KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
DEPARTMENT OF MATHEMATICS & STATISTICS
Spring 2013 (Semester 122)
STAT212: BUSINESS STATISTICS II

Instructor: Mohammad Farah Saleh

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Office Hours: 7:30 am – 8:50 am SMW
Class Timing: 9:00 – 9:50 & 10:00 – 10 :50

Wednesday Classes will meet in 5-202 and will be dedicated to learning Minitab.

Check Blackboard regularly for announcements

Course Objectives:
Formulate and test statistical hypotheses about important population parameters. Learn the methods of simple and multiple linear regression and time series.

Learning Objectives: By completing this course, students should be able to

- Formulate and test a hypothesis test about the mean of a normal distribution
- Formulate and test a hypothesis about a population proportion
- Formulate and test a hypothesis about the difference between two normal population means
- Formulate and test a hypothesis about the difference between two population proportions
- Formulate and test a hypothesis about a population variance
- Formulate and test a hypothesis about the ration of two population variances
- Interpret the results of hypothesis tests and explain the result in a business context
- Formulate a linear regression problem and interpret the estimated coefficients
- Formulate and test hypotheses about the coefficients of a linear regression problem
- Check the assumptions of a linear regression problem
- Build and interpret autoregressive time series models
- Choose an appropriate forecasting model
- Understand and interpret index numbers

Text and Package:

1. Basic Business Statistics: Concepts and Applications, 11th edition, by Berenson, M.L., Levine, D.M., and Krehbiel, T.C., Pearson-Prentice Hall (2009).
2. MINITAB Statistical Package will be used.
3. Scientific calculator with statistical functions in every class and exam.

Assessment*

Activity			Weight
Class Work - Homework, Lab work and Quizzes[1]			20%
First Major Exam (Chapters 9, 10 and 12)		*Sunday March 17, 2013*	20%
Second Major Exam (Chapters 13 and 14)		*Sunday April 21, 2013*	20%
Final Exam (Comprehensive)	***8:00 am***	*Saturday May 25,2013*	40%

***You need to achieve at least 50% in order to pass the course**

[1] There will be a quiz the first Wednesday after we finish a chapter

Academic Integrity: All KFUPM policies regarding **ethics** and **academic honesty** apply to this course.

Important Notes:

- ✓ Excessive unexcused absences will result in a grade of ***DN*** in accordance with University rules.
- ✓ ***Attendance*** on time is ***very*** important.
- ✓ *A formula sheet* and *statistical tables* will be provided for you in every exam.
- ✓ Please bring your book to every class, as well as a calculator with statistical functions.

Home Work:

- ✓ To successfully learn statistics, students need to solve problems and analyze data. The selected assigned problems are specifically designed to help you understand the material.
- ✓ Homework is due in class on the first Saturday after completing a chapter.
- ✓ No late homework will be accepted.

Syllabus

Week	Sections	Topics	Notes
Week 1 **26/1 – 30/1**	9.1, 9.2	Fundamentals of Hypothesis Testing Methodology, t test of hypothesis for the Mean	
Week 2 **2/2 – 6/2**	9.3, 9.4, 9.6	One tail-tests Z-test for the proportion	
Week 3 **9/2 – 13/2**	10.1, 10.2	Comparing two means of two independent populations, Comparing the means of two related population,	
Week 4 **16/2 – 20/2**	10.3, 10.4	Comparing two population proportions F-test for the difference between two variances	
Week 5 **23/2 – 27/2**	12.1, 12.2, 12.3	Chi-Square test for the difference between two proportions (independent samples) Chi-Square test for differences among more than two proportions Chi-Square test for independence	
Week 6 **2/3 – 6/3**	12.4, 12.5	McNemar Test for the difference between two proportions (related samples) Chi-Square test for the variance or standard deviation	Wednesday 6 March Last day for dropping course(s) with grade of "W"
Week 7 **9/3 – 13/3**	13.1 – 13.5	Types of regression models, Simple Linear Regression Equation Measures of variation Model Assumptions Residual Analysis	
Week 8 **16/3 – 20/3**	13.6 – 13.9	Autocorrelation Inference about the Slope and Correlation C.I and P.I. estimates Pitfalls in regression	Sunday 17 March **First Major Exam**
		Midterm Vacation	
Week 9 **30/3 – 3/4**	14.1 – 14.3	Developing a Multiple Regression model R^2 , Adjusted R^2 , and overall F-test Residual Analysis,	
Week 10 **6/4 – 10/4**	14.4 – 14.6	Inferences concerning the population Regression coefficients Testing portion of the Multiple Regression Models Using Dummy variables and interaction terms in regression models	Wednesday 10 April Last day for withdrawal from all courses with grade of "W"
Week 11 **13/4 – 17/4**	15.1, 15.3	The quadratic regression model Collinearity	
Week 12 **20/4 – 24/4**	15.4, 15.5	Model building Pitfalls in multiple regression	Sunday 21 April **Second Major Exam**
Week 13 **27/4 – 1/5**	16.1 – 16.3	The importance of Business Forecasting Component forecasting of time – series models Smoothing and annual time series	
Week 14 **4/5 – 8/5**	16.4 – 16.6	Least square trend fitting and forecasting Autoregressive modeling for trend and forecasting Choosing an appropriate forecasting model	
Week 15 **11/5 – 15/5**	16.7, 16.8	Time series forecasting of seasonal data Index numbers	