

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
 DEPARTMENT OF MATHEMATICS & STATISTICS
 DHAHRAN, SAUDI ARABIA
 STAT201: STATISTICAL METHODS
Course Outline, Semester 181

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Office Hours: 11:55 am – 11:55 am or by appointment

Text and Package:

- (1) Introductory Statistics by Ross, S. H., 3rd edition Elsevier, 2010.
- (2) *MINITAB*.

Course Objectives:

STAT201 introduction to statistics is intended to be the first course in statistics for students. The emphasis is on understanding how to use statistics to solve real-world problems. Upon completion of this course you should:

- Be familiar with the techniques of data analysis studied;
- Understand the basic elements of probability studied;
- Understand the assumptions, methods, and implications associated with various methods of statistical inference studied; and
- Be proficient in using *MINITAB* and be able to interpret the associated output.

Assessment

Assessment for this course will be based upon homework, class work, attendance, lab, three major exams and final exam (comprehensive), with the following weighting:

Activities	Weight
Homework, attendance and participation	3% +2%
Quizzes	10%
Exam 1 (Chapters 1, 2, 3, 4 & 5) <i>Wednesday October 10, 2018, 6:30 pm, B:59-R:1001</i>	20%
Exam 2 (Chapters 6, 7, 8 & 9) <i>Thursday November 8, 2018, 6:30 pm, B:59-R:1001</i>	20%
Lab exam <i>Sunday, December 9, 2018</i>	10%
Final exam (comprehensive) <i>Saturday December 22, 2018, 7:30 am</i>	35%

Grade Assignment

Score	87 – 100	80 – 86.9	75 – 79.9	70 – 74.9	65 – 69.9	60 – 64.9	55 – 59.9	50 – 54.9	0 – 49.9
Grade	A+	A	B+	B	C+	C	D+	D	F

Syllabus

<i>Week</i>	<i>Topics</i>	<i>Reminder</i>
Week 1 02/9- 06/9	1.2 - The nature of statistics. 1.3 - Populations and samples. 2.2 - Frequency tables & graphs. 2.3 - Grouped data and Histograms.	
Week 2 09/9- 13/9	2.4 - Stem & leaf plots. 2.5 - Set of Paired data (Scatter diagram) 3.2 - Sample Mean. 3.3 - Sample Median (Percentiles & Box plot) 3.4 - Sample Mode	Thursday September 5 ➤ Last day for dropping course(s) without permanent record
Week 3 16/9- 20/9	3.5 - Sample Variance. 3.6 - The Empirical Rule. 4.2 - Sample Space and Events. 4.3 - Properties of Probability	
Week 4 23/9- 27/9	4.4 - Equally likely outcomes 4.5 - Conditional probability and independence 4.6 - Bayes' Theorem	Tuesday September 23 ➤ National Day – Holiday
Week 5 29/9- 04/10	5.2 - Discrete random variables. 5.3 - Expected Value & its properties. 5.4 - Variance & its properties.	Saturday October 29 ➤ Normal Sunday classes
Week 6 07/10- 11/10	5.5 - Binomial random variable 5.6 - Hypergeometric random variable. 5.7 - Poisson random variable 6.2 - Continuous random variables.	Sunday October 7 ➤ Start of midterm grade reporting, (two weeks) Thursday October 11 ➤ Last day for dropping course(s) with grade of "W" thru Internet
Week 7 14/10- 18/10	6.3 - Normal random variables. 6.4 - Standard Normal random variables 6.5 - Conversation to the Standard Normal 6.6 - Additive property. 6.7 - Percentiles of Normal random variables.	
Week 8 21/10 - 25/10	7.3 - Sample mean, 7.4 - Central limit theorem 7.5 - Sampling Proportion	
Week 9 28/10 - 01/11	8.2 – 8.4 Point estimates of population mean, variance & Proportion 8.5 - Interval Estimators of the mean (σ known) 8.6 - Interval Estimators of the mean (σ unknown) 8.7 - Interval estimates of proportion.	
Week 10 04/11 – 08/11	9.2 - Hypotheses test & significance levels 9.3 - Test the mean (σ known) 9.4 - Test the mean (σ unknown) 9.5 - Hypotheses tests for proportion	Thursday November 8 ➤ Last day for withdrawal from all courses with grade of "W" thru the Univ Registrar Office
Week 11 11/11 - 15/11	10.2 to 10.4 - Testing equality of means large and small samples	
Week 12 18/11- 22/11	10.5 - Paired sample 10.6 - Testing equality of proportions	Sunday November 11 ➤ Beginning of Early Registration (182)
Week 13 25/11- 29/11	12.9 - Correlation Coefficient 12.2 - Simple Linear Regression 12.3 - Estimating the Regression Parameters	
Week 14 02/12 - 06/12	12.4 - Error random variable. 12.5 - Testing the hypothesis 12.6 - Regression to the mean	Thursday December 6 ➤ Last day for major exams ➤ Last day for withdrawal from all courses with grade of "WP/WF" thru the University Registrar Office
Week 15 09/12 – 13/12	12.7 - Prediction intervals for future responses 12.8 - Coefficient of Determination	

The Usage of Mobiles and Electronic Devices

Students are not allowed to use mobiles for any purpose during class time. Students who want to use electronic devices for note taking have to take permission from their instructor. Violations of these rules will result in a penalty in students' class work grade.

Outfits

Students will be required to carry a calculator with statistical functions. A binder will also be an asset to organize yourself with selected lecture notes, handouts, solutions to home works, exams etc.

Notices:

Any notice about the course will be communicated to the students through blackboard.

Homework and Tutorials

Students are required to do the homework problems at home. The first hour of the lab would be devoted to solve the tutorial problems, and to guide how to solve other problems. The second hour of lab would be devoted to show students how to use the MINITAB statistical package and to use it to solve real life problems.

Homework Problems

Chapter 2: 2.2.1, 2.2.9, 2.3.2, 2.3.5, 2.4.3.

Chapter 3: 3.2.6, 3.2.14, 3.3.2, 3.3.10, 3.3.1.4, 3.4.1, 3.5.2, 3.6.1, 3.6.10, 3.7.3, 3.7.15.

Chapter 4: 4.2.3, 4.2.12, 4.3.2, 4.3.11, 4.4.2, 4.4.7, 4.5.4, 4.5.13.

Chapter 5: 5.2.6, 5.2.17, 5.3.4, 5.3.13, 5.4.8, 5.4.13, 5.5.5, 5.5.19.

Chapter 6: 6.2.3, 6.2.6, 6.3.2, 6.3.15, 6.4.2, 6.4.7, 6.5.3, 6.5.13, 6.7.4, 6.7.11.

Chapter 7: 7.3.4, 7.3.6, 7.4.1, 7.4.4, 7.5.2, 7.5.7, 7.5.15

Chapter 8: 8.2.4, 8.2.8, 8.3.4, 8.3.11, 8.4.2, 8.4.9, 8.5.3, 8.5.12, 8.6.2, 8.6.13, 8.7.3, 8.7.9.

Chapter 9: 9.2.1, 9.2.3, 9.3.2, 9.3.11, 9.3.1.2, 9.4.3, 9.4.8, 9.5.2, 9.5.14.

Chapter 10: 10.2.2, 10.2.7, 10.3.1, 10.3.10, 10.4.2, 10.4.9.

Chapter 12: 12.2.3, 12.3.3, 12.3.8, 12.4.6, 12.5.4, 12.5.12, 12.6.4, 12.7.3, 12.8.2, 12.9.1.