

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

STAT319: PROBABILITY & STATISTICS FOR ENGINEERS & SCIENTISTS
 Summer Semester (Term 113): 9 June to 4 August, 2012

Instructor: Anwar Joarder, Professor

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Webpage: <http://faculty.kfupm.edu.sa/math/>

Office Hours: Sun to Wed between 1100 am and 1300 pm with a break of noon prayer.

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

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

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, solving them and thereby making meaningful decisions.

Assessment:

Activity	Weight
<i>Class Work – Attendance, Home Work, Quizzes, Class Participation</i>	15%
<i>Lab Work (see Lab syllabus)</i>	15%
<i>Mid-term Exam (Chapters 1-5) (1900 to 2130 pm on Wednesday, July 4th, 2012 at Building 54.</i>	30%
<i>Final Exam (Comprehensive)</i>	40%

Usually once a chapter is finished, you expect a quiz on the material. Home Works will be assigned through Blackboard in synchrony with the lectures.

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. Mobile phones or other communication devices will be strictly prohibited to use.

Week	Topic (or assigned readings)	Reminders
WEEK 1 9-14 JUNE	Ch 1. Introduction Ch 2. Reasoning in Sample 2.1 Pareto Diagrams and Dot Diagrams 2.2 Frequency Distributions 2.3 Graphs of frequency distributions 2.4 Stem-and-leaf displays 2.5 Descriptive measures (plus percentiles, ER, CV, CS) 2.7 Mean and variance for raw sample and grouped sample	

Syllabus

Week	Topic (or assigned readings)	Reminders
WEEK 2 16-21 JUNE	Ch 3. Probability 3.1 - 3.2 Sample space and events and Counting 3.3 Probability 3.4 The Axioms of probability 3.5 Some elementary theorems 3.6 Conditional probability 3.7 Bayes' Theorem	
WEEK3 23-28 JUNE	Ch 4. Probability Distributions 4.1 Random variables 4.2 Binomial distribution 4.3 Hypergeometric distribution 4.4 The mean and the variance of the distributions 4.7 – 4.8 Poisson and geometric distributions.	
WEEK 4 30JUNE - 4 JULY	Ch 5. Probability Densities 5.1 Continuous random variables (includes mean & variance) 5.2 The normal distribution 5.3 The normal approximation to the binomial 5.4 – 5.9 Other probability distributions (Weibull, lognormal,etc)	
WEEK 5 7-11 JULY	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 6 14-18 JULY	Ch 7. Inferences Concerning Means 7.1 – 7.2 Point and interval estimation concerning mean 7.4 Testing hypotheses concerning mean 7.4 - 7.6 Testing hypotheses concerning one mean 7.7 Relation between testing hypotheses and confidence intervals	
WEEK 7 21-24 JULY	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 8 27-30 JULY	11. Regression Analysis 11.1 The method of least square 11.2 Inference based on least square estimators 11.6 Correlation	
	Review	Thursday, August 2, 2012

4 AUGUST: Last Day of Submission of Grades (by 2 pm)