

Course: MA 253: Linear Algebra, Section C

Website: nick.owad.org/Sp2020LA.html

Professor: Nicholas Owad

Email: nick.owad@colby.edu

Email Office Hours: MW 12:00 - 2:00 EST and by appointment. More hours will be appointed soon.

If you are unable to attend these hours, please let me know and we will find a time that does. I know that many of you are in different time zones, so these might be spread out as we see when they best suit you.

Course Description and Prerequisites: Linear algebra is a crossroads where many important areas of mathematics meet, and it is the tool used to analyze the first approximation of complex systems. Students will learn to understand and use the language and theorems in both abstract and applied situations, gain insight into the nature of mathematical inquiry, and learn how to reason carefully and precisely about formally described situations. Topics include vectors and subspaces in \mathbb{R}^n , linear transformations, and matrices; systems of linear equations; abstract vector spaces and the theory of single linear transformation: change of basis, determinants, eigenvalues and eigenvectors, and diagonalization. Prerequisite: Mathematics 122 or 162; or Mathematics 102, 121, or 161 with permission of the instructor.

Course Learning Outcomes: This course should prepare you to successfully accomplish the following.

- Master the basic tools of linear algebra, especially linear independence, matrix algebra, and vector spaces.
- Appreciate the utility of linear transformations via several applications.
- Explore a particular linear algebra concept in depth through a detailed project.
- Improve geometric intuition and visualization of vector spaces in arbitrary dimensions.
- Practice and improve mathematical communication skills.

Video Lectures: On the course website, there will be videos regularly posted. Please watch these videos and take notes. Attempt the worksheets which are posted with the videos and email me when you have questions.

Course Text: *Linear Algebra and Its Applications, 3rd Edition*, by David Lay. You are expected to read the sections assigned before coming to class. Any additional written material needed for this class will be provided in class or via Moodle.

Exams: There is only one exam, and you have already taken it. The final exam is being replaced with a project. More information will be given about this soon.

Grading Breakdown:

Maximum Midterm 1 and Project 3	20
Minimum Midterm 1 and Project 3	15
Projects 1	15
Projects 2	15
Quizzes	10
Homework	20
Class Participation	5
Total	100%

Quizzes: Quizzes have all been taken. I will drop the lowest grade for all students.

Projects: There will be three projects assigned in this course. The last is going to be given instead of the final exam. More information about these projects will be given soon.

Homework: Homework will now be given in an online system. This is still being set up and I will give more information about how to access this soon. Until then, please work on the suggested book problems. This is not going to be handed in, but is valuable to your understanding and the future homework will build off of what you are learning in the meantime.

Class Participation: While class is now remote, you are still expected to put effort into participation. Please be sure to read the book and notes, watch the videos, and work on projects and homework.

Resources: If you find yourself having difficulties in any way, I am your first resource. Please email me and ask questions. I will try to hold video office hours too and will let you know when and how this is happening. Your class dean and advisers are also there to help you succeed. Please use these resources if you need any help understanding the material, assignments, or to prepare for quizzes and tests.

Note to students with disabilities: At Colby, we value disability as diversity and are eager to learn more about how you learn best. If you have accommodation letters, please set up a time with me to discuss how to best implement those accommodations. If you need to access letters or learn more about accommodations, contact Kate Mcalughlin at kmclaugh@colby.edu

Calculator: Calculators and computer programs may be used to assist in homework and projects, but are not allowed on any in class assessment.

Email: Email is the best way to get in touch with me. Proper email etiquette is expected of any students wishing to have their emails read and responded to. There should be a descriptive subject, a salutation, a body, and a closing, using proper grammar. I also reserve the right to not answer emails in the evenings and weekends.