Fall '11 Math 233 Syllabus

INSTRUCTOR

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COURSE

name:	**Discrete Mathematics** (Section 1-Code 10955)
meeting time:	**MW at 12:30-1:45 p.m.**
meeting place:	**LA5-243**
text:	**Notes**
materials:	**A reasonable calculator**
prerequisites:	A grade of **C** or better in **MATH 123**, although mathematical maturity will be very welcome, and actually more important.
description:	The course is an introduction to discrete mathematical thought. The real (and intellectual) struggle between the discrete and the continuous is ancient—and it often occurs in mathematical modes of thinking. So far, you have been mainly exposed to continuous tools such as the powerful calculus. What has happened lately, and one of the reasons you are taking this course, is that computers think discretely. But often we encounter the need to think discreetly rather than continuously—a simple example is as follows: suppose I have a car that I intend to keep for another 25,000 miles (roughly two years) and I have a set of tires that I have had for 3 years (my car has presently 39,000 miles). I hear there is a sale of tires going on and I rush to buy some without looking at my tires. Why? My continuous self encourages me to look at my tires and to try to stretch their use to a maximum while my discrete self tells me that the present set of tires, which was guaranteed for 35,000, will not last until I get rid of my car, so the question is not whether I will buy a new set but when. I listened to my discrete self in this occasion. Some of the notions we will discuss in the course will be familiar to you, some will be new. But remember, minimize memory, maximize thought. This will be valid throughout the course.
tentative syllabus:	Language and Its Logic, Induction & Recursion, Art of Counting Sets, Probability, Functions, Buckets & Balls, The Arithmetic of Clocks, Relations, Digraphs & Orders

bibliography:	There are many more books on this subject, usually called **Introductory Combinatorics** or **Discrete Mathematics** or something like that. Among my favorite authors are Brualdi, Stanton & White, Graham, Knuth & Patashnik. Feel free to ask me for some references.		
goals & objectives:	There are two main components to your growth in the course: one is that you are expected to improve in your mathematical reading, writing and rigor while, at the same time, your ability to mathematical problem solve should also increase. Naturally, these two components are intricately connected, and all assessment will not be strictly for the one or the other—yet some of them are designed to address more directly one aspect of growth.		
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, November 18th, 2011** 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. Additionally, since this course has high enrollment, and some students have not been able to register, if you do not make a serious effort to succeed in the course, you will not be allowed to drop.		
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	First Midterm Exam	Monday October 3	**20%**
	Second Midterm Exam	Monday November 7	**22%**
	Final Exam	Wednesday, December 14 12:30-2:30	**28%**
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. Homework Dates: 9/7, 9/12, 9/19, 9/26, 10/10, 10/17, 10/24, 10/31, 11/14, 11/21, 11/28, 12/5		**10%**
Research Project	You will be a member of a team (of 2-4 students) and will choose to do research on a topic approved by me. Due December 5		**10%**
Proof Notebook	You will be given a proof a week in the homework. A notebook containing all 12 proofs will be handed in by on December 7		**5%**
Class Participation	Class participation is mainly based on your contributions to the class environment, as measured by me.		**5%**
	The final grades will be assigned (approximately) traditionally.		