KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
DEPT OF MATHEMATICS & STATISTICS

STAT319: PROBABILITY & STATISTICS FOR ENGINEERS & SCIENTISTS
Winter 2009 (Term 092)

Course: STAT319 Section 2
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Office Hours: SMW 10am-12pm

Text: Miller & Freund's Probability and Statistics for Engineers by Johnson, R. A. (2005) 7th Ed.

Software Package: The Student Edition of ***STATISTICA*** with a Lab Manual.

Course Objectives: Introduce the basic concepts of probability and statistics to engineering students. Emphasis will be given on the understanding of the nature of randomness of real world phenomena, the formulation of statistical methods by using intuitive arguments and thereby making meaningful decisions.

Assessment:

Activity	**Weight**
Home Work, Quizzes, Projects, Class Works, Attendance	15%
Lab Work	15%
First Major Exam ***(Chapters 1 to 3)*** March, 27 Building 5 at 6.30 -8.3pm	15%
Second Major Exam ***(Chapters 4 to 6)*** May, 1 Building 54	15%
Final Exam (Comprehensive) ***TBA***	40%

Students are required to carry a Scientific calculator with **stat functions** to every lecture, lab and in the exam with them. Usually once a chapter is finished, you expect a class test.

Homework

Chapter 2
2.9, 2.16, 2.39. 2.40, 2.63, 2.64, 2.68, 2.69.
Chapter 3
3.5, 3.12, 3.26, 3.29, 3.34, 3.35, 3.41, 3.48, 3.62, 3.63, 3.89.
Chapter 4
4.4, 4.10, 4.11, 4.26, 4.37, 4.54, 4.59, 4.62, 4.82, 4.86, 4.88.
Chapter 5
5.4, 5.11, 5.14, 5.20, 5.21, 5.24, 5.36, 5.46, 5.58, 5.108, 5.113.
Chapter 6
6.5, 6.6, 6.20, 6.34, 6.40
Chapter 7
7.9, 7.11, 7.24, 7.32, 7.33, 7.44, 7.48, 7.64, 7.68, 7.94
Chapter 9
9.6, 9.10. 9.20, 9.22, 9.53, 9.54
Chapter 11
11.4, 11. 14, 11.15, 11.50, 11.51.

Syllabus

Week	Topic
Week 1 **20/2/- 25/2**	**Ch 1. Introduction** **Ch 2. Treatment of Data** 2.1 Pareto Diagrams and Dot Diagrams 2.2 Frequency Distributions
Week 2 **28/2 – 4/3**	**Ch 2. Treatment of Data** 2.3 Graphs of frequency distributions 2.4 Stem-and-leaf displays 2.5 Descriptive measures 2.7 The calculation of mean and variance
Week 3 **6/3 - 10/3**	**Ch 2. Treatment of Data** 2.6 Quartiles and percentiles **Ch 3. Probability** 3.1 - 3.2 Sample space and events and Counting 3.3 Probability
Week 4 **13/3 - 17/3**	**Ch 3. Probability** 3.4 The Axioms of probability 3.5 Some elementary theorems 3.6 Conditional probability
Week 5 **20/3 - 24/3**	**Ch 3. Probability** 3.7 Bayes' Theorem 3.8 Mathematical expectation
Week 6 **27/3 - 31/3** **Week 7** **3/4 - 7/4**	**Ch 4. Probability Distributions** 4.1 Random variables 4.2 - 4.3 Binomial and hypergeometric distributions **Ch 4. Probability Distributions** 4.4 The mean and the variance of the distributions 4.7 – 4.8 Poisson and geometric distributions. **Ch 5. Probability Densities** 5.1 Continuous random variables 5.2 The normal distribution
Week 8 **10/4 - 14/4**	**Ch 5. Probability Densities** 5.3 The normal approximation to the binomial 5.4 – 5.9 Other probability distributions
	Midterm Vacation
Week 9 **24/4 - 28/4**	**Ch 6. Sampling distributions** 6.1 Populations and samples 6.2 – 6.3 Sampling distribution of the mean 6.3 Sampling distribution of variance
Week 10 **1/5 - 5/5**	**Ch 7. Inferences Concerning Means** 7.1 – 7.2 Point and interval estimation concerning mean 7.3 Testing hypotheses concerning mean
Week 11 **8/5 - 12/5**	**Ch 7. Inferences Concerning Means** 7.3 - 7.5 Testing hypotheses concerning mean 7.6 Relation between testing hypotheses and confidence intervals
Week 12 **15/5 - 19/5**	**Ch 7. Inferences Concerning Means** 7.8 Inference concerning two population means **Ch 9. Inferences Concerning Proportions** 9.1 -9.2 Estimation and hypotheses concerning one proportion
Week 13 **22/5 - 26/5**	**Ch 11. Curve Fitting** 11.1 The method of least square 11.2 Inference based on least square estimators
Week 14	**Ch 11. Curve Fitting** 11.2 Inference based on least square estimators 11.6 Correlation
Week 15 **4/6 - 9/6**	**Review**