

Mathematics 302 – Spring 2013

This is a tentative syllabus as of 01/07/13. It is subject to change without notice.

Text: Kenneth H. Rosen, *Discrete Mathematics and Its Applications*, 7th ed., McGraw-Hill Companies, Inc., ISBN 978-0-07-338309-5 .

Week 1: Jan. 14–18

3.1 Introduction to algorithms

3.2 the growth of functions

Week 2: Jan. 22–25

Monday: holiday

1.1 logic

1.3 propositional equivalence

Week 3: Jan. 28–Feb. 1

1.4 predicates and quantifiers

1.5 nested quantifiers

Week 4: Feb. 4–8

1.6 rules of inference

1.7. introduction to proofs

1.8. proof methods and strategy (self study)

Week 5: Feb. 11–15

2.1 sets

2.2 set operations

2.3 functions, composition

Week 6: Feb. 18–22

2.3 functions, composition

2.3 inverse function

2.4 sequences and Summations

Week 7: Feb. 25–Mar. 1

2.5 cardinality of a set

5.1 Mathematical induction

Week 8: Mar. 5–9

5.2 Strong induction and well-ordering

March 6: Midterm Exam

No class on March 8.

Spring break: Mar 11–15.

Week 9: Mar 18–22

5.3 recursive definitions and sequences

8.1. recurrence relations

8.2 Solving recurrence relations

Week 10: Mar 25–29

8.2 Solving recurrence relations

8.3 divide and conquer algorithms, Masters theorem

Friday: reading day

Week 11: Apr. 1–5

6.1 basics of counting, inclusion-exclusion

6.3 permutations and combinations

Week 12: Apr. 8–12

6.5 generalized permutations and combinations (II)

6.4 binomial coefficients and identities

Week 13: Apr. 15–19

8.5 Inclusion-Exclusion

8.6 Application of Inclusion-Exclusion

2.6 matrices

Week 14: Apr. 22–26

9.1 relations and their properties

9.3 representing relations, counting relations

9.4 closure of relations

9.5 equivalence relations

Week 15: April 29–30

9.6 partial orderings

Catch up and review

Note: April 30 is a redefined FRIDAY.

Final exam:

Section 501: May 8, Wednesday, 10:30am–12:30pm.

Section 502: May 6, Monday, 10:30am–12:30pm