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

STAT 214: STATISTICAL METHODS for ACTUARIES

Semester 211

Course Objectives:
Introduce basic concepts of statistics methods to actuary students. Emphasize the understanding of the nature of randomness of real world problems, the formulation and analysis of real world problems using well known statistical methods to make meaningful decisions.

STAT 213 is an introduction to all other statistics courses required in your degree plan, namely 301, 302, 310, 416, and 460.

Textbook and Package:

1. Basic Business Statistics: Concepts and Applications, 12th edition, by Berenson, M.L., Levine, D.M., and Krehbiel, T.C., Pearson-Prentice Hall (2009).
2. **MINITAB** (http://www.minitab.com/products/minitab/student/)

Assessment

Activity	Weight
Homework, Quizzes & Attendance	15%
Lab Test	10%
Exam 1: (material and date will be announced later)	20%
Exam 2: (material and date will be announced later)	20%
Final Exam (Comprehensive) As posted on the Registrar Website	35%

General Notes:

- There is a lot of material to be covered in this course, therefore we will use at least one hour of each lab session for lecturing.
- To successfully learn statistics, students need to solve problems and analyze data. The selected assigned problems are specifically designed to prepare you for class quizzes, lab, majors and final exam.
- ***Never round*** your intermediate results to problems when doing your calculations. This will cause you to lose calculation accuracy. Round only your final answer to 2 or 3 decimals.
- ***A formula sheet*** and ***statistical tables*** will be provided in every exam, so you only need to bring with you ***pens***, ***pencils***, ***a sharpener***, ***an eraser***, ***a ruler***, and a ***calculator***.

Notes Regarding Attendance

- ✓ Students are expected to be in class on time.
- ✓ No student will be allowed to enter the class after the scheduled time.
- ✓ In accordance with University rules, ***9 unexcused absences*** will result in a grade of ***DN***.
- ✓ Only University issued excuses for absences will be accepted.
- ✓ The use of mobile phones in class is strictly prohibited, and any student using his mobile will be asked to leave the class and will be marked absent without an excuse.

Syllabus – A rough weekly guideline

Week	*Sections*	Topics	Homework
Week 1 Aug 29 – Sep 2	1.1 – 1.4 2.1 - 2.6	Presenting data in tables and charts	1.1, 1.5, 1.7, 1.11, 1.25, 1.27 2.5, 2.11, 2.20, 2.22, 2.24, 2.27, 2.37, 2.39, 2.44, 2.46
Week 2 Sep 5 – 9	3.1-3.3	Numerical descriptive measures	3.3, 3.4, 3.8, 3.13, 3.23, 3.28 3.33, 3.39, 3.40, 3.63
Week 3 Sep 12 – 16	3.4-3.6	Numerical descriptive measures	
Week 4 Sep 19 – 22 Sep 23	4.1- 4.3 5.1	Basic probability The probability distribution for a discrete random variable	4.3, 4.8, 4.14, 4.17, 4.19, 4.23, 4.31, 4.37, 4.61 National Day Holiday
Week 5 Sep 26 – 30	5.3.-5.5 6.1 - 6.2	The Binomial, Poisson and hyper geometric distributions The normal distribution	5.1, 5.3, 5.19, 5.23, 5.24, 5.30, 5.33, 5.42, 5.43
Week 6 Oct 3 – 7	6.4 - 6.6	Other distributions	6.1, 6.5, 6.6, 6.9, 6.23, 6.29, 6.33, 6.51
Week 7 Oct 10 – 14	7.3-7.5	Sampling distributions	7.18, 7.19, 7.20, 7.21, 7.25, 7.27, 7.45
Week 8 Oct 17 Oct 18 – 21	8.1-8.4	Student Break Confidence interval estimation	8.1, 8.5, 8.9, 8.11, 8.12, 8.17, 8.23, 8.26, 8.30, 8.32, 8.38, 8.43, 8.48, 8.68
Week 9 Oct 24 – 28	9.1-9.4	One sample hypothesis testing	9.4,9.13,9.21,9.28,9.45,9.50,9.54,9.56,9.76
Week 10 Oct 31 – Nov 4	10.1-10.3	Two- sample hypothesis testing	10.6, 10.10, 10.12, 10.18, 10.21, 10.27, 10.35, 10.44, 10.46, 10.50
Week 11 Nov 7 – 11	10.4 12.1-12.3 12.5	F test for difference between two variances Chi-Square tests	12.4, 12.9, 12.13, 12.21, 12.26, 12.27, 12.32, 12.39, 12.45
Week 12 Nov 14 – 18	13.1-13.4	Simple linear regression	13.3, 13.9, 13.15, 13.21, 13.24, 13.29, 13.33, 13.37, 13.41, 13.47, 13.55, 13.61
Week 13 Nov 21 – 25 Nov 28 – Dec2	13.7-13.8 14.1-14.2	Simple linear regression Introduction to multiple regression Midterm Break	14.1, 14.4, 14.9, 14.14, 14.18, 14.23, 14.26, 14.31, 14.34, 14.38, 14.41, 14.44
Week 14 Dec 5 – 9	14.4-14.5 16.1-16.3	Introduction to multiple regression Time-series Forecasting	
Week 15 Dec 12 – 16 **Week 16** Dec 19 - 20	16.4,16.8	Time-series Forecasting Cont'd & Review	Normal Thursday Classes Last day of classes for the term

Notes Regarding Homework

- Homework should be submitted in class on the first day after a chapter ends.
- No late homework will be accepted.
- Homework not submitted will get a score of zero.
- Homework problems solutions should be complete with justifications and reasons for all steps by referencing theorems, equations and discussion from your textbook.
- Copying from any source, human, print or electronic will result in a zero on the homework and will be reported to the department chairman for appropriate action in accordance with University rules.