

LINEAR ALGEBRA I
MATH 131 - WINTER 2018
TTH 12:40–2

- Instructor: Carl Mautner
- Email: mautner@math.ucr.edu
- Office: Skye 255
- Office hours: TBA or by appointment
- Class website: <http://www.math.ucr.edu/~mautner/F18.html>
- Teaching Assistant: Justin Davis
- Midterm exams: Tuesday, Oct. 23rd and Thursday, Nov. 15th in class.
- Final exam: Friday, December 14, 11:30 a.m. - 2:30 p.m

The exams are mandatory. If you have a scheduling conflict, you must let me know in the first week of classes.

Text: *Linear Algebra Done Right*, by Sheldon Axler, 3rd edition. Available free online from UCR computers at:

<http://link.springer.com/book/10.1007%2F978-3-319-11080-6>

Course objectives: We have two main objectives in this course. The first objective is to become proficient at analyzing and producing mathematical arguments (i.e., reading and writing proofs!). This is a bit like learning a language - it takes a lot of practice and one has to learn the grammar. For some of you, this may be your first advanced math course. In some sense our most important goal is that you ‘learn how to learn math’ and how to communicate it.

The second goal of the class is to introduce you to the basic objects of linear algebra (abstract vector spaces and linear maps). Linear algebra is a super powerful tool for solving hard problems and has been used, for example, by internet companies to determine which of the billions of webpages are most relevant for your internet search, and by geneticists to determine which genes are linked to diseases! In this class we will build the necessary definitions and foundation for Math 132, where you can learn these techniques.

Warning: unlike lower division courses, this class is NOT a computational class. Instead of computations, you will build up theory and hone your reasoning skills.

Grading: The grade will be based on homework assignments (20%), two in-class exams (20% each) on Tuesday, Oct. 23rd and Thursday, Nov. 15th, and a final exam (40%) on Friday, December 14, 11:30 a.m. - 2:30 p.m. Final letter grade cut-offs will be made at the end of the quarter and will be no worse the standard scale (e.g., if you get above 90% you are guaranteed an A or A-). Any instance of cheating will result in a failing grade for the course.

Homework: Homework will generally be assigned one a week and due a week later at the beginning of class. A list of the homework problems will be kept on the webpage. Late homework will not be accepted, but the lowest two homework grades will be dropped.

Collaboration policy: You are encouraged to discuss homework problems with other students. However, you should think about the problems yourself before discussing them with others and the final write-up of any solution should be your own. Copying other students' solutions is not allowed. For each question on the problem set, please write a list of everyone with whom you collaborated on that problem. If you did not collaborate with anyone, please explicitly write, "No collaborators."