

Spring '12

Math 695

Syllabus

INSTRUCTOR

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COURSE

name: **Advanced Matrix Theory (Section 1-Code 10002)**
meeting time: **MW at 11:00-12:15 p.m.**
meeting place: **LA5-151**
text: **Notes**
materials: **A reasonable calculator or computer**
prerequisites: **MATH 247 and 444.** One needs to know what a field is, and the basic properties of matrices. Although the course will assume nothing on matrices, it will go very fast covering the basic facts.
description: The course is an advanced course in matrices. I believe that matrices are underappreciated (just as arithmetic is). I believe that actually their applications to all branches of mathematics are just beginning to occur. Naturally, I will not be around when I am proven right (or wrong), but if Kronecker claimed
God made the integers; all else is the work of man,
one could claim that
God made integer matrices; all else is the work of man.
We will hopefully have time to see some deeper applications of matrices to number theory, combinatorics and algebra.
tentative syllabus: We will cover the notes—see table of contents.
bibliography: Strang is a favorite author, and the book by Horn & Johnson is in many ways parallel to our covering, but not as algebraic.
goals & objectives: One definite objective goal is to improve your ability to conduct some level of mathematical research, and that will be part of the assessment in the course (see below).

ADMINISTRATIVE

timeliness	Everything should be on time when assigned unless compelling reasons exist.
make-up policies:	A make-up exam will be considered when you inform me ahead of time and have a reasonable excuse, or other very special circumstances.
last day to drop:	Friday, April 20th, 2012 is the last day to drop the course without the Dean's signature. If you intend to drop, please secure my signature in plenty of time.
Disability	Please inform me as soon as possible, but certainly within two weeks from the start of the course, of any assistance you may need to deal with any university-verified disability/special need.

ASSESSMENT There will be the following methods of assessment:

Tests	Midterm Exam	Monday March 19	20%
	Final Exam	Monday, May 14 10:15-12:15	20%
The tests will be based on your homework.			
Homework	Every week, homework will be posted on the web with its due date. Homework should not be late. It will be picked up at the beginning of the class. Team work for the homework is acceptable (if not preferred). Usually, as in most of the courses I teach, a student who has done her/his homework performs adequately in the exams.		20%
Research Project	You will be asked to individually investigate a subject related to the course—and approved by me. Due May 9. More details will be given in class.		20%
Class Participation	Class participation is mainly based on your contributions to the class environment, as measured by me. The final grades will be assigned (approximately) traditionally.		20%