Discrete Mathematics - Math 55 - Spring 2004- T Th 2:00-3:30 in 100 Lewis
Professor: Jim Demmel, 737 Soda Hall, 643-5386, demmel@cs.berkeley.edu
Office Hours: T W 10-11, Th 11-12
Class Homepage: `http://www.cs.berkeley.edu/~demmel/ma55`, for announcements (like this), lecture notes, etc.
TAs: Mike West (Head TA), Enrollment issues (no teaching), west@math
Jeremy Sain, Sections 101 and 103, jsain@math
Ari Nieh, Sections 102 and 104, ari@math
Scott Carnahan, Sections 105 and 106, carnahan@math
The TAs will announce their office hours during section. We will also post them on the webpage.
Enrollment: The Head TA is in charge of admitting students on the waiting list. Address all questions to him.
Text: *Discrete Mathematics and its Applications*, 5th edition, Kenneth Rosen, available in local bookstores.
There is an extensive website for the textbook to which we will refer (see the class website for a pointer).
We may supplement the material on probability with notes handed out later in the semester.
Prerequisites: Sophomore level mathematical maturity. This does not mean any specific classes like Math 53, but rather a familiarity with basic mathematical examples and ideas, and a willingness to think about hard problems.
Syllabus: You will learn the basic tools to describe and analyze finite sets of objects. You will also learn how to construct mathematical proofs. These are essential tools for later mathematics and computer science courses. The topics we will cover are

- Logic, set theory, functions - Chapter 1
- Integer algorithms - Chapter 2
- Mathematical proofs, induction - Chapter 3
- Probability theory and combinatorics - Chapters 4, 5 + additional notes

If time permits, we will also discuss properties of relations, graphs and trees, and applications to analysis of algorithms.
Final Exam: The final is Friday, May 14, 12:30-3:30pm, and will cover material from the entire semester. A makeup final will *only* be given for (1) unexpected circumstances beyond your control, documented by a signed note from a physician or equivalent, (2) conflict with another scheduled exam, or (3) a religious holiday. You are required to a bring a student photo ID and blue-covered exam book to the exams.
Midterms: The first midterm will be Tuesday February 17, and cover Chapter 1 and as much of Chapter 2 as we cover by then (details later). The second midterm will be Tuesday April 6, and cover everything since the first midterm. There will be no makeup midterms; instead your other exams grades will be used as described below under Grading. You are required to a bring a student photo ID and blue-covered exam book to the exams.
Quizzes: The weekly quizzes, given during Wednesday section, will be short and intended to make sure you keep up with the reading. There will be no makeup quizzes; instead, the lowest 3 grades will be dropped.
Homework: Homework is due at the beginning of the (Wednesday) section for which it is assigned. A few problems on each weekly homework assignment will be chosen at random to be graded by the readers. You are encouraged to work in groups in homework, but you must each turn in your own work. No late homework will be accepted, since answers will be available at Copy Central (Northside) and on the web page the day after they are due. The lowest 3 homework grades will be dropped. The material in this class can only be learned by doing lots of problems, so the homework is very important.

> A tourist stops someone on the street in New York City and asks how to get to Carnegie Hall. The response is "Practice! Practice! Practice!"

Grading: Grading will be 40% final, 20% each for two in-class midterms, 10% weekly quizzes during section, and 10% weekly homework. Each midterm grade will be taken to be the maximum of the actual midterm grade and the final grade. This means that a missing midterm grade will be replaced by the final grade. In other words, the grade will be calculated by the formula

$$Grade = .4 * Final + .2 * \max(Midterm1, Final) + .2 * \max(Midterm2, Final) + .1 * Quizzes + .1 * Homework$$

where all scores are between 0 and 100.