Mathematics 302 – Spring 2020

This is a tentative syllabus as of 01/05/20. It is subject to change without notice.


Week 1: Jan. 13–17
No class on Monday for Math 302-501
3.1 Introduction to algorithms: math ideas and approach
3.2 the growth of functions

Week 2: Jan. 20–24
Monday is a holiday
3.2 the growth of functions
Applications and proofs of big-Oh

Week 3: Jan. 27–31
1.1 logic
1.3 propositional equivalence
1.4 predicates and quantifiers

Week 4: Feb. 3–7
1.5 nested quantifiers
1.6 rules of inference

Week 5: Feb. 10–14
1.7. introduction to proofs
2.1 sets (notation)
2.2 set operations

Week 6: Feb. 17–21
2.3 functions,
composition and inverse
Feb 21: Midterm Exam: take-home closed book test

Week 7: Feb. 24–28
2.3 1-1 and onto functions
2.4 sequences and summations

Week 8: Mar. 2–6
5.1 Mathematical induction
5.2 Strong induction and well-ordering

Week 9: Mar. 16–20
5.3 recursive definitions and sequences
6.1 basics of counting,
6.3 permutations

Week 10: Mar. 23-27
6.3 combinations
6.5 generalized permutations and combinations

Week 11: Mar. 30–Apr. 3
6.4 binomial coefficients
6.4 binomial identities
The take-home Proof Test due on April 3

Week 12: Apr. 6–10
8.1. recurrence relations
8.2 Solving recurrence relations– homogeneous case
April 10 is a reading day.

Week 13: Apr. 13–17
8.2 Solving recurrence relations– non-homogeneous case
8.3 divide and conquer algorithms, Masters theorem
2.6 Matrices (self-reading).
9.1 relations and their properties

Week 14: Apr. 20–24
9.3 representing relations, counting relations
9.5 equivalence relations
9.6 partial orderings

Week 15: Apr. 27 –28
Review
Note: April 28 is a redefined FRIDAY.

Final exam:
Section 501: May 1, Friday, 8–10 am, Blocker 161