

CENTRAL WASHINGTON UNIVERSITY
Mathematics 411B, INTRODUCTION TO MATHEMATICAL STATISTICS I
Winter, 2009

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OVERVIEW OF COURSE

OVERALL COURSE OBJECTIVES:

The major objectives of this course are to help students:

1. to gain the knowledge of probability densities, transformation technique, and sampling distributions.
2. to apply probability densities, sampling distributions, and statistical theorems or techniques to solve problems.

Student Outcomes:

Students will gain an understanding of the relation between probability and mathematical statistics, and will study the most important probability distributions, learning the situations in which they arise. Students will be able to find the distribution of functions of random variables and will learn the basic statistical distributions that are derived from the normal distribution. They will be able to find the distribution of order statistics such as the sample minimum, sample maximum and the i -th order statistic. Students will also learn how to set confidence intervals on unknown parameters, and will also learn methods of statistical estimation, including least squares, method-of-moments, and maximum likelihood.

COURSE MATERIALS REQUIRED:

Irwin Miller and Marylees Miller, John E. Freund's Mathematical Statistics
, 7th Edition (Prentice-Hall), 2004. Chapters 6-8 will be covered.

Advance reading of the problems and text material is essential to good performance in this course. Advice from previous students is: "If you want to do well, *go to class every day, study your notes, and do not fall behind.*"

COURSE POINTS:

<i>POB</i>	50 points
<i>HOW</i>	50 points
Chapter Tests (Three)	300 points
Final Exam	100 points
Total	500 points

The final exam is cumulative.

Grading: You will have several ways of earning points:

1. ***HOW***---or Homework Of the Week. The book exercise problems that are assigned should be worked. Although I will not grade all for you, I will ask for *specific problems* to be turned in, including several that may be derived from class discussion.
2. ***POB***---or Problems On the Board. To facilitate learning from peers and ensure that most of you got a good handle of exercise problems before each chapter test, I will assign one or two problem to each student. Problems presented will earn you full credits unless there is serious error(s). You are welcome to check with me your solutions before your presentation.
3. ***Three 50- points Chapter Tests:*** To strongly encourage you to go over the material and problems you have just been exposed to in each chapter, we will have three 45-minute Chapter Tests, each of which will count 50 points. You will find the test problems similar to the assigned text problems and examples/concepts I have emphasized in class.
4. ***A two-hour final:*** It can comprise of one-hour take home and one-hour in-class exam or just a 2-hour in-class final exam. They will be given as scheduled in the final exam week.
5. ***Bonus Point(s):*** By asking or answering an excellent/important question related to class material, or by maintaining great quality for ***HOW's*** or ***POB's***, students will be awarded one or two bonus points occasionally throughout the quarter to help enhance their grade.

There MAY be another item or two, such as a group project. More on this later.

Text Problems Assigned:

Chapter 6: 1, 4, 6, 10, 11, 15, 17, 19, 20-27, 30, 31, 32, 36, 37, 41, 43, 45, 47-49, 52-54, 56-61, 63, 65, 71, 74, 79, 80

Chapter 7: 1-4, 7-8, 9-11, 16-18, 21-25, 27-29, 34-38, 41, 45, 46, 50, 51, 58, 59, 64, 69, 70

Chapter 8: 2-5,15, 18-23, 34, 38-40, 43-46, 50, 52, 59, 61, 63-68, 73-76, 78, 80, 81, 86-88

Chapter 10: 1-7, 10-12, 14, 15, 21, 23, 32, 36, 38, 42, 43, 46, 49, 50-56, 59, 60, 63, 65, 66, 72, 73, 77-80, 83, 84, 90, 91, 94, 96, 97

LEVEL OF AWARENESS ISSUES INCORPORATED IN THIS COURSE:

AWARENESS ISSUE	-----ACTIVITY LEVEL-----			
	NONE	LOW	MODERATE	HIGH
Graphical Distribution Display			*	
Interpret Information				*
Mathematical Proof			*	
Statistical Methods				*
Personal Work Quality Goals				*
Class Participation				*

SCHEDULE OF CLASS TOPICS AND ASSIGNMENTS

A tentative list of timing of topic coverage and chapter tests is presented below. Due to the intensive nature of the course, and possible variability in student backgrounds and learning process, we may deviate from this schedule.

<u>Week</u>	<u>Sections</u>
0. 1/6-1/9	6.1-6.3
1. 1/12-1/16	Conference
2. 1/19-1/23	6.5-6.7
3. 1/26-1/30	Review

January 30th	TEST 1: Chapter 6
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4. 2/2-2/6	7.1
	7.2
	7.3

Your homework must be well **stapled** and written/printed on **flat papers**. Failing to do any one of the above will result in losing homework points.

No late homework will be accepted unless you contact me and provide an acceptable reason.

ATTENDANCE AND PARTICIPATION

Attendance and class participation are important to this course. If you miss excessive number of classes, your final grade will be affected. Students are expected to have no more than two unexcused absences for the entire quarter.