Massachusetts Institute of Technology
6.042J/18.062J: Mathematics for Computer Science
Professors David Karger and Nancy Lynch

Handout 2
February 1, 2000

Course Calendar

	Monday	Tuesday	Wednesday	Thursday	Friday
Jan-Feb	31 **Registration Day**	1 Lecture 1: Course overview. Basic data types. Basic proof methods. **PS1 out.**	2	3 Lecture 2: More basic proofs. Inductive proofs.	4 Tutorial 1
Feb	7	8 Lecture 3: Strong induction. Structural induction. **PS1 due.** **PS2 out.**	9	10 Lecture 4: Relations.	11 Tutorial 2
Feb	14	15 Lecture 5: Digraphs, Graphs, and Trees. **PS2 due.** **PS3 out.**	16	17 Lecture 6: Computational processes.	18 Tutorial 3
Feb	21 **President's Day**	22 **Monday schedule, no class.** **PS4 on Web.**	23	24 Lecture 7: Proofs about processes: Invariants. **PS3 due.** **PS4 out.**	25 Tutorial 4

Feb-Mar	28	29 Lecture 8: Proofs about processes: Termination, step bounds. Process behavior. **PS4 due.**	1	2 Lecture 9: Process structure. Abstraction. Composition.	3 Tutorial 5 **Add date.**
Mar	6	7 Lecture 10: Series. Summations. Products. **PS5 out.**	8 **QUIZ 1: Lectures 1-9**	9 Lecture 11: Estimation. Asymptotics. Stirling's formula. Recurrences.	10 Tutorial 6
Mar	13	14 Lecture 12: Recurrences. **PS5 due.** **PS6 out.**	15	16 Lecture 13: Cardinality. Bijections. Pigeonhole Principle.	17 Tutorial 7
Mar	20	21	22 Spring Break	23	24
Mar	27	28 Lecture 14: Basic counting. Sum and product rules. Inclusion/ exclusion. **PS6 due.** **PS7 out.**	29	30 Lecture 15: Permutations. Combinations. Binomial coefficients.	31 Tutorial 8

Apr	3	4 Lecture 16: Permutations and combinations with repetition. **PS7 due.**	5	6 Lecture 17: Countable and uncountable sets.	7 Tutorial 9
Apr	10	11 Lecture 18: Introduction to probability. Sample points and spaces. PS8 out	12 **QUIZ 2: Lectures 10-17**	13 Lecture 19: Probability laws. Conditional probability.	14 Tutorial 10
Apr	17	18 **Patriot's Day, vacation. PS9 on Web.**	19	20 Lecture 20: Independence. Failure analysis. **PS8 due. PS9 out. Drop Date.**	21 Tutorial 11
Apr	24	25 Lecture 21: Random variables. Binomial distribution. **PS9 due. PS10 out.**	26	27 Lecture 22: Expectation.	28 Tutorial 12
May	1	2 Lecture 23: Computing expectations. Wald's theorem	3	4 Lecture 24: Variance. Bounding tails of distributions. **PS10 due.**	5 Tutorial 13

May	8	9 Lecture 25: Poisson and Gaussian distributions	10	11 Lecture 26: Random Walks.	**FINAL**