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Goals: This is an introduction to matrix algebra and Linear Algebra. Linear Algebra is of fundamental importance in mathematics; it appears in every subject area and has wide-ranging applications outside of mathematics from business to quantum physics.

1. Students will become familiar with the concepts, methods, and terminology of Linear Algebra. Specifically, students will understand the following: (abstract) vector spaces and subspaces, linear independence and span of a set of vectors, basis and dimension, linear transformations and their matrix representations, eigenvalues and eigenvectors, and all of the tools needed to adequately discuss these topics and apply them to understand the PageRank algorithm.

2. Students will learn how Linear Algebra can be applied to other branches of mathematics.

3. Students will learn how Linear Algebra can be applied outside of mathematics.

4. Students will become familiar with Matlab for computing with matrices.

Assessment: Your grade will be computed as follows:

- WeBWorK: 20%
- Midterm Exams: 3 @ 20% each
- Final Exam: 20%

 Homework: I will assign homework nearly every class meeting. Answers and solutions for almost all problems appear in the back of the book, so I will not collect these; they are just for your practice. I encourage you to work together on the homework. Also, you are certainly welcome to do more problems than I assign!

- WeBWorK: Each section will have associated WeBWorK, collectively worth 20% of your grade. This is in addition to the homework mentioned above. As we learn Matlab, there may also be Matlab assignments that fall into this portion of the grade.

- Exams: There will be 3 midterm exams and a comprehensive final exam. Each exam will be worth 20% of your grade. Tentative dates are below.

  - Exam I: Wednesday, February 10
  - Exam II: Friday, March 4
  - Exam III: Wednesday, April 6

The final will be from 8:00-11:00 AM on Friday, May 6.

General Info: Please take advantage of my office hours. I can’t help you if you won’t come see me! The times above are times I will be in my office (or nearby), but you may stop by any time during the day. If I am there and have the time, I will help you. Also: Red Vines.

Final Thoughts: If you have any intention of continuing with mathematics, learn Linear Algebra as thoroughly as you can. Every math course you take will use ideas from Linear Algebra, so a solid grasp of it will be not only useful, but essential.