

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
DEPARTMENT OF MATHEMATICS & STATISTICS
DHAHRAN, SAUDI ARABIA
STAT201: STATISTICAL METHODS
Course Outline, Semester 191

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Office Hours: UT: 8:55 – 10:45 or by appointment.

Text and Package:

(1) Introductory Statistics by Ross, S. H., 3rd edition, Elsevier, 2010.

(2) **MINITAB**

Course Objectives:

STAT201 introduction to statistics is intended to be the first course in statistics for students. The emphasis is on understanding how to use statistics to solve real-world problems. Upon completion of this course you should:

- Be familiar with the techniques of data analysis studied;
- Understand the basic elements of probability studied;
- Understand the assumptions, methods, and implications associated with various methods of statistical inference studied; and
- Be proficient in using **MINITAB** and be able to interpret the associated output.

Assessment

Assessment for this course will be based upon, class work, lab, major exams, project and final exam (comprehensive), with the following weights.

Activities	Weight
Class work (Homework, attendance, Quizzes and participation)	10%
Exam 1 (Chapters 1-5) week 6	20%
Exam 2 (Chapters 6-10) week 13	20%
Project	10%
Lab exam	10%
Final exam (comprehensive)	30%

Syllabus at a Glance

<i>Week</i>	<i>Section</i>	<i>Topics</i>	<i>Reminder</i>
Week 1	1.1 -1.3	Introduction, the nature of statistics, populations and samples	
Week 2	2.1-2.5 3.1- 3.4	Introduction, frequency tables & graphs, histograms, stem-&-leaf plot, set paired data. Mean, median, and mode	
Week 3	3.5-3.7 4.1-4.2	Variance & standard deviation, empirical rule and sample correlation coefficient. Probability: sample space & events,	
Week 4	4.3-4.4 4.5	Properties, and equally likely outcomes Conditional probability and independence	
Week 5	5.1-5.2	Discrete random variables	
Week 6	5.3-5.5	Expected value & variance, binomial random variables	Exam1
Week 7	6.1-6.3	Continuous random variables, normal random variables	
Week 8	6.4-6.7	Standard normal random variable, probabilities, additive property and percentiles	
Week 9	7.1-7.5	Sample mean, central limit theorem and sampling proportions	
Week 10	8.1-8.6	Point estimates of population mean, proportion & variance and interval estimates of mean	
Week 11	8.7, 9.1-9.2	Interval estimates of proportion. Hypotheses test & significance levels	
Week 12	9.3-9.5	Hypotheses tests for mean and proportion	
Week 13	10.1-10.4	Testing equality of means: Large & small sample	Exam2
Week 14	12.1-12.5	Simple linear regression	
Week 15	12.6-12.9	Coefficient of determination and correlation coefficient	
Week 16	Catch-up and Queries		

Outfits

Students will be required to carry a calculator with statistical functions. A binder will also be an asset to organize yourself with selected lecture notes, handouts, solutions to home works, exams etc.

Notices:

Any notice about the course will be communicated to the students through blackboard.

Homework and Tutorials

Students are required to do the homework problems at home. The first hour of the lab would be devoted to solve the tutorial problems, and to guide how to solve other problems. The second hour of lab would be devoted to show students how to use the MINITAB statistical package and to use it to solve real life problems.

Homework Problems

Chapter Two: 2.2.1, 2.2.9, 2.3.2, 2.3.5, 2.4.3.

Chapter Three: 3.2.6, 3.2.14, 3.3.2, 3.3.10, 3.3.1.4, 3.4.1, 3.5.2, 3.6.1, 3.6.10, 3.7.3, 3.7.15.

Chapter Four: 4.2.3, 4.2.12, 4.3.2, 4.3.11, 4.4.2, 4.4.7, 4.5.4, 4.5.13.

Chapter Five: 5.2.6, 5.2.17, 5.3.4, 5.3.13, 5.4.8, 5.4.13, 5.5.5, 5.5.19.

Chapter Six: 6.2.3, 6.2.6, 6.3.2, 6.3.15, 6.4.2, 6.4.7, 6.5.3, 6.5.13, 6.7.4, 6.7.11.

Chapter Seven: 7.3.4, 7.3.6, 7.4.1, 7.4.4, 7.5.2, 7.5.7, 7.5.15

Chapter Eight: 8.2.4, 8.2.8, 8.3.4, 8.3.11, 8.4.2, 8.4.9, 8.5.3, 8.5.12, 8.6.2, 8.6.13, 8.7.3, 8.7.9.

Chapter Nine: 9.2.1, 9.2.3, 9.3.2, 9.3.11, 9.3.1.2, 9.4.3, 9.4.8, 9.5.2, 9.5.14.

Chapter Ten: 10.2.2, 10.2.7, 10.3.1, 10.3.10, 10.4.2, 10.4.9.

Chapter Twelve: 12.2.3, 12.3.3, 12.3.8, 12.4.6, 12.5.4, 12.5.12, 12.6.4, 12.7.3, 12.8.2, 12.9.1.

Project:

The project should be based on a real data set (with complete description about variables) and a detailed statistical analysis using MINJTAB. There should be some concluding remarks that refer to the real implications of your chosen problem.