

APPROXIMATE TOPIC PACING

MATH 61, DISCRETE MATHEMATICS, SPRING 2017

- (1) Mon Jan 23 Introduction and overview. (Ch 1) Manipulating sets.
- (2) Wed Jan 25 (Ch 1) Logic and quantification.
- (3) Mon Jan 30 (Ch 1→2) Implications. Proof techniques.
- (4) Wed Feb 1 (Ch 2) Induction.
- (5) Mon Feb 6 (Ch 2) Pigeonhole principle. More classic proofs.
- (6) Wed Feb 8 (Ch 4) Binomial coefficients.
- (7) Mon Feb 13 (Ch 4) Decision trees, rearrangement, probability.
- (8) Wed Feb 15 (Ch 4) Stars and bars.
- (9) Wed Feb 22 (Ch 1-4) Overview: sets, proofs, and counting.

Wed Feb 22 *Midterm 1 (open block)*

- (10) **Thu** Feb 23 (Ch 5) Relations, equivalence relations, partial orders.
- (11) Mon Feb 27 (Ch 5) Visualizing relations.
- (12) Wed Mar 1 (Ch 5) Quotient spaces.
- (13) Mon Mar 6 (Ch 6) Functions as relations.
- (14) Wed Mar 8 (Ch 6) Inverses, injections, surjections, bijections.
- (15) Mon Mar 13 (Ch 6) The countably infinite.
- (16) Wed Mar 15 (Ch 6) Injections and cardinality. Cardinal arithmetic.
- (17) Mon Mar 27 (Ch 6) Paradoxes of the infinite. Schroeder-Bernstein.
- (18) Wed Mar 29 (Ch 7) Graphs, paths, and loops.
- (19) Mon Apr 3 (Ch 7) Theorems of Euler and Hierholzer.

Wed Apr 5 *Midterm 2 (in class)*

- (20) Mon Apr 10 Graph isomorphism. Computational complexity.
- (21) Wed Apr 12 (Ch 7) Graphs as relations. Matrices and path counting.
- (22) Mon Apr 17 (Ch 9) Fibonacci numbers and generating functions.
- (23) Wed Apr 19 (Ch 10) Continued fractions and rational numbers.
- (24) Mon Apr 24 (Ch 10) Convergents and rational approximation.
- (25) Wed Apr 26 (Ch 10) You can't beat continued fractions.
- (26) Mon May 1 Review and overview