

**MATH 67: MODERN LINEAR ALGEBRA
COURSE SYLLABUS
UC DAVIS, WINTER 2020**

1. SUMMARY

- Course instructor: Dan Romik
- Teaching assistant: Matthew Litman
- Course lectures: MWF 11:50-12:00, Hoagland 108
- Discussion section: T 6:10-7, Olson 147
- Instructor office hours: F 9:30-10:30, MSB 2218
- TA office hours: T 10:45-11:45, MSB 2137
- Midterm exam date, time and place: 11:10-12 on Wednesday February 12, Hoagland 108
- Final exam date, time and place: 8-10 am on Tuesday March 17, taken at home

2. COURSE PREREQUISITES

- C- or higher in MAT21C

3. COURSE TEXTBOOK

- The course will be based on the book *Linear Algebra as an Introduction to Abstract Mathematics* by Isaiah Lankham, Bruno Nachtergaele and Anne Schilling (World Scientific, 2016). A free PDF of the book can be downloaded [here](#).

4. COURSE DESCRIPTION AND LEARNING OBJECTIVES

Linear algebra is part of the basic language of mathematics, and nowadays plays an increasingly important role as part of the basic language and toolset of practical areas of application such as data science, machine learning, computer graphics and more. One main goal of the course is to teach you the fundamentals of the subject. Topics will include: complex numbers, abstract vector spaces, linear transformations, methods for solving systems of linear equations, matrices and diagonalization, and more. A complete list of subjects can be found in the mathematics department's [general syllabus for the class](#).

Document version: March 14, 2020 (updated to reflect the change from an in-class final to a final exam taken at home)

A second main goal of the class is to introduce you to mathematical proofs and abstract mathematical thinking. We will prove well-known mathematical theorems such as the fundamental theorem of algebra, and develop skills in reading and writing proofs, understanding mathematical notation and writing style, the patterns of generalization and abstraction, and more. These general skills carry over to all areas of pure mathematics, and many areas of engineering, computer science, and other sciences.

5. GRADING POLICY

The final course grade will be assigned based on a weighted average of the following components:

- **Homework**, to be assigned weekly — **30%** of the grade. The two lowest weekly assignment grades will be ignored.
- **Midterm exam**. The midterm exam will be held on Wednesday, February 12 at the normal lecture time and place — **30%** of the grade.
- **Final exam**. The final exam will be held at 8-10 am on Tuesday March 17 — **40%** of the grade.

Exams will be closed-book exams, with no written material or electronic devices allowed.

The translation of the final course numerical score to a letter grade will be decided at the end of the quarter, but the following lower bounds on the letter grade cutoff will apply:

A final numerical score of 90% or higher guarantees you a final grade of at least A-; a final numerical score of 80% or higher guarantees you a final grade of at least B-; a final numerical score of 70% or higher guarantees you a final grade of at least C-; a final numerical score of 60% or higher guarantees you a final grade of at least D-.

6. OTHER COURSE POLICIES

- **Late homework**. Late homework will not be accepted except in case of a documented illness or other documented and uncontrollable situation of similar type.
- **Make-up exams**. Missing an exam will lead to a grade of 0 except in the case of a documented illness or other documented circumstances beyond your control. Make-up exams will not be given. If you are unable to attend an exam, let me know immediately.
- **Ethics policy**. The homework that you submit in the class must be your own work. You may work on the homework collaboratively with your friends, but the work that you hand in must be written in your own handwriting (or typed by you), in your own words, and you represent that you understand what you wrote.

Failure to adhere to these guidelines would be considered by me as a violation of the [UC Davis Code of Academic Conduct](#) and warrant, at minimum, a failing grade in the assignment in question and a referral to Student Judicial Affairs.

To put the above in more human terms: don't cheat; treat the course instructor and TA and your fellow students as you would like to be treated.

7. STUDENTS WITH DISABILITIES

If you are entitled for some form of accommodation, e.g., based on a disability, please let me know so that we can discuss any relevant logistical details.

Note that, excepting minor things that are at my discretion, for most forms of accommodation such as extra time on the final exam I am only allowed to provide accommodations that are explicitly approved by the campus's [Student Disability Center](#). So make sure to discuss your situation with them in a timely manner.