Date	Week	Topics	Readings	Assignments Due
08/24	Week 1	Introduction, Probability Spaces, Conditional Probability, Law of Total Probability	B-T 1	
08/28	Week 2			Discussion 1 Discussion 1 Solution
08/29		Independence, Bayes Rule, Discrete Random Variables	B-T 1, 2 Random Variables	
08/31		Expectation, Uniform, Geometric, Binomial and Poisson Distributions	B-T 2	
09/01				Homework 1 Homework 1 Solution
09/04	Week 3			Discussion 2 Discussion 2 Solution
09/05		Variance, Conditional / Iterated Expectation	B-T 2	Lab 0
09/07		Continuous Probability, Uniform, Exponential Distributions	B-T 3	
09/08				Homework 2 Homework 2 Solution
09/11	Week 4			Discussion 3 Discussion 3 Solution
09/12		Gaussian Distribution, Derived Distributions, Continuous Bayes	B-T 3, 4.1-4.2	Lab 1
09/14		Covariance, Gaussian Distribution	B-T 4.3-4.6	
09/15				Homework 3 Homework 3 Solution
09/18	Week 5			Discussion 4 Discussion 4 Solution

Date	Week	Topics	Readings	Assignments Due
09/19		Multivariate Gaussian, MGFs, Concentration Inequalities (Markov, Chebyshev)	B-T 4.4, 5.1, Multivariate Gaussian	Lab 2
09/21		Convergence	B-T 5.2-5.3, W 2.2-2.3 Convergence	
09/22				Homework 4 Homework 4 Solution
09/25	Week 6			Discussion 5 Discussion 5 Solution
09/26		No Lecture (Midterm 1)		
09/28		No Lecture		
10/02	Week 7			Discussion 6 Discussion 6 Solution
10/03		Weak and Strong Law of Large Numbers, Central Limit Theorem	B-T 5.2-5.5, W 2.2-2.3	Lab 3
10/05		Information Theory	Information Theory	
10/06				Homework 5 Homework 5 Solution
10/09	Week 8			Discussion 7 Discussion 7 Solution
10/10		Discrete Time Markov Chains, Stationary Distribution, Hitting Time, First Step Equations (I)	W 1, 2.4, 2.6, 13.3, B-T 7.1-7.4 Markov Chains	
10/12		Discrete Time Markov Chains, Stationary Distribution, Hitting Time, First Step Equations (II)	W 1, 2.4, 2.6, 13.3, B-T 7.1-7.4 Markov Chains	
10/13				Homework 6 Homework 6 Solution

Date	Week	Topics	Readings	Assignments Due
10/16	Week 9			Discussion 8 Discussion 8 Solution
10/17		DTMCs: Reversibility, Infinite States, Classification, Big Theorem	W 1.3, 2.5 Reversibility	Lab 4
10/19		Poisson Processes: Counting Process, Memorylessness, Erlang Distribution, Merging, Splitting	B-T 6.1-6.3, W 13.4 Poisson Process	
10/23	Week 10			Homework 7 Homework 7 Solution Discussion 9 Discussion 9 Solution
10/24		Random Incidence, Review of DTMC and PP	midterm2_review_problems Poisson Process	Lab 5
10/26		Continuous Time Markov Chains: Rate Matrix and Stationary Distribution	B-T 7.5, W 13.5 CTMCS	
10/27				Homework 8 Homework 8 Solution
10/30	Week 11			Discussion 10 Discussion 10 Solution
10/31		No Lecture (Midterm 2)		
11/02		CTMCs: Big Theorem, First Step Equations and Jump Chain	B-T 7.5, W 13.5 CTMCS	
11/03				Homework 9 Homework 9 Solution
11/06	Week 12			Discussion 11 Discussion 11 Solution
11/07		Erdos-Renyi Random Graphs	Random Graphs	
11/09		Maximum a Posteriori Estimation	B-T 8.1-8.2	

Date	Week	Topics	Readings	Assignments Due
11/13	Week 13			Homework 10 Homework 10 Solution Discussion 12 Discussion 12 Solution
11/14		Maximum Likelihood Estimation, Statistical Hypothesis Testing, Neyman-Pearson Lemma	Hypothesis Testing B-T 9.1	Lab 6
11/16		Linear Least Square Estimate, Vector Space of Random Variables	Hilbert space of RVs B-T 8.3-8.5, W 7.1-7.5	
11/20	Week 14			Homework 11 Homework 11 Solution
11/21		Minimum Mean Square Error Estimation	W 7.1-7.5, W 8.1	
11/23		No Lecture (Thanksgiving)		
11/27	Week 15			Discussion 13 Discussion 13 Solution
11/28		Orthogonal Updates and Kalman Filters	W 7.6, 8.1-8.3 Kalman Filter (1) Kalman Filter (2)	Lab 7
11/30		Hidden Markov Models	W 11 Hidden Markov Models	
12/01				Homework 12 Homework 12 Solution