MATH 201: LINEAR ALGEBRA

FALL 2018

Place:	Lib 389
Time:	MWF, 11:00-11:50A.M. (F02)
	MWF, 12:00-12:50P.M. (F03)
Instructor:	Kyle Ormsby (`ormsbyk@reed.edu`)
Office Hours:	Library 306, MWF 2:45-4:15P.M.
Textbook:	*Linear Algebra* (3rd ed.) by Jim Heffron
Website:	`people.reed.edu/~ormsbyk/201/`

Summary. This course is a rigorous exploration of linear algebra, the study of solutions to linear systems of equations and linear transformations between vector spaces. Linear algebra plays a pervasive role in modern mathematics and computer and natural sciences. Its roots are elementary, but the subject builds an impressive edifice of abstraction, notation, and terminology quite quickly. In order to ground our study, we will frequently investigate examples and calculations, ultimately building up to conceptual abstractions, theorem statements, and proofs. Students should leave the course with an understanding of linear algebra's fundamental concepts and theorems along with computational facility and additional proof and problem-solving techniques.

Texts. The course will use *Linear Algebra* (3rd ed.) by Jim Heffron as its primary text. The book is freely available online, or you can purchase a paper copy from the campus bookstore. You can find suggested reading for each class meeting on the course website, where I will also post my lecture notes.

Homework. Homework is due most Tuesdays and Fridays in the bin outside my office, Library 306, by 4:00P.M. Excellent solutions take many forms, but they all have the following characteristics:

» they are written as explanations for other students in the course; in particular, they fully explain all of their reasoning and do not assume that the reader will fill in details;
» when graphical reasoning is called for, they include large, carefully drawn and labelled diagrams;
» they are neatly written or typeset;[1] and
» they use complete sentences, even when formulas or symbols are involved.

Each homework problem can earn up to five points for mathematical content; each problem will also have the quality of writing assessed with a $\checkmark+$, $\checkmark$, or $\checkmark-$. Late assignments *will not be accepted* in any form, but your two lowest homework assignment scores will be dropped.

Date: 29.VIII.18.

[1]Interested students are encouraged to prepare solutions in the LaTeX document preparation system. A guide to LaTeX resources is available on the course website. Nearly all of the `.pdf` files on the course website are produced by LaTeX; you can find their associated source files by changing the `.pdf` suffix to `.tex`.

Collaboration. You are permitted and encouraged to work with your peers on homework problems. You must cite those with whom you worked, and you must write up solutions independently. **Duplicated solutions will not be accepted and constitute a violation of the Honor Principle.**

Revisions. You may revise any homework problem after receiving comments, and you will sometimes be encouraged to revise problems. This will allow you the opportunity to perfect the skills required to solve the problems. You may revise multiple times, and will receive the average of all of your scores. Revisions must be turned in at most one week after you receive comments on the previous version of a solution.

Tests. We will have two timed take-home midterms and a final exam. You may reference one two-sided US Letter or A4-size page of notes during each exam. Calculators, computers, phones, collaboration, books, and the Internet are prohibited during exams.
  » Midterm 1: two hours, distributed Friday, 21 September, due Monday, 24 September
  » Midterm 2: two hours, distributed Friday, 26 October, due Monday, 29 October
  » Final Exam: three hours, as scheduled by the registrar

Joint expectations. As members of a communal learning environment, we should all expect consideration, fairness, patience, and curiosity from each other. Our aim is to all learn more through cooperation and genuine listening and sharing, not to compete or show off. I expect diligence and academic and intellectual honesty from each of you. You should expect that I will do my best to focus the course on interesting, pertinent topics, and that I will provide feedback and guidance which will help you excel as a student.

Help. There are a number of resources you can access for help with this course's content. Everyone is welcome and encouraged to attend my office hours, Monday, Wednesday, and Friday 2:45-3:45P.M. in Library 306. If you are unable to make these times, I am happy to schedule alternate times at which to meet with you.

  The math department also hosts drop-in tutoring in Library 204 Sunday, Tuesday, Wednesday, and Thursday 7-9P.M. Upperclass tutors will be available to clarify concepts and help you with homework problems.

  In addition to drop-in tutoring, there is a 201-specific problem session which meets Monday and Thursday evenings. (Details will be announced in class and posted on the course website.)

  Finally, every Reed student is entitled to one hour of free individual tutoring per week. Use the tutoring app in IRIS to arrange to work with a student tutor.

Slack. My sections of 201 have a Slack channel on which you can ask and answer questions. Sign up at this link. Please do not discuss homework solutions on Slack, although it is fine to ask for problem clarification or a specific conceptual or technical question whose answer is related to a problem. The Slack channel is an extension of our classroom and Reed, and the Honor Principle and our joint expectations govern our conversations there.

Technology. The use of electronic devices (cell phones, computers, tablets, calculators, &c) is strictly prohibited in the classroom without prior authorization from the instructor. That said, legitimate uses of technology (*e.g.,* note-taking) will be accommodated — just talk to me first.

The Internet. You are welcome to use Internet resources to supplement content we cover in this course, with the exception of solutions to homework problems. **Copying solutions from the Internet is an Honor Principle violation and will result in an academic misconduct report.**

Academic accommodations. If you have a documented disability requiring academic accommodation, please let me know during the first week of class and provide a copy of your letter from Disability Support Services (DSS). If you believe you have an undocumented disability and that accommodations would ensure equal access to your Reed education, I would be happy to help you contact DSS

Grades. Your grade will reflect a composite assessment of the work you produce for the class, weighted in the following fashion: 40% homework, 25% final exam, 15% midterm 1, 15% midterm 2, 5% class participation.

Remember: *Math is hard, but we're going to get through this together!*