KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
DEPT OF MATHEMATICAL SCIENCES, DHAHRAN, SAUDI ARABIA

STAT319: PROBABILITY & STATISTICS FOR ENGINEERS & SCIENTISTS
Course Syllabus, Spring 2007 (Term 062)

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Office Hours: 1000- 1050 am and 0300* – 0400 (Sat, Mon and Wed) or by appointment

Text : Probability & Statistics for Engineers and Scientists by Walpole et.al. (2002) 7th ed.

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

Course Objectives: Introducing 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: Assessment for this course will be based on at 8 tests, a major exam, a final exam and lab works, as in the following:

Activity	**Weight**
Home Works, Class Tests	25%
Lab Works	15%
Major Exam (Chapters 1 to 6): The 22nd April, 2007 (Building 5), Time: 0700 to 0930 pm	30%
Final Exam (Chapters 8 to 11): 0730 am , Tuesday, 5th June*, 2007*	30%

Students are required to carry a Scientific calculator with **stat functions** to every lecture, lab and in the exam. Students are also required to keep the prescribed **Formula Sheet** with them. Usually once a chapter is finished on a day, you expect a class test on that day or the following lecture ; Home Works should be submitted in the following lecture.

Day/Date	Topic	Home Works
	Ch 1. Descriptive Statistics	
SAT 17.02.07 (1)	1.1 Overview	An instructor can depend on the lab manual or other material for clarity of some concepts. **Handout Problems for Home Works**
	1.4 Measures of Location	
	Percentiles	
SAT 24.02.07 (2)	1.5 Measures of Variability, Empirical Rule, z-scores, C.V. and C.S.	
	1.8 Graphical Methods and Data Description	
	Mean, Variance and Percentiles of Grouped Data	
	Ch 2. Probability	**2.2 (29-31)**: 4,8,15; **2.4-2.5 (46-47)**: 1,3,8,15,17 ; **2.6-2.7(54-56)**: 3,5,8,16,17; **2.8 (60-61)**: 2, 8
SAT 03.03.07 (3)	2.1 Sample Space, 2.2 Events	
	2.4 Probability of an Event	
	2.5 Additive Rules	
SAT 10.03.07 (4)	2.6 Conditional Probability	
	2.7 Multiplicative Rules	
SAT 17.03.07 (5)	2.8 Bayes' Rule	
	Ch 3. Random Variables and Probability Distributions	
	3.1 Concept of a Random Variable , 3.2 Discrete Probability Distributions	**3.1-3.3 (72-74)**: 5, 7, 9, 13
	3.3 Continuous Probability Distributions	
	Ch 4. Mathematical Expectation	
SAT 24.03.07 (6)	4.1 Mean of a Single Random Variable (including up to Example 4.5)	**4.1 (94-95):** 5,13,14,17

	4.2 Variance (including up to Example 4.12),	**4.2-4.3 (112**): 3, 5, 6
	4.3 Means of linear Combinations (including up to Example 4.18)	
	Ch 5. Discrete Probability Distributions	
SAT 31.03.07 (7)	5.3 Binomial Distribution 5.4 Hypergeometric Distribution	**5.3 (124-126)**: 5,9,16,27,28 **5.4 (131-132)**: 4, 8, 20 **5.5-5.6 (139-140**): 7,8,19,21
	5.5 Geometric Distribution	
	5.6 Poisson Distribution	
	Ch 6. Continuous Probability Distributions	
SAT 07.04.07 (8)	6.1 Continuous Uniform Distribution, 6.2 Normal Distribution	**6.1-6.4 (156-158)**: 9,13,15, 17; **6.5 (164-165):** 4,13 **6.6 – 6.8 (174-175**): 7,8,15, Rev #2 (12th April to 15th April: Midterm Vacation)
	6.3 Areas under the Normal Curve 6.4 Applications of the Normal Distribution	
	6.5 Normal Approximation to the Binomial Distribution	
	6.6 Exponential Distributions, 6.7 Application of Exponential Distribution 6.8 Chi-squared Distribution	
	Ch 8. Sampling Distributions	
MON 16.04.07 (9)	8.1 Random Sampling 8.2 Some Important Statistics 8.4 Sampling Distributions	**8.5(215-216)**: 3,7,9 *Major Exam (Ch 1 to 6)*
	8.5 Sampling Distribution of Means	
SAT 21.04.07 (10)	8.6 Sampling Distribution of Sample Variance 8.7 *t*-Distribution	
	Ch 9. Estimation Problems	
	9.1-9.3, 9.4 Estimating the Mean 9.5 Standard Error of a Point Estimate	**9.4-9.6 (245-246)**: 4, 8, 13; **9.8 (255-256):** 4,6,8; **9.10-9.11 (262-264**): 3, 10, 16; **9.12 (268)**: 1
	9.8 Two Sample: Estimation of the mean difference	
SAT 28.04.07 (11)	9.10 Estimating a Proportion, 9.11 Estimating the Difference Between Two Proportions	
	Ch 10. Tests of Hypothesis	
	10.1 Statistical Hypotheses, 10.2 Testing a Statistical Hypothesis, 10.3 One and Two Tailed Tests	**10.3-10.4**: (298-299): 15; **10.5-10.7**: (319-323): 1, 2, 7; **10.8:** 10,15,18 **10.11** (328): 7, 9
SAT 05.05.07 (12)	10.4 The Use of p-Values for Decision Making	
	10.5 Tests Concerning a Single Mean	
	Continue 10.5; 10.6 Relationship to Confidence IE	
SAT 12.05.07 (13)	10.7 Tests on a Single Mean (Variance Unknown)	
	10.11 Test on a Single Proportion	
	Ch 11. Simple Linear Regression	
SAT 19.05.07 (14)	11.2 The Simple Linear Regression Model, 11.3 Least Squares and the Fitted Model	**11.12 396):** 4 **11.3 (358-360)**: 1, 3, 4, 7 **11.4-11.6 (371-372):** 3, 5, 6, 11
	11.12 Correlation	
	11.4 Properties of the Least Squares Estimators,	
SAT 26.05.07 (15)	11.5 Inferences Concerning the Regression Coefficients	
	11.6 Prediction	
SAT 02.06.07 (16)	Review	
TUES 05.06.07 0730am	730am, Tuesday, 5th June	*Final Exam (Ch 8 to 11*)