

## Mathematics 302, Section 503 – Fall 2010

This is a tentative syllabus as of 08/23/10. It is subject to change without notice.

**Text:** Kenneth H. Rosen, *Discrete Mathematics and Its Applications, 6th ed.*, McGraw-Hill Companies, Inc., ISBN 0073312711.

*Week 1: Aug. 30–Sep. 3*

3.1 Introduction to algorithms

3.2 the growth of functions

*Week 2: Sep. 6–10*

1.1 logic

1.2 propositional equivalence

*Week 3: Sep. 13–17*

1.3 predicates and quantifiers

1.4 nested quantifiers

*Week 4: Sep. 21–25*

1.5 methods of proof

1.6. introduction to proofs

1.7. proof methods and strategy (Optional)

*Week 5: Sep. 27– Oct.1*

2.1 sets

2.2 set operations

2.3 Functions

*Week 6: Oct. 4–8*

2.3 composition and inverse

2.4 Sequences and Summations

4.1 mathematical induction

*Week 7: Oct. 11–15*

4.2 Strong induction and well-ordering

**Midterm Exam: October 15**

*Week 8: Oct. 18–22*

4.3 recursive definitions and structural induction

4.4 recursive algorithms

7.1. recurrence relations

*Week 9: Oct. 25–29*

7.3 divide and conquer algorithms

Masters theorem

5.1 basics of counting

5.2 the pigeonhole principle

*Week 10: Nov. 1–5*

5.3 permutations and combinations

5.4 binomial coefficients

*Week 11: Nov. 8–12*

5.5 generalized permutations and combinations

3.8 matrices

8.1 relations and their properties

*Week 12: Nov. 15–19*

8.3 representing relations

8.4 closure of relations

8.5 equivalence relations

*Week 13: Nov. 22–24*

Relations and Counting

Introduction to Chapter 12. Modeling computation

No class on Nov. 26: Thanksgiving holidays

*Week 14: Nov. 29–Dec. 3*

Introduction to Chapter 12. Modeling computation

Catch-up/review

**Final Test: December 3, Friday**