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

STAT319: PROBABILITY & STATISTICS FOR ENGINEERS & SCIENTISTS
Spring 2011 (Term 102)

Course: STAT319 Sections
Instructor:
Office: **Phone**:
Email:
Home page: http://faculty.kfupm.edu.sa/math/
Office Hours: **SM or by appointment**

Text: Miller & Freund's Probability and Statistics for Engineers by Johnson, R. A. (2011) 8th Ed, New Jersey, Pearson-Prentice Hall.

Software Package: The Student Edition of ***STATISTICA*** with a Lab Manual. A Lab syllabus is available with your lab instructor.

Scientific Calculator: Students **MUST possess** their own individual scientific calculator. Calculators on mobile phones or other communication devices **WILL** be **STRICTLY** prohibited from use.

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**
Class Work - Home Work, Quizzes, Attendance	15%
Lab Work (see Lab syllabus)	15%
First Major Exam ***(Chapters 1 to 3)*** Saturday Mar 26, 6.30pm Building (To be announced)	15%
Second Major Exam ***(Chapters 4 to 6)*** Tuesday Apr 26, 7.00pm Building 54 (near Riyadh Bank)	15%
Final Exam ***(Comprehensive)*** Saturday June 11 (7pm, venue ***TBA)***	40%

Important Note: **Students. You need to achieve at least 50% in order to pass the course.**

Students are **REQUIRED** to carry a scientific calculator with **stat functions** to every lecture, lab and in the exam with them. Calculators **CANNOT** be **shared between students** in quizzes or exams. Usually once a chapter is finished, you expect a class test.

Homework: Will be assigned later.

Additional Practice Problems: see below.

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
Chapter 8 7.64, 7.68, 7.94
Chapter 10 10.6, 10.10, 10.20, 10.22, 10.53, 10.54
Chapter 11 11.4, 11.14, 11.15, 11.50, 11.51.

Syllabus

Week	Topic (or assigned readings)	Reminders
Week 1 **12/2- 16/2**	**Ch 1. Introduction** **Ch 2. Treatment of Data (refer also to Lab Manual chap 2)** 2.1 Pareto Diagrams and Dot Diagrams 2.2 Frequency Distributions	
Week 2 **19/2- 23/2**	**Ch 2. Treatment of Data** 2.3 Graphs of frequency distributions 2.4 Stem-and-leaf displays 2.5 & Lab 2.7 Descriptive measures (plus percentiles, ER, CV, CS) 2.7 The calculation of mean and variance (incl group mean & var)	2/23 –Last date to Drop course with no record
Week 3 **26/2- 2/3**	**Ch 2. Treatment of Data** 2.6 & Lab 2.7 Quartiles and percentiles **Ch 3. Probability** 3.1 - 3.2 Sample space and events and Counting 3.3 Probability	
Week 4 **5/3- 9/3**	**Ch 3. Probability** 3.4 The Axioms of probability 3.5 Some elementary theorems 3.6 Conditional probability	
Week 5 **12/3- 16/3**	**Ch 3. Probability** 3.7 Bayes' Theorem **Ch 4. Probability Distributions** 4.1 Random variables	
Week 6 **19/3- 23/3**	**Ch 4. Probability Distributions** 4.2 Binomial distribution 4.3 Hypergeometric distribution	3/19 – begin MT grade 3/23 –Last to Drop with W
Week 7 **26/3- 30/3**	**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 (includes mean & variance) 5.2 The normal distribution	3/30 – due date MT grade **Maj Exam 1 (Sat Mar 26)**
Week 8 **2/4 - 6/4**	**Ch 5. Probability Densities** 5.3 The normal approximation to the binomial 5.4 – 5.9 Other probability distributions (weibull, lognormal,etc)	
	Midterm Vacation (April 9-13)	
Week 9 **16/4 - 20/4**	**Ch 6. Sampling distributions** 6.1 Populations and samples 6.2 – 6.3 Sampling distribution of the mean 6.4 Sampling distribution of variance	
Week 10 **23/4 - 27/4**	**Ch 7. Inferences Concerning Means** 7.1 – 7.2 Point and interval estimation concerning mean 7.4 Testing hypotheses concerning mean	4/27 –Last to Drop ALL courses with W **Maj Exam 2 (Tues Apr 26)**
Week 11 **30/4 - 4/5**	**Ch 7. Inferences Concerning Means** 7.4 - 7.6 Testing hypotheses concerning one mean 7.7 Relation between testing hypotheses and confidence intervals	
Week 12 **7/5 - 11/5**	**Ch 8. Inferences Concerning Means** 8.1-8.4 Inference concerning two population means **Ch 10. Inferences Concerning Proportions** 10.1 -10.2 Estimation and hypotheses concerning one proportion	
Week 13 **14/5 - 18/5**	**Ch 11. Curve Fitting** 11.1 The method of least square 11.2 Inference based on least square estimators	
Week 14 **21/5 - 25/5**	**Ch 11. Curve Fitting** 11.2 Inference based on least square estimators 11.6 Correlation	5/25 –Last to Drop ALL courses with WP/WF
Week 15 28/5 – 1/6	**Review**	**Final Exam (Sat June 11)**