KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
DEPARTMENT OF MATHEMATICS

STAT 214: STATISTICAL METHODS for ACTUARIES

Semester 231

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Office Hours: R 10.00 am – 12:00 pm UTR or by Appointment

Check Blackboard regularly for announcements

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 214 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 & bonuses	10%
Lab Tests (4 lab test)	20%
Exam 1: (Chapters 2, 3, 4 and 5) (TBA)	20%
Exam 2: (Chapters 6, 7, 8, 9, and 10) (TBA)	20%
Final Exam (Comprehensive) As posted on the Registrar Website	30%

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 4 decimal places.
- ***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***.

Important Notes

1- Student is not allowed to enter the exam hall without either KFUPM ID or Saudi/Iqama ID.
2- No student will be allowed to take the exam if not having his/her KFUPM ID or National/Iqama ID.
3- Students are not allowed to carry mobiles, smart watches, or electronic devices to the exam halls/rooms.
4- Students must take the exam in the place assigned to them.
5- Missing an Exam: In case, a student misses an exam (Exam I, Exam II, or the Final Exam) for a legitimate reason (such as medical emergencies), he/she must bring an official excuse from Students Affairs. Otherwise, he/she will get zero in the missed exam.
6- Students must adhere to the attendance policy of KFUPM.
7- A DN grade will be awarded to any student who accumulates more than 20% unexcused absences or more than 33% excused and unexcused absences of lectures and labs.
8- A DN grade will be assigned to the eligible student after being warned twice by his/her instructor.
9- Attendance on time is very important. Mostly, attendance will be checked within the first five minutes of the class. Entering the class after that, is considered as one late, and every two times late equals to one absence.

Syllabus – A rough weekly guideline

Week	*Sections*	Topics	Homework
Week 1 Aug 27 – Aug 31	2.2 - 2.6	Presenting data in tables and charts	2.5, 2.11, 2.20, 2.22, 2.24, 2.27, 2.37, 2.39, 2.44, 2.46
Week 2 Sep 3 – 7	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 10 – 14	3.4 4.1- 4.2	Numerical descriptive measures Basic probability **(LAB TEST 1)**	4.3, 4.8, 4.14, 4.17, 4.19, 4.23
Week 4 Sep 17 – 21	4.3 5.1 5.3	Basic probability The probability distribution for a discrete random variable The Binomial	4.31, 4.37, 4.61
Week 5 Sep 24 Sep 25 – 28	5.4.-5.5 6.1 - 6.2	The Poisson and hyper geometric distributions The normal distribution	National Day Holiday 5.1, 5.3, 5.19, 5.23, 5.24, 5.30, 5.33, 5.42, 5.43
Week 6 Oct 1 – 5	6.4 - 6.5	The Uniform and exponential distributions	6.1, 6.5, 6.6, 6.9, 6.23, 6.29, 6.33, 6.51
Week 7 Oct 8 – 12	7.3-7.5	Sampling distributions **(LAB TEST 2)**	7.18, 7.19, 7.20, 7.21, 7.25, 7.27, 7.45
Week 8 Oct 15 – 19	8.1-8.4	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 22 – 26	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 29 – Nov 2	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 5 – 9	10.4 12.1-12.3 12.5	F test for difference between two variances Chi-Square tests **(LAB TEST 3)**	12.4, 12.9, 12.13, 12.21, 12.26, 12.27, 12.32, 12.39, 12.45
Week 12 Nov 12 – 16 Nov 19 – Nov 23	13.1-13.4	Simple linear regression Midterm Break	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 26 – 30	13.7-13.8 14.1-14.2	Simple linear regression Introduction to multiple regression	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 3 – 7	14.4-14.5 16.1-16.3	Introduction to multiple regression Time-series Forecasting **(LAB TEST 4)**	
Week 15 Dec 10 – 14 **Week 16** Dec 17	16.4,16.8	Time-series Forecasting Cont'd & Review	Normal Sunday 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.