

Math 447/547 Linear Algebra II  
Mon-Tue-Thu 11:00 – 15:50 AM  
Classroom: Wissink Hall 286  
My Office: Wissink Hall 263

Professor: Dan Singer  
Webpage: <http://mavdisk.mnsu.edu/singed/>  
Email: dan.singer@mnsu.edu  
Office Hours: 12-1, 3-5 Mon-Tue-Thu-Fri

**Course Description:** An in-depth study of linear operators and their related spaces, dimension, rank, matrix representation of linear operators, special matrices, determinants, eigenvectors and eigenvalues.

**Prerequisite:** Math 345 with a grade of C or better

**Textbook:** *Linear Algebra Done Right*, 2<sup>nd</sup> Edition, Sheldon Axler, Springer

**Course Format:** We will study every chapter in the textbook except 4, 8, and 9. Students should read all the assigned chapters very carefully, making notes and asking questions as needed. I will discuss some of the omitted topics in lectures. In the last two weeks of the course, as time permits, I will present applications of linear algebra to graph theory.

I will work out many of the exercises in class. Students can use these worked-out exercises as a model for how to write up their homework solutions. Students are asked to write up their homework solutions carefully; the more thorough and precise you are in writing up solutions, the better you will understand the material. Typed solutions are always appreciated.

Grades will be based on weekly homework and four take-home exams. See the Grade Calculation and Grade Policy below for more information.

**Attendance Policy:** I don't award points for attendance, but my exams are based on the assumption that students have attended 100% of all classes, have taken careful notes, have done all the homework, and have asked for help as needed.

**Conduct:** Please arrive on time and don't interrupt the class with conversation or electronic devices. Your respectful conduct will be appreciated!

**Academic Integrity:** You are welcome to consult the internet or other textbooks for background material, but you must never copy a solution from these sources and claim it as your own.

**Grade Calculation:** Exam scores are averaged and are worth a total of 40% of your grade. Homework scores are averaged and are worth a total of 60% of your grade. Each assignment receives points on a 0 — 100 scale. I award grades on a straight scale: 90-100% is an A, 80-89% is a B, etc.

**Grade Policy:** Your grade is based on your performance during the 16 weeks of the semester in accordance with the grade calculation above. I will not change any grades after they have been submitted to the Registrar, and I will not consent to extra-credit opportunities designed for the express purpose of raising the grade of one individual. All discussions with me regarding your grade should be limited to how you can study adequately and what scores I have currently

recorded for you in my records. Consult the handout “Five Tips for Effective Studying in Mathematics Courses” at the beginning of the semester for advice on studying.

**Lecture Schedule:**

**Exam Schedule:**

Week 1: Vector Spaces (Chapter 1)

Weeks 2 and 3: Finite-Dimensional Vector Spaces (Chapter 2)

Exam 1 distributed

Weeks 4 and 5: Linear Maps (Chapter 3)

Exam 1 due

Weeks 6 and 7: Eigenvalues and Eigenvectors (Chapter 5)

Exam 2 distributed

Weeks 8 and 9: Inner-Product Spaces (Chapter 6)

Exam 2 due

Weeks 10 and 11: Operators on Inner-Product Spaces (Chapter 7)

Exam 3 distributed

Weeks 12 and 13: Trace and Determinant (Chapter 10)

Exam 3 due

Weeks 14 and 15: Applications to Graph Theory

Exam 4 distributed

Finals Week:

Exam 4 due