Tentative Lecture Plan and Syllabus for MAT-361

Chapter 1: Probability Theory (2 lectures)	**Problems**
1.1 Probabilities	1.1.1, 1.1.3, 1.1.7, 1.1.9
1.2 Events	1.2.1, 1.2.3, 1.2,7, 1.2.11
1.3 Combinations of events	1.3.2, 1.3.6, 1.3.7, 1.3.11, 1.3.12
1.4 Conditional probability	1.4.1, 1.4.9, 1.4.12, 1.4.16
1.5 Probabilities of event intersectins	1.5.1, 1.5.2, 1.5.7, 1.5.9, 1.5.16
1.6 Posterior probabilities	1.6.1, 1.6.3, 1.6.7
1.7 Counting techniques	1.7.4, 1.7.5, 1.7.7, 1.7.13
Chapter 2: Random Variables (4 lectures)	
2.1 Discrete random variables	2.1.1, 2.1.7, 2.1.11
2.2 Continuous random variables	2.2.1, 2.1.3, 2.2.5, 2.2.9, 2.2.11
2.3 The expectation of a random variable	2.3.5, 2.3.11, 2.3.19
2.4 The variance of a random variable	2.4.1, 2.4.5, 2.4.11, 2.4.15
2.5 Jointly distributed random variables	2.5.1, 2.5.3, 2.5.5, 2.5.8
2.6 Combinations and functions of random variables	2.6.1, 2.6.2, 2.6.5, 2.6.9, 2.6.11, 2.6.13
Chapter 3: Discrete Distributions (2 lectures)	
3.1 The Binomial distribution	3.1.4, 3.1.6, 3.1.9, 3.1.11
3.2 The Geometric and Negative Binomial distribution	3.2.3, 3.2.4, 3.2.5, 3.2.9
3.3 The Hypergeometric distribution	3.3.2, 3.3.3, 3.3.7, 3.3.8
3.4 The Poisson distribution	3.4.3, 3.4.6, 3.4.8, 3.4.7, 3.4.9
Chapter 4: Continuous Distribution (1 lecture)	
4.1 The Uniform distribution	4.1.1, 4.1.2, 4.1.5
4.2 The exponential distribution	4.2.1, 4.2.3, 4.2.5, 4.2.7, 4.2.9, 4.2.11
Chapter 5: The Normal Distribution (3 lectures)	
5.1 Probability calculations using the normal distribution	5.l.1, 5.1.3, 5.1.7, 5.1.9, 5.1.11, 5.1.13
5.2 Linear combinations of normal random variables	5.2.1, 5.2.3, 5.2.9, 5.2.11, 5.2.19
5.3 Approximating distributions with the normal distribution	5.3.5, 5.3.7, 5.3.9, 5.3.13, 5.3.15
5.4 Distributions related to the normal distribution	5.4.7, 5.4.8, 5.4.9, 5.4.14
Chapter 6: Descriptive Statistics (2 lectures)	
6.1 Experimentation	
6.2 Data presentation	6.2.1, 6.2.3
6.3 Sample statistics	6.3.1, 6.3.2, 6.3.15
6.4 Examples	
Chapter7: Statistical Estimation & Sampling Distributions (4 lectures)	
7.1 Point estimates	
7.2 Properties of point estimates	7.2.1, 7.2.2, 7.2.3, 7.2.7
7.3 Sampling distributions	7.3.3, 7.3.7, 7.3.9, 7.3.8, 7.3.22, 7.3.27, 7.3.34
7.4 Constructing parameter estimates	7.4.1, 7.4.3
Chapter 8: Inferences on a Population Mean (3 lectures)	
8.1 Confidence intervals	8.1.1, 8.1.3, 8.1.5, 8.1.7, 8.1.11
8.2 Hypothesis testing	8.2.1, 8.2.3, 8.2.5, 8.2.7, 8.2.9, 8.2.11, 8.2.13
Chapter 9: Comparing Two Population Means (3 lectures)	
9.1 Introduction	
9.2 Analysis of paired samples	9.2.1, 9.2.7, 9.2.7
9.3 Analysis of independent samples	9.3.1, 9.3.3, 9.3.5, 9.3.9, 9.3.11, 9.3.17