Linear Algebra

MATH 225W – Spring 2016

Instructor: Joshua Wiscons
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Office Hours 2:30PM–4:30PM MW, 2:30PM–4:00PM F.
The QSR center (CJ 303) also provides many hours of free drop-in tutoring.

Book: *Elementary Linear Algebra*, Ninth Edition; by Bernard Kolman and David Hill.

Course Webpage http://people.hamilton.edu/jwiscons/teaching/math224W_s16.html

Course Overview: This course provides an introduction to matrices and determinants, vector spaces, linear transformations, linear systems, and eigenvalues with mathematical and physical applications.

Typical Day A typical class meeting will consist of a period of groupwork, discussion, and student presentations followed by a mini-lecture from me.

Course Components

Homework. Homework will be due each Thursday at 11:00PM in the relevant folder outside of my office door. You are *allowed and encouraged* to work together on homework, but you are expected to **write up your solutions on your own**. Solutions must be written clearly, must include all supporting work, and must be professional in appearance.

- (Clarity) I will insist that the grader take off points if the work is not **easy** to follow, even if the solution is correct.
- (Supporting work) I will insist that the grader take off points if the work is not sufficiently justified.
- (Professionalism) I will insist that the grader take off points if the work is not professional in appearance. In particular, do not turn in work on paper torn out of a spiral notebook or work with parts scribbled out. Origami staples are usually frowned upon as well.

Writing assignments. These assignments (usually proofs) will be due each Monday at 11:00PM in the relevant folder outside of my office door. The writing assignments must be typed up using LaTeX. Becoming proficient with LaTeX is one of the aims of the course, and we will devote time, in and out of class, to learning this mark-up language. Again, solutions must be written clearly, must include all supporting work, and must be professional in appearance.

- (Clarity and style) I will take off points if the work is not **easy and enjoyable** to read, even if the solution is correct. This is a WI course after all!
- (Supporting work) I will certainly take off points if the work is not sufficiently justified; it's not a proof if you don't prove everything.
- (Professionalism) For the most part, LaTeX will take care of this for you.

Discussion. Learning to discuss mathematics will be a highly valued part of this course. This component will evaluate your progress in areas such as ability to present a solution (with clarity and thoughtfulness), ability to share and shed light on your difficulties and failures, and ability to listen critically and respond accordingly, e.g. catching errors and asking follow-up questions.

Exams: There are 2 midterm exams scheduled for the following evenings:

Exam 1	Tuesday, March 1, 6:00–8:30PM
Exam 2	Tuesday, April 19, 6:00–8:30PM

Grade Composition

Homework	15%
Writing assignments	20%
Discussion	15%
Midterm exams	15% $\times$ 2
Final	20%

Writing Intensive This is a writing intensive course. Mathematics is deeply concerned with solving old problems, stating new ones, generalizing and abstracting existing theories, and uncovering new connections, but the end product is always a precise, concise, and thorough article. An "advance" in mathematics is nothing until others believe and understand it. One major goal of this course is to improve the students' ability to write logically precise, well-structured, and well-justified mathematics. Supplementing this goal, the course aims to build proficiently in typesetting mathematics with LaTeX.

You will have writing assignments due each week, and at least one third of each assignment's grade will be based on clarity and style. We will discuss these issues both in and outside of the classroom, and you are strongly encouraged to solicit feedback from me on your rough drafts. Revisions to your final drafts will be by invitation only.

Getting Help Mathematics is hard. Try hard. But don't be surprised if that is not always enough. Talk with your classmates. Talk with the QSR tutors. Talk with me. But please try to avoid asking "how do I start." Instead, try to rewrite the problem in a way that is more meaningful to you and then ask, "does my interpretation of the question seem correct." Very often, the act of "simply" reformulating a problem will lead to insight about its answer.

Disabilities Any student with a documented disability needing academic adjustments or accommodations speak with me during the first two weeks of class. All discussions will remain confidential. Students with disabilities should also contact Allen Harrison in the Dean of Students Office (Elihu Root House; 315.859.4021) who coordinates resources and services for students with disabilities.