

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
DEPARTMENT OF MATHEMATICS & STATISTICS
(Term 161)

STAT 211: BUSINESS STATISTICS I

Instructor: Musawar Amin Malik

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Office Hours: UTR 9:00 am – 10:20 am, M 12:00 – 1:00 pm or by Appointment

Check Blackboard regularly for announcements

Course Objectives:

Introduce basic concepts of probability and statistics to business students. Emphasize the understanding of the nature of randomness of real world problems, the formulation of statistical methods using intuitive arguments and thereby make meaningful decisions.

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

- **Distinguish** between a *sample* and a *population*
- **Distinguish** between a *statistic* and a *parameter*
- **Design** a business *data collection effort* by using the most appropriate data sampling strategy
- **Classify** business data into the most appropriate *type and measurement levels*
- **Distinguish** between *continuous* and *discrete* data
- **Calculate** *summary descriptive statistics* manually and by MINITAB
- **Interpret** the correct *meaning of summary statistics* for particular real-life business problems
- **Graph** a *correct graphical display* for the correct type of data manually and by MINITAB
- **Interpret** the *correct meaning of graphical display* for a particular real-life business problems
- **Choose** the *correct graphical display* for a particular business decision
- **Choose** the *correct summary statistics* for a particular business application
- **Assess** the correct probability for a particular business application manually and by MINITAB
- **Calculate** the probability for different types of regular business events (marginal, conditional, and joint events) and for updated posterior business events
- **Calculate** expected values of future business events
- **Recognize and use** the correct probability distribution model for a particular business application manually and by MINITAB
- **Distinguish** between *continuous* and *discrete* probability distribution models
- **Distinguish** between *distribution for sample data, distribution for population data, and distribution for sample statistics*
- **Understand** the role of *central limit theorem* in the distribution of sample statistics
- **Evaluate** the *correctness and error levels* of a procedure for estimating a population parameter
- **Design** a business data collection effort by finding the *minimum necessary sample sizes* manually and by MINITAB
- **Estimate parameters** of a business population of interest manually and by MINITAB
- **Choose** the most *appropriate statistical procedure* for a particular type and measurement level of business data

Textbook, package and calculator:

1. Basic Business Statistics: Concepts and Applications, 12th edition, by Berenson, M.L., Levine, D.M., and Krehbiel, T.C., Pearson-Prentice Hall (2012).
2. MINITAB (<http://www.minitab.com/products/minitab/student/>)
3. Students must have their own calculators. Use of mobile phones or other devices are prohibited.

Assessment*

Activity	Weight
<i>Class Work + Lab Work</i>	7% + 10%
<i>First Major Exam (Chapters 1,2,3) Sunday October 16, 2016</i>	16%
<i>Second Major Exam (Chapter 4,5) Wednesday November 9, 2016</i>	16%
<i>Third Major Exam(Chapters 6 &7) Monday December 12, 2016</i>	16%
<i>Final Exam (Comprehensive)</i> As posted on the Registrar Website	35%

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

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.

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 problems will be posted on the Blackboard before the chapter is completed for all the chapters to be covered in the course. Students are required to submit the solutions to these HW problems after each chapter is completed in class lecture. The specific deadlines for each chapter will be the following SUNDAY after the completion of each chapter in class.

Syllabus

Week	Sections	Topics	Reminders
Week 1 (Sep18-21)	1.1-1.6	What is Business Statistics, tools for data collection, populations, samples, data Types and measurement levels, type of variables.	
September 22	National Day Holiday		
Week 2 (Sep25-29)	2.1-2.5	Tables, charts for categorical data. Organizing numerical data. Tables, charts for numerical data. Cross tabulations. Scatter plots and time series plots	Thursday September 29 ➤ Last day for dropping course(s) without permanent record
Week 3 (Oct 2 - 6)	3.1-3.3	Measures of location and measures of variation.	
Week 4 (Oct 9–13)	3.4-3.6	Coefficient of variation, empirical rule, Tchebysheff's inequality and standardized data values. Quartiles and the Box plot	
Week 5 (Oct16-20)	4.1	Basic probability concepts. Rules of probability,	➤ First lab chapter 2 and chapter 3
Week 6 (Oct23-27)	4.2- 4.3	conditional probability, Bayes theorem	Thursday October 27: Last day for dropping course(s) with grade of "W" thru Portal
Week 7 (Oct30- Nov3)	5.1-5.4	Probability distribution for discrete random variable, the Binomial distribution. Other discrete distributions (Poisson & Hypergeometric)	
Week 8 (Nov 6-10)	5.4-5.5	Other discrete distributions (Poisson & Hypergeometric)	
(November 13 – 17) Midterm Break			
Week 9 (Nov20-24)	6.1-6.4	Continuous random variables .The normal distribution. Other continuous distributions (Exponential & Uniform)	
Week 10 (Nov27- Dec1)	6.4-6.7 7.1-7.2	Other continuous distributions (Exponential & Uniform). The normal approximation to the binomial. Sampling methods and sampling error.	Thursday December 1 ➤ Last day for withdrawal from <u>all courses</u> with grade of "W" thru the Univ Registrar Office
Week 11 (Dec 4 – 8)	7.3-7.5	Sampling distributions of the mean and Sampling distributions of the proportion.	Sunday December 4 ➤ Beginning of Early Registration for second semester (162)
Week 12 (Dec 11-15)	8.1-8.3	Point and confidence interval estimation of the mean and proportion	➤ The second lab to cover chapters 5, 6 and 7
Week 13 (Dec 18-22)	8.4	Sample size determination for estimating the population mean and proportion.	
Week 14 (Dec 25-29)	Parts of 10.1-10.2	Estimation of the difference between two population means.	Thursday December 29 ➤ Last day for major exams ➤ Last day for withdrawal from <u>all courses</u> with grade of "WP/WF" thru the University Registrar Office
Week 15 (Jan 1 – 5)	Part of 10.3	Estimation of the difference between two population proportions	➤ The third lab to cover chapters 8 and 10 ➤ The lab exam (online)
Week 16 (Jan 8)	Normal Thursday classes & last day of the classes for the term: Review		