Syllabus for Topics in Discrete Mathematics
Summer 2009

Course: MA 502-021 — Topics in Discrete Mathematics

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Prerequisites: Some elementary calculus will be helpful at times.

Text: Jiří Matoušek and Jaroslav Nešetřil, *Invitation to Discrete Mathematics*, second edition, Oxford, 2009.

Grading: Your grade will be determined by your achievements on a set of classroom activities and homework assignments.

There will be a variety of assignments: some may be short answers to questions, others may be longer solutions to more difficult problems, others may be in the form of quizzes or exams, still others may be reflections on a larger body or sequence of material. Nearly all will be intertwined with the classroom activities. It will be necessary for students to maintain a comprehensive notebook of course notes and assignments. I suggest a loose-leaf notebook into which material can be easily extracted and inserted.

Working Together: It is ok to work together on homework. However, when it comes time for you to write up the solutions, I expect you to do this on your own, and it would be best for your own understanding if you put aside your notes from the discussions with your classmates and wrote up the solutions entirely from scratch. Tests and quizzes will also be done individually.

Course Content

The specific topics I plan to address are:

1. Basic Concepts

2. Orderings

3. Combinatorial Counting

4. Graphs

5. Trees

6. Generating Functions

7. Other topics as time permits

I will not necessarily treat these in the above order, and I will also draw in material that is not in the book.