

Math 314 (814) Matrix Theory Section 005

Lecture: TuTh 11:00-12:15 Avery Hall (AvH) 19

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WWW pages for this class: <http://www.math.unl.edu/~mbrittenham2/classwk/314s08/>

(There you will find copies of nearly every handout from class, lists of homework problems assigned, dates for exams, etc.)

Office Hours: (tentatively) Tu 9:30 - 10:30, We 11:00-12:00, and Th 2:30 - 3:30, and whenever you can find me in my office and I'm not horrendously busy. You are also welcome to make an appointment for any other time; this is easiest to arrange just before or after class.

Text: *Linear Algebra: a Modern Introduction*, by David Poole (2nd edition, Brooks/Cole).

This course, as the text and course titles are meant to imply, is intended to illustrate the theory, techniques, and applications of linear algebra (i.e., solutions to linear equations) through the use of matrices (whatever they are). Our basic goal will be to work through most of each chapter of the book:

- Ch. 1, Vectors
- Ch. 2, Systems of Linear Equations
- Ch. 3, Matrices
- Ch. 4, Eigenvalues and eigenvectors
- Ch. 5, Orthogonality
- Ch. 6, Vector Spaces
- Ch. 7, Distance and Approximation

Homework will be assigned from each section, as we finish it. It is an essential ingredient to the course - as with almost all of mathematics, we learn best by doing (again and again and ...). Cooperation with other students on these assignments is acceptable, and even encouraged. However, you should make sure you are understanding the process of finding the solution, on your own - after all, you get to bring only one brain to exams (and it can't be someone else's). For the same reason, I also recommend that you try working each problem on your own, first. Homework will not be collected, and therefore, not graded (the solution to every odd-numbered problem may be found at the end of the book); but it is probably the most important ingredient toward making sure that you are understanding the material.

In addition, we will have a significantly larger assignment. This **project** will probably be assigned near the end of February, and be due several weeks later. You may choose to work on the project in groups of up to three, with one write-up turned in for the group, or you may choose to work on it individually. It will require the use of a computer algebra system for its solution. The Math Department Computer Lab (Avery 18) is available for this purpose, for all students enrolled in the course. To obtain a computer account, students must attend a lab orientation session. The schedule for orientation sessions will be announced in class near the beginning of the semester.

The project will count 10% towards your final grade.

Quizzes will be given each Thursday, during weeks that do not also contain an exam (in *our* class...) or the first day of classes. Each will typically consist of one question (modelled on a homework problem) from the material covered through the previous Tuesday. Your lowest two quiz grades will be dropped before computing your final quiz average, which will constitute 20 % of your grade. A missed quiz will count as zero (and will therefore be the first grade dropped); a make-up quiz can be arranged only under the most unusual of circumstances.

Midterm exams will be given two times during the semester, **in the evening, outside of normal class time**, approximately every six weeks - the specific dates will be announced in class well in advance (likely candidates: late February, early April). Each exam will count 20% toward your grade. You can take a make-up exam only if there are compelling reasons (a doctor SAYS you were sick, jury duty, etc.) for you to miss an exam. Make-up exams tend to be harder than the originals (because make-up exams are harder to write!).

Finally, there will be a regularly scheduled **final exam** on Tuesday, May 6, from 3:30pm to 5:30pm. It will cover the entire course, with a slight emphasis on material covered after the last midterm exam. It will count the remaining 30% toward your grade. You must arrange your personal and work schedules to allow you to take the exam at this scheduled time.

Your course grade will be calculated numerically using the above scales, and will be converted to a letter grade based partly on the overall average of the class. However, a score of 90% or better will guarantee some kind of **A**, 80% or better at least some sort of **B**, 70% or better at least a flavor of **C**, and 60% or better at least a **D**.

In mathematics, new concepts continually rely upon the mastery of old ones; it is therefore essential that you thoroughly understand each new topic before moving on. Our classes are an important opportunity for you to ask questions; to make sure that you are understanding concepts correctly. Speak up! It's your education at stake. Make every effort to resist the temptation to put off work, and to fall behind. Every topic has to be gotten through, not around. And it's a lot easier to read 50 pages in a week than it is in a day. Try to do some mathematics every single day. **Class attendance** and **doing the homework** are your best methods for insuring that you will keep up with the material, and to make sure that you understand all of the concepts.

Departmental Grading Appeals Policy: The Department of Mathematics does not tolerate discrimination or harassment on the basis of race, gender, religion, or sexual orientation. If you believe you have been subject to such discrimination or harassment, in this or any other math course, please contact the department. If, for this or any other reason, you believe your grade was assigned incorrectly or capriciously, then appeals may be made (in order) to the instructor, the department chair, the department grading appeals committee, the college grading appeals committee, and the university grading appeals committee.

Some important academic dates

Jan. 14 First day of classes.

Jan. 21 Martin Luther King Day - no classes.

Jan. 25 Last day to withdraw from a course without a 'W'.

Mar. 7 Last day to change to or from P/NP.

Mar. 16-23 Spring break - no classes.

Apr. 11 Last day to withdraw from a course.

May 3 Last day of classes.