SM230 Probability with Naval Applications
Spring 2006 Syllabus

Text: Probability and Statistics for Engineering and the Sciences
6th Edition, by Jay L. Devore, 2004

The Mathematics Department course website
http://usna.edu/MathDept/website/local/courses.htm
will have the most up-to-date information about SM230, including: **Syllabus, Search & Detection Notes (SD), Applied Problems (AP),** and **Old Exams.**

Day	Text Sections	Topics	Exercises
1	2.1	Sample Space, Events, Venn Diagrams	p56: 2,3,9; AP1.1
2	2.2	Axioms & Properties of Probability	p64: 12,13,18,21,26
3	2.3	Elementary Counting Techniques	p73: 31,38,41ab
4	2.3	Counting Techniques (continued)	AP1.2, 1.3, 1.4
5	2.4	Conditional Probability, Multiplicative Rule	p83: 45,46,47,48
6	2.4	Bayes' Theorem	p83: 59,60,62,65; AP1.7
7	2.5	Independence	p90: 68,74,75,76,77,78
8		Applications	AP1.5, 1.6, 1.8, 1.9, 1.10
9		Search and Detection	SD3, 4
10		Search and Detection	SD5, 6, 7
11		Search and Detection	SD8, 9
12		Review for Test I	
13		**Test I** (Wed, 8 Feb)	
14	3.1	Test I Debrief; Intro to Discrete rv's	p100: 1,8,10
15	3.2	pmf's and cdf's of Discrete rv's	p109: 12,13,18,22,23
16	3.3	Expected Value and Variance	p118: 28,31,36
17	3.4	Binomial	p126: 46,47,48,51; AP2.1
18	3.5	Hypergeometric, Negative Binomial	p133: 64ab,65abd,71
19		Applications / Problems (Bin,Hyp,NB)	AP2.2, 2.3, 2.4, 2.5
20	3.6	Poisson	p139: 78,81,82
21	3.6	Poisson Process, Bin & Poisson Comparison	p139: 79; AP2.14, 2.15
22		Applications	AP2.12, 2.16
23		Review for Test II	
24		**Test II** (Wed, 8 Mar)	
25		Test II Debrief	
		Spring Break	
26	4.1	Continuous rv's; Uniform Distribution	p150: 1,2,5
27	4.2	Cdf's & pdf's, Expected Value and Variance	p159: 11,12
28	4.3	Normal	p171: 26,27,29,30,39
29	4.4 (p177-8)	Exponential (with Comparison to Poisson)	p180: 59; AP3.8
30		Applications / Problems	AP3.2, 3.3, 3.4, 3.5, 3.6
31		More Problem Solving	AP3.7, 3.9
32	5.1 (p206, 211)	*Discrete rv's only*: Joint pmf, Marginal pmf, Conditional pmf, Independence	p215: 1,2,3
33	5.3 (p228), 5.4	Random Sample, Dist'n of the Sample Mean	p242: 46,47
34	5.4	Central Limit Theorem	p242: 48,49 sep handout
35	5.5	Dist'n of a Linear Combination	p246: 58a, 59
36	5.5	*For Indep rv's only*: E(X-Y), V(X-Y)	p246: 68, sep handout
37	7.1 (p282-287)	C.I. for Pop'n Mean (pop'n sd known) C.I. for Diff of Means (both sd's known)	p290: 1,3,4; AP4.1, 4.2, 4.3, 4.5
38	7.2	C.I. for Pop'n Mean (sd unknown, n large) C.I. for Proportion p (n large, use eqn 7.11)	p297: 13; AP4.4b, 4.7, 4.8
39	7.3 (p299-302)	t Distribution; One Sample C.I. (n small)	p306: 29-32; AP4.6
40		Review for Test III	
41		**Test III** (Mon, 24 Apr)	
42		Test III Debrief; Review for Final	
43		Review for Final	

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