Tentative Course Outline

Sep	7	8 Registration Day	9	10 Lecture 1: Administrivia. Logical notation and basic proof techniques. PSet 1 out.	11 Tutorial 1
Sep	14	15 Lecture 2: Induction. PSet 1 due. PSet 2 out.	16	17 Lecture 3: Strong induction and well-ordering.	18 Tutorial 2
Sep	21	22 Lecture 4: Proof techniques for networks. PSet 2 due. PSet 3 out.	23	24 Lecture 5: Formal Methods: state machines and invariants.	25 Tutorial 3
Sep-Oct	28	29 Lecture 6: Formal Methods: derived variables. PSet 3 due. PSet 4 out.	30	1 Lecture 7: Analysis Tools: evaluating sums.	2 Tutorial 4

Oct	5	6 Lecture 8: Analysis Tools: products and asymptotic notation. PSet 4 due. PSet 5 out.	7	8 Lecture 9: Analysis Tools: Recurrences.	9 Tutorial 5

Oct	12 MIT HOLIDAY	13 Monday Classes	14	15 Lecture 10: Analysis Tools: Linear Recurrences. PSet 5 due. PSet 6 out.	16 Tutorial 6

Oct	19	20 Lecture 11: Counting Arguments: Cardinality, Bijections, Pigeonhole Principle, Lower Bd Args. PSet 6 due PSet 7 out.	21	22 Lecture 12: Counting Arguments: Countability. Infinities. Diagonalization.	23 Tutorial 7

Oct	26	27 Lecture 13: More Counting: Permutations and Combinations. PSet 7 due. FakePSet 7.5 out.	28	29 Lecture 14: More Counting: Permutations and Combinations.	30 Tutorial 8

	2	3	4	5	6
Nov	Optional Review: 7:00–9:00pm 4-270 and 4-370	Lecture 15: Permutations and combinations of multisets. PSet 8 out.	Quiz: 7:00–9:00pm 4-270 and 4-370	Lecture 16: Generating functions.	Tutorial 9

	9	10	11	12	13
Nov		Lecture 17: Introduction to probability. Sample points and spaces. PSet 8 due. PSet 9 out	MIT HOLIDAY	Lecture 18: Probability laws. Events. Conditional probability.	Tutorial 10

	16	17	18	19	20
Nov		Lecture 19: Independence. Birthday paradox. Failure analysis. Pset 9 due. PSet 10 out.	Drop Date	Lecture 20: Random Variables. Binomial distributions.	Tutorial 11

	23	24	25	26	27
Nov		Lecture 21: Functions of random variables. Expectation. PSet 10 due. PSet 11 out.		THANKSGIVING	THANKSGIVING

Nov	30	1 Lecture 22: Expectation	2	3 Lecture 23: Markov's Theorem, Laws for expectation.	4 Tutorial 12 PSet 11 due.
Dec	7	8 Lecture 24: Variance, Moments, Chebyshev's Theorem.	9	10 Lecture 25: Gambler's ruin. Random walks.	11 Optional review session during tutorial slot.
Dec	14 FINALS Week	15	16	17	18

(Lecture topics are subject to change.)