

## Course Outline: Math 311, Probability, Fall 2016

Text: *Introduction to Probability and Its Applications*, Richard Scheaffer and Linda Young, Third Edition.

Note: Below, each lesson corresponds to a 100 minute class.

Homework will be on Webwork.

<u>Lesson</u>	<u>Section</u>	<u>Topic</u>	<u>Suggested Exercises</u>
1	2.2	Sample space and events	2.1-2.4
2	2.3	Definition of probability	2.5-2.8
3	2.4	Counting rules useful in probability	2.11-2.17, 2.20, 2.21, 2.23
4	2.5	More counting rules useful in probability	2.27, 2.29, 2.40, 2.42, 2.43, 2.45
5	3.1	Conditional probability	3.3, 3.5, 3.9, 3.11
	3.2	Independence	3.25, 3.27, 3.29, 3.31, 3.35
6	3.3	Total probability, Bayes' rule	3.43, 3.45, 3.46, 3.47, 3.48
	4.1	Random variables and their probability distributions	4.1-4.4, 4.6, 4.8
7	4.2	Expected values of random variables	4.11, 4.12, 4.14-4.16, 4.18, 4.20
8		Review	
9		<b>Exam 1</b>	
10	4.3	The Bernoulli distribution	
	4.4	The binomial distribution	4.23-4.27, 4.33, 4.36
11	4.5	The geometric distribution	
	4.6	The negative binomial distribution	4.40-4.43, 4.45, 4.49, 4.52
12	4.7	The Poisson distribution	4.54-4.56, 4.60, 4.61, 4.67
13	4.8	The hypergeometric distribution	4.71, 4.73, 4.74, 4.79, 4.80
14	5.1	Continuous random variables and their probability distributions	5.2-5.8
15	5.2	Expected values of continuous random variables	5.10-5.13
16	5.3	The uniform distribution	5.15, 5.17, 5.20, 5.21, 5.25, 5.29
17	5.4	The exponential distribution	5.30, 5.32, 5.37
18		Review	
19		<b>Exam 2</b>	
20	5.6	The normal distribution	5.55-5.57, 5.61, 5.77-5.79
21	6.1	Bivariate and marginal probability distributions	6.1, 6.2, 6.4
	6.2	Conditional probability distributions	
22	6.3	Independent random variables	6.5-6.8, 6.11
	6.4	Expected values of functions of random variables	6.17-6.19, 6.21
23	6.5	Conditional expectations	
	6.6	The Multinomial distribution	
24	8.4	The Central Limit Theorem	8.11, 8.12, 8.14, 8.17, 8.24, 8.28
25		Review	
26		<b>Exam 3</b>	
27	7.2	Functions of discrete random variables	
	7.3	Method of distribution functions	
28		Review for final	