

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

STAT 213: STATISTICAL METHODS for ACTUARIES

Fall 2018 (181)

Instructor: Musawar Amin Malik

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Office Hours: UT 10:00 am – 11:00 am, UT 12:00 – 1:00 pm 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 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 and Quizzes	15%
Lab Test	5%
Exam 1: <i>Tuesday October 2, 2018</i> Material covered up to the end of class on Sunday September 30.	20%
Exam 2: <i>Wednesday November 7, 2018</i> Material covered up to the end of class on Tuesday November 6	20%
Final Exam (Comprehensive) As posted on the Registrar Website	40%

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.
- Bring your book to every class
- 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 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 no later than 9:00 am.
- ✓ No student will be allowed to enter the class after the scheduled time.
- ✓ Any unexcused absence carries a penalty of 1 percentage point
- ✓ In accordance with University rules, ***9 unexcused absences*** will result in a grade of ***DN***. See Article 9 page 15 of “the Undergraduate Study and Examinations Regulations and the KFUPM Rules for their Implementation” <http://registrar.kfupm.edu.sa/docs/pdf/AcademicRegulations.pdf>
- ✓ 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

<i>Week</i>	<i>Sections</i>	<i>Topics</i>	<i>Homework</i>
Week 1 Sep 2 – Sep 6	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 9 – Sep 13	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 16 – Sep 20	3.4-3.6	Numerical descriptive measures	
Sunday September 23	National Day Holiday		
Week 4 Sep 24 – Sep 27	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
Saturday September 29	Normal Sunday Classes		
Week 5 Sep 30 – Oct 4	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 7 – Oct 11	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 14 – Oct 18	7.3-7.5	Sampling distributions	7.18, 7.19, 7.20, 7.21, 7.25, 7.27, 7.45
Week 8 Oct 21 – Oct 25	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 28 – Nov 1	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 Nov 4 – Nov 8	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 11– Nov 15	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 18 – Nov 22	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 25 – Nov 29	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 2 – Dec 6	14.4-14.5 16.1-16.3	Introduction to multiple regression Time-series Forecasting	
Week 15 Dec 9 – Dec 13	16.4,16.8	Time-series Forecasting Cont'd	

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. Article 38 page 27 of “the Undergraduate Study and Examinations Regulations and the KFUPM Rules for their Implementation”
<http://registrar.kfupm.edu.sa/docs/pdf/AcademicRegulations.pdf>

Course Grade Assignment

Score	87 – 100	80 – 86	75 – 79	70 – 74	65 – 69	60 – 64	55 – 59	50 – 54
Grade	A+	A	B+	B	C+	C	D+	D