SM230 Fall Semester AY10-11

Course coordinator: LCDR Kyle A. Caudle, caudle@usna.edu

Textbook: J. Devore, *Probability and Statistics for Engineers and Scientists*, 7th edition, Brooks/Cole Hall, ISBN-13: 978-0-495-55744-9.

Approximate schedule

Chapters 2 finished by September 3 [Counting, Axioms, Conditional Probability, Searching]
Chapters 3 & 4 finished by October 6 [Discrete and Continuous distributions]
Chapter 5 finished by October 22 [Joint Distributions (discrete only)]
Chapters 7 & 8 finished by December 12 [Confidence Intervals and Hypothesis Testing]

Although the title of the course does not include the word Statistics, we have added two statistics topics that may be of interest to future Naval Officers.

Course:	**SM230**
Title:	**PROBABILITY WITH NAVAL APPLICATIONS**
Credits:	3-0-3
Description:	An elementary treatment of the basic concepts of probability with an emphasis on naval applications. Sample spaces, discrete and continuous random variables and standard distributions. Selected topics of naval applications of probability theory such as random search, minefields and lateral range curves. Conditional probability and Bayes' theorem.
Offered:	Summer 2010-2011, Fall 2010-2011
Requisites:	Prereq: Calculus II (SM122 or SM162).

Test #1

Day	Date	Topic	Homework
Tue	24 Aug	3 Ingredients, 2.1 Sample Spaces & Events	Intro to web assign, Web Assign 2.1
Wed	25 Aug	2.2 Axioms	Web Assign 2.2, AP 1.1, PS1
Fri	27 Aug	2.3 Counting Rules	AP 1.2 - 1.4
Mon	30 Aug	2.3 Counting Rules	Web Assign 2.3
Wed	1 Sep	2.4 Conditional Probability 2.5 Independence	Web Assign 2.4, Web Assign 2.5, AP 1.5 - 1.8
Fri	3 Sep	Searching	AP 1.9 - 1.11, SP 1 - 5

Mon	6 Sep	Labor Day	
Wed	8 Sep	Review	
Fri	10 Sep	Test Chapter 2	

Test #2

Day	Date	Topic	Homework
Mon	13 Sep	3.1/3.2 Discrete Random Variables	Web Assign 3.1, Web Assign 3.2
Wed	15 Sep	3.3 Expected Value	Web Assign 3.3
Fri	17 Sep	3.4 Binomial Distribution	Web Assign 3.4, AP 2.1 - 2.4
Mon	20 Sep	3.5 Hypergeometric & Neg. Binomial Distr	Web Assign 3.5, AP 2.5 - 2.8, PS3
Wed	22 Sep	3.6 Poisson Distribution	Web Assign 3.6, AP 2.14, 2.15, 3.8, PS4
Fri	24 Sep	4.1 Continuous Random Variables	Web Assign 4.1
Mon	27 Sep	4.2 CDFs/Expected Value	Web Assign 4.2
Wed	29 Sep	4.3 Normal Distribution	Web Assign 4.3, AP 3.1 - 3.4, 3.7
Fri	1 Oct	4.4 Exponential Distribution	Web Assign 4.4, AP 3.8, 3.9
Mon	4 Oct	Review	
Wed	6 Oct	Test Chapters 3 & 4	

Test #3

Day	Date	Topic	Homework
Fri	8 Oct	5.1 Jointly Distributed Random Variables	Web Assign 5.5
Mon	11 Oct	Columbus Day	
Wed	13 Oct	5.2 Expected Value/Covariance/Correlation	Web Assign 5.2
Fri	15 Oct	1.3 Measures of Location	Web Assign 1.3
Mon	18 Oct	1.4 Measures of Variability	Web Assign 1.4
Wed	20 Oct	5.3 Statistics and Their Distributions	Web Assign 5.3
Fri	22 Oct	5.4 The Distribution of the Sample Mean	Web Assign 5.4, PS8
Mon	25 Oct	5.5 Distribution of a Linear Combination	Web Assign 5.5, PS7
Wed	27 Oct	Review	
Fri	29 Oct	Test Chapter 5	

Test #4

Day	Date	Topic	Homework
Mon	1 Nov	7.1 Basic Properties of Confidence Intervals	Web Assign 7.1
Wed	3 Nov	7.2 Large Sample CI for Mean	Web Assign 7.2, AP 4.1 - 4.4
Fri	5 Nov	7.2 Large Sample CI for Proportion	AP 4.7, 4.8
Mon	8 Nov	7.3 Intervals Based on a Normal Distribution	Web Assign 7.3
Wed	10 Nov	8.1 Hypothesis and Test Procedures	Web Assign 8.1
Fri	12 Nov	8.2 Tests About a Population Mean	Web Assign 8.2a
Mon	15 Nov	8.2 Tests About a Population Mean	Web Assign 8.2b

Wed	17 Nov	8.3 Tests About a Population Proportion	Web Assign 8.3a
Fri	19 Nov	8.3 Tests About a Population Proportion	Web Assign 8.3b
Mon	22 Nov	8.4 P-values	Web Assign 8.4
Wed	24 Nov	8.5 Some Comments on Selecting a Test	Web Assign 8.5
Fri	26 Nov	Thanksgiving	
Mon	29 Nov	Review	
Wed	1 Dec	Test Chapters 7 & 8	
Fri	3 Dec	Review for Final	
Mon	6 Dec	Review for Final	
Wed	8 Dec	Review for Final	
Fri	10 Dec	Review for Final	