Course Outline

(Lecture Topics may vary)

Sep	4	5	6 First day of classes.	7 Lecture 1: Admistrivia. Proofs. PSet 1 out.	8 Recitation.
Sep	11 Tutorial.	12 Lecture 2: Mathematical Induction. PSet 1 due. PSet 2 out.	13	14 Lecture 3: More Induction.	15 Recitation.
Sep	18 Tutorial.	19 Lecture 4: Number Theory. Euclid and RSA. PSet 2 due. PSet 3 out.	20	21 Lecture 5: Equivalence relations. Partitions.	22 Recitation.
Sep	25 MIT HOLIDAY.	26 Lecture 6: Functions. Pigeonhole Principle. PSet 3 due. PSet 4 out.	27	28 Lecture 7: Cardinality. Countability.	29 Recitation.

Oct	2 Tutorial.	3 Lecture 8: Posets. Dilworth's Theorem. PSet 4 due. PSet 5 out.	4	5 Lecture 9: Graphs.	6 Recitation.
Oct	9 MIT HOLIDAY. Columbus Day.	10 MIT HOLIDAY. Columbus Day.	11 Quiz 1	12 Lecture 10: Summations, Stirling's Formula, Asymptotics.	13 Recitation.
Oct	16 Tutorial.	17 Lecture 11: Recurrences, Substitution Method. PSet 5 due. PSet 6 out.	18	19 Lecture 12: Linear Recurrences, Characteristic Equation Method.	20 Recitation.
Oct	23 Tutorial.	24 Lecture 13: Counting. Permutations, Combinations. PSet 6 due. PSet 7 out.	25	26 Lecture 14: Binomial Coefficients, Binomial Theorem, Inclusion-Exclusion.	27 Recitation.

Oct	30 Tutorial.	31 Lecture 15: Permutations and Combinations of Multisets. PSet 7 due. PSet 8 out.	1	2 Lecture 16: Generating Functions.	3 Recitation.

Nov	6 Tutorial.	7 Lecture 17: More Generating Functions. PSet 8 due. PSet 9 out.	8	9 Lecture 18: Introduction to Probability, Sample Points and Spaces.	10 MIT HOLIDAY. Veteran's Day.

Nov	13 Tutorial.	14 Lecture 19: Probability Laws, Events, Conditional Probability. PSet 9 due. PSet 10 out.	15 Quiz 2	16 Lecture 20: Independence, Birthday Paradox, Failure Analysis.	17 Recitation. Drop Date.

Nov	20 Tutorial.	21 Lecture 21: Random Variables, Indicator Functions, Common Distributions. PSet 10 due.	22	23 MIT HOLIDAY. Thanksgiving.	24 MIT HOLIDAY. Thanksgiving.

Nov	27 Tutorial.	28 Lecture 22: Functions of Random Vars, Probability Gen. Fcns., Central Limit Theorem, Expectation. PSet 11 out.	29	30 Lecture 23: Linearity of Expectation, Laws of Unlikely Events.	1 Recitation.
Dec	4 Tutorial.	5 Lecture 24: Markov's Theorem, Laws for Expectation. PSet 11 due.	6 Quiz 3	7 Lecture 25: Variance, Moments, Chebyshev's Theorem.	8 Recitation. No problem sets due after today.
Dec	11	12 Lecture 26: Gambler's Ruin.	13 Last day of classes	14	15

(Lecture topics are subject to change.)