHEDULED EXAM to discuss arrangements. This discussion must take place BEFORE the scheduled date of the exam. Failure to adhere to this policy may result in a 0 for the exam.

Homework (25% of course grade): You will be expected to complete regular homework assignments using MOER. It will benefit you to write out the homework problems and show your work as if the instructor were grading each assignment by hand. Assignments and due dates will be posted in MOER. It is to your benefit to keep up, however, if you miss a due date, you have 255 late passes that you are able to use with no penalty to your homework grade. Each late pass only extends the due date for 24 hours, so that 255 goes quickly if you fall too far behind.

Participation (5% of course grade): Participation is useful in determining how well students are comprehending the material. The more people participate in class and demonstrate how well they are working with the material, the easier students may find the exams to be. Participation includes working problems at the board, explaining your solutions (not just giving

answers) to the class, asking questions of others' solutions, answering questions in class, collaborating with other students during class.

In addition, any student may engage in **respectful** discussion about how current scientific, social, political, or economic events relate to the content we have covered recently in class, or engage in respectful discussion about how something personal in their life relates to the content we have covered recently in class.

Response Time

Students can expect a response time of **24 hours** for the instructor to respond to messages sent via MOER, the Canvas Learning Management System, or @maricopa.edu email. Students can expect assignments to be graded within **3 class meetings** of the assignment's due date. These response times do not include weekends, holidays, or district breaks.

Tutoring

SCC's tutors are available online to help with your courses. You may work with an SCC tutor remotely using Google Meet, your phone, or email. Visit the [Tutoring & Learning Centers](#) page for detailed information on the five learning centers' hours and procedures.

If you need to work with a tutor outside regular hours, online and hybrid students now have access to a 24/7 online tutoring service called Brainfuse. To access Brainfuse and begin working with a tutor, visit the [SCC Online Tutoring Services Through Brainfuse](#) page.

MCCCD Policies

MCCCD is committed to providing a safe, fair, and accessible environment for all students. This includes laws such as the ADA and Title IX, which protect against discrimination. These statements explain your rights, available support, and where to go for help or more information. Please review the following policies:

Classroom Accommodations for Students with Disabilities

In accordance with the Americans with Disabilities Act (ADA), the Maricopa County Community College District (MCCCD) and its associated colleges are committed to providing equitable access to learning opportunities to students with documented disabilities (e.g. physical, sensory, neurological, chronic illness, mental health, learning disabilities, or other health concerns). If you require accommodations for this course, please contact [Disability Resources and Services](#) (DRS) at your college.

Contact with [DRS](#) should be made as soon as possible to ensure academic needs are met in a reasonable time. Additional information can be found in the [Non-Discrimination Statement](#) and [MCCCD Non-Discrimination Policies](#).

[Addressing Incidents of Title IX Sexual Harassment](#)

Tentative Course Schedule

Dates	Content
Tuesday, September 8, 2026	Systems of Equations
Thursday, September 10, 2026	Matrices and Gaussian Elimination
Tuesday, September 15, 2026	Rank and Homogenous Systems
Thursday, September 17, 2026	Applications of Linear Systems
Tuesday, September 22, 2026	Matrix Arithmetic
Thursday, September 24, 2026	Matrix Inverses
Tuesday, September 29, 2026	Determinants
Thursday, October 1, 2026	Applications of Determinants
Tuesday, October 6, 2026	Vectors
Thursday, October 8, 2026	Vector Spaces
Tuesday, October 13, 2026	Span and Subspaces
Thursday, October 15, 2026	Span and Subspaces
Tuesday, October 20, 2026	Midterm Review
Thursday, October 22, 2026	Midterm Exam
Tuesday, October 27, 2026	Linear Independence and Bases
Thursday, October 29, 2026	Row, Column, and Null Spaces
Tuesday, November 3, 2026	Linear Transformations
Thursday, November 5, 2026	One-to-One, Onto, and Isomorphisms
Tuesday, November 10, 2026	Kernel and Image
Thursday, November 12, 2026	Coordinates and Change of Base
Tuesday, November 17, 2026	Eigenvalues and Eigenvectors
Thursday, November 19, 2026	Eigenvalues and Eigenvectors
Tuesday, November 24, 2026	Eigenvalues and Eigenvectors
Thursday, November 26, 2026	Academic Holiday - No Class

Dates	Content
Tuesday, December 1, 2026	Eigenvalues and Eigenvectors
Thursday, December 3, 2026	Diagonalization, Applications of Eigenvalues and Eigenvectors
Tuesday, December 8, 2026	Diagonalization, Applications of Eigenvalues and Eigenvectors
Thursday, December 10, 2026	Transforms in General Vector Spaces
Tuesday, December 15, 2026	Final Review
Thursday, December 17th, 2026	Final Exam

Students are responsible for the information contained in this syllabus, the Syllabus page in the Canvas course, and the College Policies & Student Services page located under SCC Student Resources in the Canvas course navigation menu. The instructor will notify students of any changes to course requirements or policies.