

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS

DEPARTMENT OF MATHEMATICS & STATISTICS

STAT310: Linear Regression (181)

Instructor: **Esam Al-Sawi**

Phone: 1887

Office: 5-310

E-mail: **BlackBoard**

Office Hours: UTR 11:15-12:30 OR by appointment

Textbook

Introduction to Linear Regression Analysis, by Montgomery, Peck and Vinning, 5th edition.

Course Objectives

Present the basics of regression analysis.

Learning Outcomes: At the end of the term a student should be able to

- ▶ Find and interpret least square estimates of parameters
- ▶ Thoroughly understand and use the single linear regression model
- ▶ Thoroughly understand, build and use the multiple linear regression
- ▶ Perform hypothesis tests and construct confidence intervals in linear regression models
- ▶ Test the appropriateness of models, and analyze data

Important Notes:

- It is the student's responsibility to observe the academic calendar for important dates.
- Only University issued excuses will be accepted and only within a week of return to class.
- Excessive Absences will earn you a DN in accordance with University rules.
- **Check Blackboard regularly for announcements**

Assessment

Activity	Weight
Home Works (15%)+ ClassWork (5%) (quizzes, attendance, bonus)	20%
Exam 1 (Ch1+2+3+4) (15%)	15%
Exam 2 (Ch5+6+7) (15%)	15%
Project (20%)	20%
Final Exam (Comprehensive) (30%) Wednesday, 19 December 2018	30%
Total	100%

Tentative Syllabus

Week	Topics	Exceptions
1	Chapter 1 Introduction	
2-3	Chapter 2 Simple Linear Regression	
4-6	Chapter 3 Multiple Linear Regression	3.3.3 Special Case of Orthogonal Columns of X 3.3.4 Testing the General Linear Hypothesis
7-8 Exam 1	Chapter 4 Model Adequacy Checking	
9	Chapter 5 Transformation and Weighting to Correct Model Inadequacies	5.6 Regression Model with Random Effects
10	Chapter 6 Diagnostics for Leverage and Influence	
11	Chapter 7 Polynomial Regression Models	7.3 Nonparametric Regression
12 Exam 2	Chapter 8 Indicator Variables	8.3 Regression Approach to ANOVA
13	Chapter 9 Multicollinearity	
14	Chapter 10 Variable Selection and Model Building	
15	Project Presentations	