Math 314 (814) Matrix Theory
Section 002

Lecture: TuTh 11:00-12:15 Oldfather Hall (OldH) 304

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WWW pages for this class: http://www.math.unl.edu/~mbritten/classwk/314s2k/

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

Office Hours: (tentatively) Mo 1:30-2:30, Tu 2:00 - 3:00, We 10:00-11:00, and Th 9:30-10:30, and whenever you can find me in my office and I'm not horrendously busy. You are also quite welcome to make an appointment for any other time; this is easiest to arrange just before or after class.

Text: *Applied Linear Algebra and Matrix analysis*, by Thomas Shores (revised 2nd edition, McGraw-Hill).

As it happens, our textbook is available online, at
http://www.math.unl.edu/~tshores/linalgtext.html
The pages are delivered as individual gif files, though, which can take a looong time to load, so I do not recommend these pages as a substitute for purchasing the book!

This course, as the name is 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 the first five chapters of the book:

Ch. 1, Linear Systems of Equations
Ch. 2, Matrix Algebra
Ch. 3, Vector Spaces
Ch. 4, The Eigenvalue Problem
Ch, 5, Geometrical Aspects of Vectors

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 must write up solutions 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. Some fraction of the problems will be designated to be turned in, and graded; these will be due the Thursday after the day in which they were assigned. The homework grades will count 20% toward your grade. Late homework may be marked as turned in but not graded.

None of the homework problems will require the use of a calculator or computer algebra system (CAS) for their solution. However, in order to give you some experience with 'large scale' scientific computation, a few times during the semester (current best guess: twice) you will be assigned a larger problem whose solution will involve using a CAS like MapleV. For this purpose, you will be given an account in the Math Lab to carry out this work. Those of you unfamiliar with the computing resources in the lab (e.g., MapleV!) are strongly encouraged to sign up for one of the orientations which will be given in the first two weeks of the semester. You can sign up for a session on the door of the Math Lab. These larger assignments will count 10% toward your grade.

Midterm exams will be given three times during the semester, approximately every four weeks - the specific dates will be announced in class well in advance (likely candidates: early February, end of March, mid-April). Each exam will count 15% 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 Thursday, May 4, from 10:00am to 12:00 noon. It will cover the entire course, with a slight emphasis on material covered after the last midterm exam. It will count the remaining 25% toward your grade.

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 alot easier to read 50 pages in a week than it is in a day. Try to do some mathematics every single day. (I do.) **Class attendance** is probably your best way to insure that you will keep up with the material, and make sure that you understand all of the concepts. I will not be taking attendance; I expect that you will simply see the wisdom of attending class, for yourselves.

Departmental Grading Appeals Policy: Students who believe their academic evaluation has been perjudiced or capricious have recourse for appeals to (in order) the instructor, the departmental chair, the departmental appeals committee, and the college appeals committee.

Some important academic dates

Jan. 10 First day of classes.
Jan. 17 Martin Luther King Day - no classes.
Jan. 21 Last day to withdraw from a course without receiving a **'W'**.
Mar. 3 Last day to change to or from P/NP.
Mar. 12-19 Spring break - no classes.
Apr. 7 Last day to withdraw from a course.
Apr. 29 Last day of classes.