



COURSE SYLLABUS, MATH 590, LINEAR ALGEBRA, FALL 2024

INSTRUCTOR INFORMATION

Name Dr. Daniel Hernández
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Office 527 Snow Hall
Office Hours Consult the course website.

COURSE BASICS

Time and location TuTh 09:30 - 10:45 AM, Snow 306.
Description Vector spaces, linear transformations, and matrices. Canonical forms, Determinants. Hermitian, unitary and normal transformations.
Prerequisites MATH 127 or MATH 147, and MATH 290 or MATH 291.
Format This is a lecture-only, in-person course.
Credits This is a 3-credit course. According to [KU policy](#), and the federal description of a credit hour, students are expected to spend at least 6 hours a week on this course outside of class.

ELECTRONIC COMMUNICATION

- (1) All electronic communications must occur through official KU email accounts.
- (2) In particular, Canvas messages should not be used to communicate electronically.
- (3) Consult our course website, and your peers, before asking procedural questions.
- (4) Students are expected to communicate semi-formally in all email correspondence.
- (5) The subject line of every message should be precise, and must start with the string "**[math-590]**". For example, "Subject:[math-590] Question on linear transformations".
- (6) Understand that it is hard to discuss math via email. If you have a math question, you must clearly describe your thought process, and where you are running into trouble.
- (7) Due to the large volume of emails that I receive, I may not always be able to respond immediately, or even at all. In such situations, I ask that students be resourceful.
- (8) I am unlikely to respond to messages outside of standard working hours.
- (9) I am unlikely to respond to ‘‘last-minute’’ messages.

RESOURCES AND MATERIALS

Course website <https://hernandez.ku.edu/590.html>
Course Digest The Course Digest will be posted on our course website. Students are expected to read it before and after every lecture, and complete the tasks described therein in a timely manner.
Textbook Our [open textbook](#) is *Linear Algebra Done Right* by Sheldon Axler. It will be posted on our course website.
Canvas Canvas will be used only to record grades. Instead of Canvas, students should monitor the course website and KU email.

ATTENDANCE AND PARTICIPATION

Students are expected to attend, and actively participate in, all lectures. For information on excused absences, see the [KU Excused Absences Policy](#). Student responsibilities in this context are described in subsection 2.2.4 of that policy.

REQUIREMENTS

<u>Homework</u>	Exercises from our textbook will be assigned after every lecture. These problems are meant to help students develop their problem solving skills, and to test their understanding. However, these problems will not be collected, nor count towards a final grade. Students are encouraged to discuss these problems in office hours.
<u>Quizzes</u>	In-class quizzes will be given regularly, and will cover topics from lecture and homework. These should be regarded as pop quizzes.
<u>Projects</u>	A major objective of Math 590 is to learn to write and analyze proofs. Therefore, students will work in groups for more writing intensive take-home projects that will be carefully graded.
<u>Exams</u>	<u>Midterm 1</u> Tuesday, October 08 (tentative)
	<u>Midterm 2</u> Thursday, November 21 (tentative)
	<u>Final Exam</u> Thursday, December 19, 07:30 AM - 10:00 AM
<u>Missed lectures</u>	Students who miss lecture are responsible for seeking notes from a classmate. We follow the KU Excused Absences Policy for missed quizzes and exams.
<u>Late work</u>	Outside of situations covered by the KU Excused Absences Policy , late work is not accepted.
<u>Extra credit</u>	We offer no extra credit.

LEARNING OUTCOMES

We will cover Sections 1A, 1B, 1C, 2A, 2B, 2C, 3A, 3B, 3C, 3D, 5A, 5B, 5D, 5E in our textbook, at least. Students will learn about abstract fields, with an emphasis on \mathbb{R} and \mathbb{C} ; abstract vector spaces and subspaces; operations on subspaces, especially sums and direct sums; linear combinations, spans, and independence; bases and dimension; linear transformations, including their kernels and images, the rank-nullity theorem, and connections with matrices; eigenvalues and eigenvectors; invariant subspaces and minimal polynomials; and diagonalizability.

EVALUATION CRITERIA AND GRADING SCALE

Homework	Quizzes and Projects	Midterm 1	Midterm 2	Final Exam
00 %	20 %	25 %	25 %	30 %

A course evaluation will be available to students at the end of the semester.

ACADEMIC INTEGRITY AND PROFESSIONAL CONDUCT

We follow the [KU Academic Misconduct Policy](#). In this context, students are held to the highest standard, and any failure to meet this standard will trigger severe consequences.

CLASSROOM BEHAVIORAL EXPECTATIONS

- (1) The use of phones, computers, or any other device that may cause a distraction, is forbidden during lecture. Text messaging and internet browsing will not be tolerated.
- (2) Food and drink in disposable containers are forbidden from lecture.

COMMERCIAL NOTE-TAKING

Commercial note-taking is not permitted in this course. Course materials, including notes, may not be sold to any person or entity. Any student engaged in, or contributing to, the commercial exchange of notes or course materials will be subject to discipline, including academic misconduct charges, in accordance with [KU policy](#). Note: note-taking provided by a student volunteer for a student with a disability, as a reasonable accommodation under the ADA, is not the same as commercial note-taking and is not covered under this policy.

ADDITIONAL RESOURCES AND POLICY INFORMATION

Student Resources

- [University Academic Support Centers!](#)
- [Counseling and Educational Support Services](#)
- [The KU Writing Center](#)
- [Religious Observances](#)

University Policies

- [Academic Misconduct](#)
- [Change of Grade](#)
- [Diversity and Inclusion](#)
- [Mandatory Reporting \(Title IX/Civil Rights\)](#)
- [Nondiscrimination, Equal Opportunity, and Affirmative Action](#)
- [Sexual Harassment](#)
- [Student Rights and Responsibilities](#)
- [Racial and Ethnic Harassment Policy](#)
- [Commitment to Integrity and Ethical Conduct](#)
- [KBOR Statement on Free Expression](#)
- [Weapons, Including Firearms!](#)

The [KU Student Affairs Student Resources website](#) provides links to KU Policies and Resources pertaining to academic misconduct, grading policies, harassment and discrimination, diversity and inclusion, mandatory reporting, equal opportunity and affirmative action, and student rights and responsibilities. Please visit the site to familiarize yourself with these policies and resources. Contact your instructor, or Student Affairs directly, if you have questions or concerns about any of these policies and resources.

CHANGES TO THIS SYLLABUS

The course policies described herein are subject to change. Any such changes will be made at the discretion of the instructor, and informed by the best interests of the students. These will be announced during class, and also electronically, via email.