



Master Course Syllabus

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: <https://catalog.uvu.edu/>

Semester: Spring

Course Prefix: MATH

Course Title: Linear Algebra

Year: 2025

Course and Section #: 2270 section 004

Credits: 3

Course Description

Math 2270 includes matrices and systems of equations, determinants, vector spaces, linear transformations, orthogonality, and eigenvalues and eigenvectors.

Course Attributes

This course has the following attributes:

- General Education Requirements
- Global/Intercultural Graduation Requirements
- Writing Enriched Graduation Requirements
- Discipline Core Requirements in Program
- Elective Core Requirements in Program
- Open Elective

Other: *Click here to enter text.*

Instructor Information

Instructor Name: Dr. David Fearnley

Student Learning Outcomes

Course Outcomes: Upon successful completion, students should be able to:

- 1 - Solve linear systems using algebraic properties of matrices;
- 2 - Evaluate Determinants by cofactor expansion, row reduction, and Cramer's rule;
- 3 - Determine if a set of vectors are linearly independent; find a basis for a vector space; determine the dimension of a vector space;
- 4 - Find the eigenvalues and eigenvectors of a matrix and use them to write the diagonalization of the matrix;

- 5 - Evaluate an inner products and determine the angle and orthogonality of vectors in an inner product space;
- 6 - Determine if matrices are orthogonal and write the orthogonal diagonalization of a symmetric matrix;
- 7 - Perform general linear transformations from one vector space to another; evaluate compositions of linear transformations and inverse transformations.

Course Materials and Texts

Elementary Linear Algebra, 11th Edition, Anton/Redlin/Rorres

Course Requirements

Course Assignments, Assessments, and Grading Policy

Homework: Homework is 10% of your grade and is due the class day after the test corresponding to the homework. Homework will not generally be checked for accuracy, but will be looked at for general completeness (if an attempt was made on at least four problems, credit is given for a given homework section). Students can do different questions from those assigned and still receive credit. Essentially, the goal with homework is to prepare students for tests and help them digest the material. The problems I have set are those I hope will help you to do that. However, the student knows best what he or she is lacking and what areas are understood and need no further practice. So, which problems (and how many) a student chooses to do are left largely to the student's preference. Remember that your goal is to digest the subject matter in preparation for the tests (homework is a relatively small part of the grade in and of itself).

Tests: There will be three tests preceding the final. The tests will cumulatively constitute 60% of your grade. Tests will probably not be given late unless the student is quite ill on the day of the test, or has a UVU approved school function or similarly unavoidable emergency. Students should be prepared to provide evidence of their reason for missing the exam (such as a doctor's note). A busy schedule, not being aware of the test, or just being out of town are not normally acceptable excuses for missing a test on the scheduled day. Students who miss a test for reasons which are not acceptable excuses cannot make the test up and their test score is zero. There are no re-takes and there is no extra credit. In some borderline cases where an excuse is not sufficient (but is fairly reasonable) a compromise may be offered wherein the student may take a more difficult version of the exam late.

Final Examination: The final exam is 30% of your grade. Except in exceptional emergencies students may not take the final early or late. Students will not normally receive a grade lower

than that which would correspond to a course average of their final exam score percentage minus 10% (even if their course average would be below that amount).

SRI: To encourage filling out the SRI at the end of the course, a one half of one percent extra credit is offered for students filling out their SRI.

Grading: Grades are essentially distributed as

93-100 A

90-92 A-

87-89 B+

83-86 B

80-82 B -

77-79 C+

70-76 C

67-69 C -

63-66 D+

60-62 D

55-59 D-

Averages between two percentage points are usually rounded to the nearest percentage point except in the case of C, C- and D- grades, where the grade is rounded up to those grades if the average is less than one percentage point away.

Required or Recommended Reading Assignments

It is recommended that students follow the text as we cover each topic. Reading a section ahead of where we finish before each class is likely to improve student understanding.

General Description of the Subject Matter of Each Lecture or Discussion

	2270 Spring 2025
	Schedule may be altered based on the pace of the class

	The assignment set should be done on the date listed (before the next class period) and is due for submission the day after the corresponding exam. Note that TF means answer the True/False exercises for the section (considered one question for grading purposes)
6-Jan	1.1: 1, 5, 7, 9, 11, 15, 22, 25, 26.
8-Jan	1.2: 5, 7, 9, 13, 17, 19, 35, 39. 1.3: 1, 3, 7, 11, 13, 25, 31.
10-Jan	1.4: 5, 10, 17, 21, 23, 25, 43, 46, 47.
13-Jan	1.5: 1, 5, 9, 15, 19, 23, 27.
15-Jan	1.6: 1, 5, 9, 15, 19, 21, 23
17-Jan	1.7: 1, 3, 6, 7, 17, 21, 29, TF.
20-Jan	Martin Luther King Jr. Day
22-Jan	1.8: 1, 5, 7, 11, 13, 19, 21, 25, 31
24-Jan	2.1: 1, 5, 11, 15, 21, 27, TF 2.2: 5, 9, 11, 15, 17, 23, 25, TF.
27-Jan	2.3: 1, 7, 21, 25, 27, 30, 33, 37, TF
29-Jan	Review
31-Jan	Test 1
3-Feb	3.1: 3, 5, 9, 15, 17, 23, 28, TF.
5-Feb	3.2: 1, 3, 9, 11, 15, 21, 27, TF
7-Feb	3.3: 1, 3, 7, 11, 13, 15, 21, 25, 27, 31, 37, TF. 3.4: 1, 5, 9, 17
10-Feb	3.5: 1, 3, 7, 9, 11, 15, 17, 19, TF.
12-Feb	4.1: 1, 5, 7, 10, 17, 18, 25, 37, TF 4.2: 1, 3, 4, 5, 7, 11, 15, 16.
14-Feb	4.3: 3, 5, 8, 17, 25, TF
17-Feb	Presidents' Day

