

MAD 2104 – DISCRETE MATHEMATICS SYLLABUS

Fall 2016

Text: Discrete Mathematics and its Applications by Kenneth H. Rosen, (Mc-Graw-Hill), ISBN 978-0-07-338309-5, Seventh Edition

The primary goal of this course is to cover the subject matter while teaching mathematical reasoning and problem solving. Mathematical proofs should be emphasized in class, in assignments and on exams. The dropout and failure rate is high, since many students are confronted with the need to do more than memorize or follow an algorithm for the first time.

There is a certain amount of flexibility in the subject matter to be covered. The following syllabus includes 30 required sections and 6 optional starred (*) sections. You may include as many of these sections as you feel is pedagogically feasible.

Since students need a great deal of feedback, I give three regular exams, and a weekly quiz in addition to the final examination. The following schedule allows time for several exams and some optional (*) sections.

1. Logic – 2-3 classes
1.1, 1.2, 1.3, 1.4
2. Sets – 2-3 classes
2.1, 2.2
3. Functions, Sequences, Cardinality – 3classes
2.3-2.5
4. Matrices - .5 class
2.6 (Addition and Multiplication Only)
5. Mathematical Reasoning – 3-4 classes
1.6,* 1.7* (Methods of Proving Theorems), 5.1- 5.3(Induction, Strong Induction (include one or two examples), Recursive Definitions (including recursive definitions of sets) and Structural Induction (include one or two examples)
6. Counting – 2-3 classes
6.1-6.4
7. Relations – 2-3 classes
9.1,9.3,9.5 (Representing relations using digraphs – may include with Chapter 10)

8. Graphs – 3 classes
10.1-10.4, 10.5*, 10.7*, 10.8*
9. Trees – 1-2 classes
11.1, 11.2*, 11.3
10. Boolean Algebra – 2 classes
12.1-12.4 (Quine – McCluskey method optional)

I have supplementary problems available for various topics. Please feel free to ask for them as well as old exams.

New Syllabus
Fall 2016
Dr. Susan Gorman