King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics

STAT-211: Business Statistics I
Fall Semester 2017 (Term 171)

Instructor: Nasir Abbas
Office: 5-333
Phone: 013-860-4485
E-mail: nasirabbas@kfupm.edu.sa

Office Hours (Tentative): UMT. 10:35 am – 11:45 am, or by appointment

Course Description: 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 (2011).
2. MINITAB (http://www.minitab.com/en-us/products/minitab/)
3. Students must have their own calculators. Use of mobile phones or other devices is prohibited.

Assessment*

Activity	Weight
Class Participation (home works, quizzes, attendance, bonuses, etc.) + Lab work	15%
First Major Exam (Chapters 1, 2, 3 & 4) Week 6 (Wednesday 25th October 2017, 7:00 pm)	20%
Second Major Exam (Chapters 5, 6, & 7) Week 11 (Wednesday 29th November 2017, 7:00 pm)	25%
Final Exam (Comprehensive) (Tuesday 2nd January 2018, 7:00 pm)	40%

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

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

Important Notes:

- ✓ Only University issued excuses will be accepted and only within a week of return to class.
- ✓ Excessive unexcused absences will result in a grade of ***DN*** in accordance with University rules.
- ✓ ***Attendance*** on time is ***very*** important.
- ✓ Use of ***mobile*** is ***banned*** during the class.
- ✓ Check ***Blackboard*** regularly for announcements.
- ✓ Quizzes may ***not*** be announced in advanced.
- ✓ No late homework will be accepted.

Your Responsibilities:

- ✓ Observe the academic calendar for important dates
- ✓ Taking all exams.
- ✓ Attending all lectures.
- ✓ Completing all homework problems posted on the Blackboard.
- ✓ Reading all my e-mails in a timely manner, i.e. check your e-mail every day.
- ✓ Asking for help when you need it and not waiting until the end of the semester.
- ✓ Practice active learning instead of waiting until the day before an exam to attempt to learn the material.

Syllabus

Week	Section	Topics	Reminders
Week 1 **17/09 – 21/09**	1.1 1.2 1.3 1.4	Why Learn Statistics. Statistics in Business. Basic Vocabulary of Statistics. Identifying Types of Variables.	
Week 2 **25/09 – 28/09** **01/10**	2.2 2.3 2.4 2.5 2.6	Organizing Categorical Data. Organizing Numerical Data. Visualizing Categorical Data. Visualizing Numerical Data. Visualizing Two Numerical Data.	28th September: Last day for dropping course(s) without permanent record
Week 3 **02/10 – 05/10** **07/10**	3.1 3.2	Central Tendency. Variation and Shape.	
Week 4 **08/10 – 12/10**	3.3 3.4	Exploring Numerical Data. Numerical Descriptive Measures for a Population	
Week 5 **15/10 – 19/10**	4.1 4.2	Basic probability concepts Conditional Probability	
Week 6 **22/10 – 26/10**	4.3	Bayes' Theorem	**First Major Exam** First lab to cover chapter 2 and chapter 3 (preferably on Thursday i.e. after the major exam) 26th October: Last day for dropping course(s) with grade of "W" through KFUPM Portal
Week 7 **29/10 – 02/11**	5.1 5.3	Probability distribution for discrete random variable, Binomial distribution.	
Week 8 **05/11 – 09/11**	5.4 5.5	Poisson Distribution Hypergeometric Distribution	
Week 9 **12/11 – 16/11**	6.1 6.2 6.4	Continuous Probability distributions. Normal distribution. Uniform Distribution.	
Week 10 **19/11 – 23/11**	6.5 6.6 7.1	Exponential Distribution Normal Approximation to the Binomial. Types of Sampling Methods	23rd November: Last day for withdrawal from all courses with grade of "W" through the University Registrar Office

Week 11 **26/11 – 30/11**	7.3 7.4 7.5	Sampling Distributions. Sampling Distribution of the Mean Sampling Distribution of the Proportion.	**Second Major Exam** The second lab to cover chapters 5, 6 and 7 (preferably on Thursday i.e. after the major exam)
Week 12 **03/12 – 07/12**	8.1 8.2 8.3	Confidence interval Estimate of the Mean (σ known) Confidence interval Estimate of the Mean (σ unknown) Confidence interval Estimate for the Proportion	
Week 13 **10/12 – 14/12**	8.4 10.1	Determining Sample Size. Confidence interval Estimate for the Difference Between Two means	
Week 14 **17/12 – 21/12**	10.2 10.3	Confidence interval Estimate for the Mean Difference. Confidence interval Estimate for the Difference Between Two Proportions	21st December: Last day for withdrawal from all courses with grade of "WP/WF" through the University Registrar Office
Week 15 **24/12 – 28/12**		Review and Catchup	The third lab to cover chapters 8 and 10 (preferably on Sunday) **The online lab exam** (preferably on Tuesday)

Homework

All the homework problems are selected from the book.

Chapter 1 (Due on 25th September 2017): 1.4, 1.5, 1.6, 1.7 and 1.11(a).

Chapter 2 (Due on 2nd October 2017): 2.5, 2.6, 2.10, 2.15, 2.16, 2.17 and 2.20.

Chapter 3 (Due on 15th October 2017): 3.3, 3.4, 3.6, 3.8, 3.10, 3.17, 3.21, 3.22, 3.26, 3.31, 3.32, 3.38, 3.39, 3.44, 3.46, 3.47, 3.63, 3.64 and 3.70.

Chapter 4 (Due on 24th October 2017): 4.3, 4.8, 4.9, 4.13, 4.14, 4.16, 4.18, 4.19, 4.21, 4.23, 4.29, 4.31, 4.33, 4.36, 4.37, 4.60 and 4.63.

Chapter 5 (Due on 12th November 2017): 5.1, 5.5, 5.8, 5.9, 5.14, 5.16, 5.17, 5.18, 5.22, 5.25, 5.30, 5.32, 5.42, 5.44 and 5.47.

Chapter 6 (Due on 23th November 2017): 6.5, 6.6, 6.8, 6.23, 6.24, 6.27, 6.28, 6.35 and 6.53.

Chapter 7 (Due on 28th November 2017): 7.5, 7.15, 7.16, 7.19, 7.22, 7.23, 7.25, 7.27, 7.29 and 7.45 (parts a to d).

Chapter 8 (Due on 14th December 2017): 8.2, 8.9(parts a and d), 8.11, 8.14, 8.17(parts a and b), 8.26, 8.32, 8.34, 8.36, 8.43 and 8.47.

Chapter 10 (Due on 24th December 2017): 10.4, 10.8(b), 10.12 (d), 10.20(d), 10.24(c), 10.27(b) and 10.29(c).