Mathematics 302, Sections 503 – Fall 2015

This is a tentative syllabus as of 08/27/15. It is subject to change without notice.


**Week 1: August 31– Sep.5**  
3.1 introduction to algorithms  
3.2 the growth of functions

**Week 2: Sep. 7–12**  
3.2 the growth of functions  
1.1 logic  
1.3 propositional equivalence

**Week 3: Sep. 14–19**  
1.4 predicates and quantifiers  
1.5 nested quantifiers

**Week 4: Sep. 21–26**  
1.6 rules of inference  
1.7 introduction to proofs  
2.1 sets

**Week 5: Sep. 28–Oct. 3**  
2.2 set operations  
2.3 functions,

**Week 6: Oct. 5–10**  
2.3 composition inverse function  
2.4 sequences and Summations  
2.5 (touch) cardinality  
Review for the test

**Week 7: Oct. 12–17**  
5.1 Begin induction  
**Midterm Test: Oct. 14**

**Week 8: Oct. 19–24**  
5.1 mathematical induction  
5.2 strong induction and well-ordering  
5.3 recursive definitions and sequences
Week 9: Oct. 26–31
8.1. recurrence relations
8.2 solving linear recurrence–homogeneous
8.2 solving linear recurrence (non-homogeneous)

Week 10: Nov. 2–7
Solving linear recurrence: higher order
8.3 divide and conquer algorithms, Masters theorem
6.1 basics of counting

Week 11: Nov. 9–14
6.3 permutations and combinations
6.5 generalized permutations and combinations
The take-home Proof Test is due

Week 12: Nov. 16–21
6.4 binomial coefficients and identities
8.5 inclusion-exclusion
8.6. Applications of Inclusion-Exclusion

Week 13: Nov. 23–26
Problem session
2.6 Matrices (reading) for Nov. 25.
No class on Thanksgiving Holiday (Nov. 27)

Week 14: Nov. 30– Dec. 5
9.1 relations and their properties
9.3 representing relations, counting relations
9.4 closure of relations
9.5 equivalence relations
9.6 partial orderings

Week 15: Dec. 7–8
Last class: Dec. 7 Catch-up/review

Final Test: December 14, Monday, 10:30–11:30 for Section 503.