CS 202, Discrete Math
Spring 2007

Mondays and Wednesdays 1:00-1:50
Recitation on Fridays at 11:00 or 1:00

Instructor: Aaron Bloomfield. Office: Olsson Hall, room 228D (asb@cs.virginia.edu).

Course web page: http://www.cs.virginia.edu/~cs202/

Introduction: This class will probably be different than any other math class you have taken. You are invited (encouraged, even) to work together on the homeworks. The homeworks count for very little of the grade, but are one of the primary means for learning the material.

Course objectives:
1. Logic: Introduce a formal system (propositional and predicate logic) which mathematical reasoning is based on.
2. Proofs: Develop an understanding of how to read and construct valid mathematical arguments (proofs) and understand mathematical statements (theorems), including inductive proofs. Also, introduce and work with various problem solving strategies and techniques.
3. Counting: Introduce the basics of integer theory, combinatorics, and counting principles, including a brief introduction to discrete probability.
4. Structures: Introduce and work with important discrete data structures such as sets, relations, sequences, and discrete functions.
5. Applications: Gain an understanding of some application areas of the material covered in the course.

Office hours: M/W 4:00-5:30, or by appointment. TA office hours will be posted on the website.

Pre-requisites: C- or higher in CS 101

Textbook: Susanna Epp, Discrete Mathematics with Applications, 3rd edition. ISBN 0534359450. We will be covering the chapters 1-6 and 10 for certain, and additional chapters as time allows. See the book's website at http://condor.depaul.edu/~sepp/DMwA3e.htm, which has an errata listing. There is also a student solution manual (ISBN 0124211828), which is neither required nor recommended for this course -- none of the homework problems will be assigned from the student solution manual.

Philosophy: I believe this course should be hard but fair. The test questions will be very difficult. If for any reason you feel the course is not being fair (too much work, too much expected of the students, to harsh grading, etc.), let me know and I will do my best to correct it. I believe in being available for the students so they can learn the material. My preference is for students to come to office hours, but if you cannot make those, I will make sure to find the time (with sufficient notice,
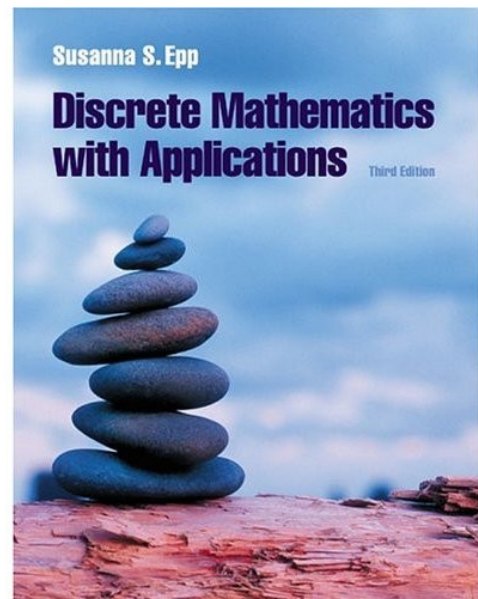
of course) to meet outside my office hours.

Grades: Grades will be calculated by the following formula: both midterms are 25% each, the final is 25%, the homeworks are 20%, and class participation is 5%. The grades will follow a standard 10-point curve: 90 and above is some sort of A (A-, A, or A+), 80 and above is some sort of B, etc. If the average scores on a test are very low, the exam will be curved, but in general I do not expect that to be the case. I reserve the right to modify this formula as the course progresses – this will be announced in lecture, should it happen.

Homeworks: There will be two homeworks due each week. The problems due will be posted well ahead of time, so that people can do them whenever best fits their schedule. Each homework will generally consist of four or so problems from either the textbook or questions posted on the website. Thus, there may be multiple homeworks assigned at any one time, although only one will be due on any given class date. You are invited to work together on the homeworks, although each student must submit their own copy. However, copying the homeworks will keep you from learning the material for the exams, and the exams are worth a total of 75% of your grade. Of the homework questions given, some (but not necessarily all!) will be graded for the grade for that homework. As you are allowed to work with each other on the homeworks, they will not be pledged. Homeworks are due at the BEGINNING of class. This means that by 5 minutes after the lecture starts, if your homework is not in, it is late. If you cannot make class, you can turn it in to me before hand, or to the CS secretary (Brenda Perkins in Olsson 204). Any homework handed in after class starts (or slipped under my office door during class) will receive 25% off. Any homework turned in the following day will receive 50% off; no homeworks will be accepted more than one day late.

Exams: There will be a total of three exams. All exams will be pledged. The two midterms will be during class on 21 February and 4 April. The final exam is on Friday, 4 May from 9:00 a.m. to 12:00 noon. The exams will focus on the most recent material taught, but will include all the material covered so far in class. The Engineering School Dean has very explicit rules about missing or rescheduling exams – this class will abide by those rules. If you are going to miss an exam, make every effort to notify me before the exam. Note that the intention is to have the first exam returned before the SEAS drop date of 28 February.

Class participation: 5% of your course grade will be dependent on class participation. This part of the grade will be based – in part – on attendance taken on arbitrary days (in particular, if very few people show up, it'll be an attendance day). Although students traditionally hate attendance policies, I have found that students who show up to lecture learn the material much better than students who do not – and as the purpose of this class is to teach the material, I have decided on having an attendance policy. There will be cold calls during the semester (meaning I am going to pick a random name and ask them what they think about a given problem, concept, etc.). Thus, you should be prepared for the lecture. I hope to cold call everybody at least once. However, note that some people may be called more than once (thus, if you are cold called during the first week, you still may be cold called later on).

Miscellaneous: There are a number of ways to learn the course material. In previous semesters, the students found (in no particular order) the homeworks, slides on the website, lecture, and office hours to be the most helpful to learn the material. Other means included the textbook, homework solutions, fellow students, and review sessions. Find what works best for you and use it.

Honor Policy: The standard UVa honor policy is in effect for this class for the exams, which will be pledged. As mentioned above, you are allowed to work together on the homeworks, and thus they will not be pledged.