Course Policies
Prof. Shahed Sharif

Textbook. We will be using *Linear Algebra, A Modern Introduction* by Poole (4th edition) with WebAssign. We will cover most of chapters 1–4.

Course description. Covers systems of linear equations, matrix algebra, determinants, linear transformations, vector spaces and subspaces, linear independence, bases, dimension, eigenvalues and eigenvectors, and applications.

Course objectives. Simply put, linear algebra is by far the most useful area of mathematics. It is the foundation of countless algorithms in use in computer science (most notably, the Fast Fourier Transform) as well as in other fields. By the conclusion of the course students will be able to:

- Calculate with vectors in $\mathbb{R}^n$.

- Use vectors to describe geometrical objects, such as lines, planes and hyperplanes.

- Solve systems of linear equations using matrices and Gaussian elimination.

- Perform algebraic operations with matrices, including calculating the inverse and using that to solve linear systems.

- Calculate the determinant of a matrix.

- Identify whether a set of vectors in $\mathbb{R}^n$ is a subspace.

- Identify whether a set of vectors is linearly independent, and whether a vector lies in the span of a given collection of vectors.

- Demonstrate an understanding of linear transformations and use them to solve problems.

- Calculate the rank of a matrix.

- Determine the eigenvalues of a matrix and find corresponding eigenvectors.

- Use eigenvectors to diagonalize matrices.

Course requirements. The grading scheme is as follows:

15%	for WebAssign homework
5%	for written homework
45%	for three semester exams
35%	for final exam

Exams are tentatively scheduled for Tuesday, 2/25; Thursday, 3/27; and Thursday, 4/24. No make-up exams are given unless two or more exams are missed and there are documented exceptional circumstances. Instead, if it would help, your score on the final exam will replace your lowest semester exam score. Also, I typically give harder exams, then curve the result.

The **final exam** is scheduled for Tuesday, May 13, 1:45–3:45 PM. It is cumulative.

WebAssign homework is assigned on a weekly basis. **Written homework** is assigned every other week. It fulfills the university writing requirement. Late homework is not accepted, no exceptions.

Software. Written homework will be turned in via Gradescope, and additional problems will be assigned via WebAssign. For written homework, please obtain a scanner or scanning app (such as Adobe Scan, available for free with your CSUSM credentials), and use it to convert your written homework assignments to pdf format. Then upload these to Gradescope. Please make sure to identify which problem is on which pages.

For access to the text and WebAssign, Cengage Unlimited is a cost-effective option.

Finally, we also use MATLAB later on in the course.

Office hours. My office hours are M 11–12 in ADM 6242, W 12:30–1:30 Zoom, starting the second week of class. Drop by the math conference room or Zoom room at that time—you don't need an appointment, or even any questions! If you have a conflict, send me an email and we'll work out an alternate time. You can also email me any questions that you have. Make sure you include as much relevant detail as possible—pictures are fine.

Ethics. You are encouraged to work with others on graded assignments, but the final product should be your own work. In particular, you may not read your classmates' finished assignments until your own is completed! The same goes for other sources—online, back of the book, or other sources. Avoid looking at these sources, or if you do, take no notes on them. Failure to follow these guidelines is considered plagiarism, and all involved parties will *at a minimum* earn a zero on the relevant assignment and have their actions reported to the Dean of Student Affairs.

Using ChatGPT or similar AI tools is also considered cheating, and is also a bad idea: AI is very good at tasks were neither precision nor expertise are important. So, not mathematics.

ADA policy. Students with disabilities who require reasonable accommodations must be approved for services by providing appropriate and recent documentation to the Office of Disability Support Services (DSS) in Administrative Hall 4300 (ph: (760) 750-4905; TTY: (760) 750-4909). Students authorized by DSS to receive reasonable accommodations should meet with me during my office hours in order to ensure confidentiality.