INTRODUCTION TO DISCRETE MATHEMATEICS
22m:90, Fall 1998

Instructor: Fred Goodman
Office: 325G McLean Hall
Phone: 335-0791
Office Hours: To be arranged.

**Course goals**:

Knowledge of enumerative methods and development of skills in problem solving, mathematical writing, and mathematical discussion.

**Textbook**:

R. Brualdi, Introductory Combinatorics, 3rd edition, Prentice Hall.

**Course plan**:

We will cover chapters 1-8 and 13 of the text, possibly with some supplementary material provided in lecture. There will be a great deal of emphasis on problem solving, and we will spend a lot of class time discussing exercises.

One rather nice feature of this material is that the theory does not go so very deep and does not entail long and complicated chains of reasoning. The statement of problems are usually easy to understand, but can the problems can require a great deal of ingenuity and persistence to solve. The material is accessible to investigation by experiments and examples. So the material is rather ideal for learning about mathematics as practiced by mathematicians – which is not a system of rules to be followed but a field of questions to be explored.

**Homework**:

There will be about homework assignments which may require *lots* of time. You may collaborate on homework (discussing mathematics with your peers is an important skill), but you must write your own solutions. In general your homework solutions should be literate; the point is to explain your method, not just to obtain an answer. A good criterion for an adequate explanation is the following: a person who knows about as much as you do, but who has not thought about the problem should be able to understand the solution by looking at your paper. That is, the person should be able to understand, without looking elsewhere, what is the problem, what is the idea behind your approach, and what are the details of your solution.

**Exams and grading**:

There will be one or two midterm exams on dates to be arranged. There will be a comprehensive final exam.

Grades will take into account both homework and exams. I will weigh most heavily what you do best, but the homework will recieve substantial weight.

**Other resources:**

We may find some opportunity to do computer exercises or experiments, for example using MATHEMATICA. It will be possible to do this work on the department unix system, or on Macs or PC's.

Course information will be regularly posted on my web page at
**www.math.uiowa.edu/~goodman**.

**Attendance and absences:**

Regular attendance will be expected. However, if you must miss class, you will still be responsible for the material discussed in class. You are responsible for announcements made in class, which may concern changes in the assignments, syllabus, exams, etc. Absence from exams will require a compelling reason, and must be arranged in advance.

**Complaint procedure:**

I hope and expect that you will have a good time, work a lot and learn a lot in this course. However, if you have concerns or complaints about any aspect of the course, you are welcome to discuss these with me. If you feel that you have not received satisfaction from me, you may contact the Chair of the Department of Mathematics. If the matter is still not resolved at that level, you may pursue complaint procedures at the Collegiate level.

**Accomodations for students with special needs.**

Students with disabilities are entitled to special arrangements. There is a procedure for arranging such accomodations which involves the ofice of Student Disability Services. Please contact me if you would like to take advantage of such arrangements.