19-Feb	4.4: 3, 5, 7, 11, 13, 15, 17, 19, 25, TF.
21-Feb	4.5: 1, 7, 9, 11, 13, 17, 25, TF.
24-Feb	4.6: 1, 3, 5, 6, 7, 17, TF.
26-Feb	4.7: 1, 3, 5, 7, 9, 11, 13, 20, 26, 27, TF.
28-Feb	4.8: 1, 3, 9, 13, 16, 22, 29, 31, 33, TF.
3-Mar	4.9: 3, 7, 11, 15, 21, 25, 29. 4.10: 1, 5, 9, 11, 13, 15, 19, 21, 23, 35, TF.
5-Mar	4.11: 1, 3, 5, 7, 11, 15, 19, 27, TF.
7-Mar	5.1: 1, 5, 9, 15, 19, 21, 23, 28, 31, 33, 39, TF.
10-Mar	Spring Break
12-Mar	Spring Break
14-Mar	Spring Break
17-Mar	Review
19-Mar	Test 2
21-Mar	5.2: 1, 5, 9, 12, 11, 13, 15, 21, 25, 35, 36, 40, TF.
24-Mar	5.3: 1, 7, 9, 11, 13, 15, 19, 23, 31, 34, 36, TF.
26-Mar	6.1: 1, 3, 5, 7, 9, 11, 13, 15, 17, 21, 25, 27, 29, 37, 41, 45, TF. 6.2: 1, 3, 5, 9, 11, 13, 27, 21, 27, 29, 31, 35, 43, TF.
28-Mar	6.3: 2, 3, 5, 9, 11, 15, 19, 23, 27, 29, 31, 33, 37, 43, 45, 51, TF.
31-Mar	7.1: 1, 5, 9, 12, 13, 15, 21, 22, 26, 27
2-Apr	7.2: 1, 4, 11, 17, 23, 25, TF.
4-Apr	7.3: 1, 3, 5, 9, 13, 19, 25, 27, 36, TF.
7-Apr	8.1: 5, 7, 9, 13, 14, 21, 27, TF. 8.2: 1, 3, 5, 7, 11, 13, 15, 22, TF.

9-Apr	8.3: 1, 3, 7, 8, 9, 11, 13, 17, 22, 23, TF.
11-Apr	8.4: 1, 5, 7, 11, TF.
14-Apr	8.5: 1, 5, 7, 15, 19, 23, 25, 27, 28.
16-Apr	Review
18-Apr	Test 3
21-Apr	Review
23-Apr	Interim Day (no class)
25-Apr	(no class)
28-Apr	Final Exam 1:00-2:50 in regular classroom

Required Course Syllabus Statements

Generative AI

Use of Artificial Intelligence: AI programs are not a replacement for your human creativity, originality, and critical thinking. Writing, thinking, and researching are crafts that you must develop over time to develop your own individual voice. At the same time, you should learn how to use AI and in what instances AI can be helpful to you.

The use of generative AI tools (e.g. ChatGPT, Google Bard, etc.) is permitted in this course for the following activities:

- Brainstorming and refining your ideas;
- Fine tuning your research questions;
- Finding information on your topic;
- Drafting an outline to organize your thoughts; and
- Checking grammar and style.

The use of generative AI tools is not permitted in this course for the following activities:

- Impersonating you in classroom contexts, such as by using the tool to compose discussion board prompts/responses assigned to you or content that you put into a Teams/Canvas chat.

- Completing group work that your group has assigned to you, unless it is mutually agreed upon that you may utilize the tool.
- Writing a draft of a writing assignment.
- Writing entire sentences, paragraphs or papers to complete class assignments.

You are responsible for the information you submit based on an AI query (for instance, that it does not violate intellectual property laws, or contain misinformation or unethical content). Your use of AI tools must be properly documented and cited in order to stay within university policies on academic honesty.

Any student work submitted using AI tools should clearly indicate what work is the student's work and what part is generated by the AI. In such cases, no more than 25% of the student work should be generated by AI. If any part of this is confusing or uncertain, please reach out to me for a conversation before submitting your work.

Using Remote Testing Software

This course does not use remote testing software.

This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Required University Syllabus Statements

Accommodations/Students with Disabilities

Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU [Accessibility Services](#) at accessibilityservices@uvu.edu or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in BA 112.

Academic Integrity

At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that

produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their [rights and responsibilities](#). In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in [UVU Policy 541: Student Code of Conduct](#).

Equity and Title IX

Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

Religious Accommodation

UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.

To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at accessibilityservices@uvu.edu. If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a [specially dedicated space](#) for meditation, prayer, reflection, or other forms of religious expression.