KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
DEPARTMENT OF MATHEMATICS & STATISTICS
DHAHRAN, SAUDI ARABIA

STAT211: BUSINESS STATISTICS I (112)

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.

Textbook 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** (http://www.minitab.com/products/minitab/student/)
3. **Scientific calculator with statistical functions**

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Office Hours: SMW: 10:00 am - 11:00 am or by appointment.

Assessment
Assessment for this course will be based on quizzes, attendance, homework, lab, two major exams and a comprehensive final exam, as in the following:

Activity	Weight
Quizzes[1], attendance, homework and Lab work	(8%+2%+5%+5%)
Exam 1 (Chapters 1, 2, 3 & 4) **Wednesday Feb 29, 2012 , 8:30 pm, in Building 54**	20%
Exam 2 (Chapters 5, 6 & 7) **Wednesday Apr 11, 2012, 8:30 pm,**	20%
Final Exam (Comprehensive) **Tuesday May 22, 2012, 7:00 pm**	40%

General Notes:

- Students are required to carry **pens, note-taking equipment** and a **calculator** with statistical functions to **EVERY lecture, quizzes, and exams**. It is strongly recommended to keep a **binder** for class-notes.
- Students are also expected to take class notes and organize their learning material in a **binder** for easy retrieval to help them in study and review for class, exams, etc
  - It is to the student's advantage to keep a binder for storing class notes, homework, and other graded assignments. Students who are **organized** will find it **easier** to find important materials when **studying for exams**.
- 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. So, it is expected that you complete these problems **step-by-step** and with comprehension..
- ***Never round*** your intermediate results to problems when doing your calculations. This will cause you to lose calculation accuracy. Round only your final answers and you should not round less than 4 decimal places unless required otherwise.
- ***A formula sheet*** and ***statistical tables*** will be given for you in every exam, so you only need to bring with you ***pens***, ***pencils***, ***a sharpener***, ***an eraser***, and a ***calculator***.

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

[1] Once a chapter is completed, you should expect a class quiz.

Syllabus (Tentative)

Week	*Sections*	Topics
1 28/1 – 1/2	1.1-1.5	What is Business Statistics, tools for data collection populations, samples, data Types and measurement levels, type of variables.
2 4/2 – 8/2	1.6 2.1-2.4	Business statistics and computer. Tables, charts for categorical data. Organizing numerical data. Tables, charts for numerical data. Cross tabulations. Scatter plots and time series plots
3 11/2 – 15/2	2.5-2.6 3.1-3.3	Tables, Charts and Graphs (cont.) Measures of location and measures of variation.
4 18/2 – 22/2	3.4-3.6 4.1	Coefficient of variation, empirical rule, Tchebysheff's inequality and standardized data values. Quartiles and the Box plot Basic probability concepts
5 25/2 –29/2	4.2-4.3 5.1	Rules of probability, conditional probability, Bayes theorem Probability distribution for discrete random variable
WEDNESDAY, Feb 29 - 1-st Major Exam		**(chapters 1, 2, 3 & 4)**
6 3/3 – 7/3	5.1-5.4	Probability distribution for discrete random variable (cont.), the Binomial distribution. Other discrete distributions (Poisson & Hypergeometric)
7 10/3 – 14/3	5.4-5.5 6.1	Other discrete distributions (Poisson & Hypergeometric –cont.) Continuous random variables
8 17/3 – 21/3	6.2-6.4	The normal distribution. Other continuous distributions (Exponential & Uniform)
Midterm Vacation Mar, 24 – 48		
9 31/3 – 4/4	6.4-6.7 7.1-7.2	Other continuous distributions (Expo & Uniform –cont.) The normal approximation to the binomial. Sampling methods and sampling error.
10 7/4 – 11/4	7.3-7.5	Sampling distributions of the mean and Sampling distributions of the proportion.
WEDNESDAY, Apr 11 - 2-nd Major Exam		**(chapters 5, 6, & 7)**
11 14/4 – 18/4	8.1-8.3	Point and confidence interval estimation of the mean and proportion
12 21/4 – 25/4	8.4	Sample size determination for estimating the population mean and proportion.
13 28/4 – 2/5	Parts of 10.1-10.2	Estimation of the difference between two population means.
14 5/5 – 9/5	Part of 10.3	Estimation of the difference between two population proportions.
15 12/5 – 16/5	Part of 10.3	Estimation of the difference between two population proportions (cont.) Review
Comprehensive Final Exam , Tuesday May 22, 2012 7pm		

Important Notes:

- ✓ We will explain the MINITAB commands in the class and the student free to do his homework any were he likes.
- ✓ In accordance with University rules, ***NINE unexcused absences*** will automatically result in a grade of ***DN***.
- ✓ ***Attendance*** on time is ***very*** important. Therefore, ½ % will be deduced for ***each lateness.*** That is, **2 lateness equals to** one absence
- ✓ Mostly, attendance will be checked within the ***first five minutes*** of the class. Entering the class after that, is considered as one late, and ***every two times late*** equals to one absence.

Home Work Problems:

- Handout problems will be posted on the WebCT or in the instructor home page towards the end of each chapter.
- The ***Homework*** should be submitted in the first Saturday after completing the chapter ***and no need for an announcement in advance***.
- No late homework will be accepted.

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 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** 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 model
- **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