Massachusetts Institute of Technology — Handout 4
6.042J/18.062J: Mathematics for Computer Science — Feb 3, 1998 (revised 5/7)
Professor Albert R. Meyer

Course Calendar

	Monday	Tuesday	Wednesday	Thursday	Friday
Feb	2 **Registration Day**	3 Lecture 1: Admistrivia. What is a proof?; logical notation and basic proof techniques. (ARM) PSet 1 out.	4	5 Lecture 2: Induction	6 Tutorial 1
Feb	9	10 Lecture 3: Strong induction and well-ordering. (ARM) PSet 1 due. PSet 2 out.	11	12 Lecture 4: Graphs (ARM)	13 Tutorial 2
Feb	16	17 **Monday Schedule** PSet 3 available on webpage	18	19 Lecture 5: Trees and DAGs (ARM) PSet 2 due. PSet 3 out.	20 Tutorial 3

Feb	23	24 Lecture 6: State machines: Invariants. (ARM) PSet 3 due. PSet 4 out.	25	26 Lecture 7: State machines: Derived Variables and Termination. (ARM)	27 Tutorial 4
Mar	2	3 Lecture 8: Evaluating sums and series. (ARM) PSet 4 due. PSet 5 out.	4	5 Lecture 9: Estimating Sums and Products; Asymptotics; Stirling's formula (ARM)	6 Tutorial 5
Mar	9	10 Lecture 10: Divide and Conquer Recurrences. (ARM) PSet 5 due.	11	12 Lecture 11: Linear Recurrences. (ARM)	13 Tutorial 6
Mar	16	17 Lecture 12: Finite Sets: Cardinality, Bijections, Pigeonhole Principle. (ARM) PSet 6 out	18 **Quiz: 7–9pm**	19 Lecture 13: Infinite Sets: Countability. Diagonalization and Uncountable Sets. (ARM)	20 Tutorial 7

Mar	23	24	25 Spring Break	26	27
Mar–Apr	30	31 Lecture 14: Counting finite sets: Inclusion/exclusion, Permutations (LT) PSet 6 due. PSet 7 out	1	2 Lecture 15: More counting: Division rule, Combinations. (LT)	3 Tutorial 8
Apr	6	7 Lecture 16: Permutations and Combinations w/Repetitions. (ARM) PSet 7 due. PSet 8 out	8	9 Lecture 17: Generating functions. (ARM)	10 Tutorial 9
Apr	13	14 Lecture 18: Introduction to probability: Sample spaces, Events. (ARM) PSet 8 due. PSet 9 out.	15	16 Lecture 19: Conditional Probability. Probability Laws. (ARM)	17 Tutorial 10

Apr	20 **Patriot's Day**	21 **Patriot's Day**	22	23 Lecture 20: Independence. Birthday paradox. Failure analysis. (LT) **Drop Date**	24 Tutorial 11
Apr–May	27	28 Lecture 21: Random variables. Binomial distribution. (ARM) PSet 9 due. PSet 10 out.	29	30 Lecture 22: Expectation. Sum of expectations. (ARM)	1 Tutorial 12
May	4	5 Lecture 23: Expectation of a product. Wald's Theorem. (LT) PSet 10 due.	6	7 Lecture 24: Deviation from the mean; Markov's Theorem. Variance; Chebyshev's Theorem (LT)	8 Tutorial 13 Last Tutorial
May	11	12 Lecture 25: Probability of at least k events: Chernoff's Bound (LT)	13	14 Lecture 26: Random Walks, Gambler's Ruin (ARM) Last Day of Classes	15

May	18	19	20	21	22 **Final Exam, 9am–Noon DuPont (W31-140)**