

CENTRAL WASHINGTON UNIVERSITY
Mathematics 411B, INTRODUCTION TO MATHEMATICAL STATISTICS I
Winter, 2010

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OVERVIEW OF COURSE

OVERALL COURSE OBJECTIVES:

The major objectives of this course are to help students:

1. Gain the knowledge of probability densities, transformation techniques, and sampling distributions.
2. Apply probability densities, sampling distributions, and statistical theorems and techniques to solve applied 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 5-8 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:

Worksheets	100 points
Chapter Home Work	100 points
Chapter Tests (Three)	300 points
Final Exam	100 points
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Total	600 points

The final exam is cumulative.

Text Problems Assigned:

Chapter 5: 1, 2, 6, 10, 14, 20, 21, 23, 38-45, 51-55, 57-61, 63, 64, 66, 68, 73-75, 77, 83-85, 87

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

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

LEVEL OF AWARENESS ISSUES INCORPORATED IN THIS COURSE:

AWARENESS ISSUE	-----ACTIVITY LEVEL-----			
	NONE	LOW	MODERATE	HIGH
Graphical Distribution Display			*	
Interpret Information				*
Mathematical Proof			*	
Probabilistic 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. 1/5-1/8	Chapter 5
1. 1/11-1/15	6.1-6.4
2. 1/18-1/22	6.5-6.7
3. 1/25-1/29	Review

January 29th	TEST 1: Chapter 5 and 6
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4. 2/1-2/5	7.1-7.3
5. 2/8-2/12	7.4-7.5

February 15th	TEST 2: Chapter 7
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6. 2/15-2/19	8.1-8.3
7. 2/22-2/26	8.4-8.6
8. 3/1-3/5	Review

March 5th	TEST 3: Chapter 8
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9. 3/8- 3/12	Review
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10. 3/15-3/19	FINAL EXAM WEEK
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The Final Exam date will be announced

TEST POLICY

Because of the timely nature of the tests, no make-ups will be given. A grade of zero will be assigned unless you contact me **before** the scheduled time and provide an acceptable excuse. A weighted average of your score on the remaining tests will be used for the missing score. Final examination policy is as established by the Dean of Students.

HOMEWORK POLICY

Homework will be assigned and collected. Working on exercises and homework is the only way most of us learn to critically analyze and “solve” problems.

Some class time will be devoted to questions on the exercises and homework. Office hours are also scheduled to provide opportunities for more in-depth discussion of homework problems.

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.