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

STAT319: PROBABILITY & STATISTICS FOR ENGINEERS & SCIENTISTS
Lab Syllabus - Semester 133 (2014)

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Office Hours: UMTWR 9:15 am – 10:15 am

Objectives:

This Lab of STAT 319 is designed to help the students in the following ways:

1. To easily understand and appreciate the practicability of the concepts taught in the STAT 319 curriculum.
2. To develop their ability to properly analyze and solve probability and statistics problems, and reasonably interpret their results.
3. To learn how to use STATISTICA in solving a wide range of statistical problems in real world, since statistics has a lot of application in almost all the fields of life.

Assessment
Assessment for this Lab will be based on lab work, participation, attendance, and three lab tests, as following:

Activity	Weight	Marks
Attendance and Lab Participation	25%	5
3 Lab Tests	75%	15
Total	100%	20

Resources
Students must bring the Lab Manual with them to every lab session.

Suggested Class work and Tutorial Problems
Students are encouraged to do the problems in the Lab first by hand and then by using Statistica for the comparison of results.

Syllabus, weekly coverage of material and lab tests schedule

Week	Topic	Section
	No First Lab Session	
Week 01 June 08 – 12	**Introduction to STATISTICA:** Creating a new data sheet, Naming the variables, Saving and retrieving file types, Copying results into text. **Random Number Generation: Drawing simple random samples by a table of random number and by STATISTICA.**	1.1-1.2 2.1-2.2
***Week* 02** June 15 - 19	**Descriptive Statistics: Graphical description of data:** Stem and Leaf Plot, Frequency table, Shapes of distributions, Histogram, Frequency plot, Frequency polygon, Bar chart and Pie chart. **Descriptive Statistics: Numerical Measures:** **Common measures of location:** Mean, Median, Mode. **Common Measures of variation:** Range, Variance, Standard Deviation. Percentiles, Quartiles, Empirical Rule, Coefficient of Variation and Skewness, Proportion. Box-plot, approximate Mean and Variance for Grouped data.	2.3-2.10
Week 03 June 22 - 26	**Lab test 1 – Material: from beginning to end of section 2.10** **Continue Descriptive Statistics and Discrete Probability Distributions:** Binomial Distribution	**Lab Test 1** 3.1
Week 04 June 29 – July 03	**Continue: Discrete Probability Distributions:** Binomial, Geometric, Hypergeometric, & Poisson Distributions	3.1-3.4
Week 05 July 06 - 10	**Continuous Probability Distributions:** Normal distribution, t, F, Chi-Square, Exponential, and other distributions **Sampling Distributions** of Sums and Means and the Central Limit Theorem **Normal Approximation** to the Binomial Distribution **Drawing a Random Sample** from a known Distribution	4.1,4.4 5.4-5.5 5.1-5.3
Week 06 July 13 - 17	**Lab test 2 – Material: Discrete, Continuous & Sampling Distributions** **Confidence Intervals and Testing** for the Population Mean, Difference Between Two Population Means, and Difference Between Two Population Proportions	**Lab Test 2** 6. 1-6.5 7.1-7.3
July 20 - 31	RAMADHAN BREAK	
Week 07 Aug. 03 - 07	**Simple and Multiple Regression:** Scatter diagram, Correlation coefficient, Estimating the line of best fit, Sources of variation, Checking the model assumptions, Confidence Interval estimation of regression parameter, Prediction Interval (PI) for a future observation y_o, Testing the slope of the regression line **Lab test 3 – Material: Estimation, Testing and Regression.**	8.1-8.10 **Lab Test 3**
Week 08 Aug. 10 - 12		