MATH 543, Spring 2023

Course Information

Textbook: Axler, *Linear Algebra Done Right, third edition.*
Course website: piazza.com/wvu/firstsemester2023/math543
Discussion board: We will be using Piazza for class discussion. The system is great for getting you help fast and efficiently from classmates and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza.
Instructor: Casian Pantea http://math.wvu.edu/∼cpantea/

Class schedule: Mondays, Wednesdays, Fridays 12:30-1:20PM, Armstrong Hall 315
Office hours: Mondays 11AM-12PM, Wednesday 4:30-5:30PM in ARM 305B, and by appointment.

Course Description

This is a mathematically rigorous graduate course on Linear Algebra. It assumes familiarity with undergraduate linear algebra concepts at the level of MATH 343. We will focus on the axiomatic theory of vector spaces and linear maps in a general context (and not necessarily in Euclidean spaces). We will cover the basic theory of finite-dimensional vector spaces, linear operators, eigenvectors, inner product spaces and orthogonality, Singular Value Decompositions, Jordan Forms, minimal and characteristic polynomials, trace and determinants.

Evaluation

Grading scheme

- 30% Final exam
- 40% Two midterm exams (20% each)
- 10% Homework assignments
- 20% Quizzes
- The following scheme will be used to assign letter grades:

A	90 – 100%
B	80 – 90%
C	70 – 80%
D	60 – 70%
F	0 – 60%

Quizzes

• There will be seven 10-minutes quizzes (one every two weeks), out of which the best five will count towards your grade.
• Quizzes will test the material covered during the previous two weeks.
• No make-up quizzes will be given.

Homework

• Homework will be assigned once every two weeks, and due two weeks later (see the course website for exact dates).
• The best five homework scores will count towards your final grade.
• Late turn-ins will not be accepted.

Midterms

• There will be two 50-minutes in-class midterm exams, on
Monday, February 20, and
Monday, March 27.
• Midterm exams will test material covered after the previous midterm (they are not cumulative).
• Calculators are not allowed.
• No make-up midterm will be given.

Final Exam

• **Wednesday May 3 2023**, 2-4pm
• Final is cumulative (i.e. all material covered during the semester will be tested)

Doing well in this class

The material in the course is dense and non trivial, especially if you have limited experience with mathematical proofs. As is often the case in math courses, we will constantly build upon previous stuff; therefore, not leaving gaps in your understanding of the material is crucial for succeeding. This will require a sustained effort on your part, and in addition to attending lectures, you are encouraged to ask questions during class, office hours, and on piazza.com. It is also essential to think about the material on your own, read the suggested texts, and solve homework problems.

Inclusivity Statement

The West Virginia University community is committed to creating and fostering a positive learning and working environment based on open communication, mutual respect, and inclusion. If you are a person with a disability and anticipate needing any type of accommodation in order to participate in your classes, please advise your instructors and make appropriate arrangements with the Office of Accessibility Services. (https://accessibilityservices.wvu.edu/)
More information is available at the Division of Diversity, Equity, and Inclusion (https://diversity.wvu.edu/).