King Fahd University of Petroleum and Minerals

Department of Mathematics

Stat 211 Syllabus, Term 232 (Academic Year 2023-2024)

Coordinator: Musawar A. Malik (mmalik@kfupm.edu.sa)

Course Code and Title: STAT-211: Business Statistics I

Course Credit Hours: 3-0-3

Textbook: Basic Business Statistics: Concepts and Applications, 12th edition, by Berenson, M.L., Levine, D.M., and Krehbiel, T.C., Pearson-Prentice Hall (2011).

Course Objectives: Organizing and presenting data Describing data numerically Calculate basic probabilities and use probability distributions Identify the sampling distributions Construct confidence intervals for single population parameters

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.

Prerequisite:

Course Learning Outcomes: Upon successful completion of the course, a student should be able to

1. classify business data into the most appropriate type and measurement levels.
2. Organize, manage, and present data.
3. Analyze statistical data graphically and analyze statistical data using measures of central tendency, dispersion, and location.
4. Demonstrate an understanding of the basic concepts of probability and random variables. and explain the basic probability rules, including additive and multiplicative laws, using the terms, independent and mutually exclusive events and calculate expected values for continuous and discrete probability distribution models.
5. Recognize and use the correct probability distribution model for a particular business application.
6. Understand the concept of the sampling distribution of a statistic, and in particular describe the behavior of the sample mean.
7. Understand the foundations for classical inference involving confidence intervals.

Grading Policy:

	Date	Time	Place	Material	Percentage
Exam I	TBA			Chapters 1,2,3	25% (100)
Exam II	TBA			Chapters 4,5,6	25% (100)
Final Exam	As per registrar website			Comprehensive	30% (120)
Online Homework	Through Blackboard				10% (40)
Rec. Lab					
Class Work	▪ It is based on quizzes, class tests, or other class activities determined by the instructor. ▪ The average (out of 40) of the class work of each section has to be in the interval $[y-1, y+1]$, where $y = \frac{median(Exam\ I)\% + median(Exam\ II)\%}{5}$.				10% (40)
				Total	100% (400)

Letter Grades: The letter grades will follow a grading curve, which depends on the average of all students enrolled in the course.

Exam Questions: The questions of the exams are similar to the examples and exercises in the textbook.

Cheating in Exams: Cheating or any attempt of cheating by use of illegal activities, techniques and forms of fraud will result in a grade of DN in the course along with reporting the incident to the higher university administration for further action. Cheating in exams includes (but is not restricted to):

- Looking at the papers of other students.
- Talking to other students.
- Using mobiles, smart watches or any other electronic devices.

Other Exam Issues:

- No student will be allowed to take the exam if he/she does not bring his/her KFUPM ID, or National/Iqama ID, or Driver's License with him/her to the exam hall.
- Students are not allowed to have their mobiles, smart watches, or any electronic device in the exam hall. A violation of this will be considered an attempt of cheating.
- A student must sit in the seat assigned to him/her. A violation of this will be considered an attempt of cheating.

Missing an Exam: In case a student misses an exam (Exam I, Exam II, or the Final Exam) for a legitimate reason (such as medical emergencies), he/she must bring an official excuse from Students Affairs. Otherwise, he/she will get a score of zero in the missed exam.

Attendance: Students are expected to attend all lecture and lab classes.

- If a student misses a class/lab, he/she is responsible for any announcement made in that class/lab.
- After warned **twice** by the instructor, a DN grade will be awarded to any student who accumulates
    - 9 unexcused absences in lecture and lab classes. (20%)
    - 12 excused and unexcused absences in lecture and lab classes. (33.3%)

The Usage of Mobiles in Class: Students are not allowed to use mobiles for any purpose during class time. Students who want to use electronic devices to take notes must take permission from their instructor. Violations of these rules will result in a penalty decided by the instructor.

Academic Integrity: All KFUPM policies regarding ethics apply to this course. See the Undergraduate Bulletin in the Registrar's website.

Coverage Plan

Week	Date (2023)	Sec	Title (# sections)
1	Jan. 14-18	1.1	Why Learn Statistics.
		1.2	Statistics in Business
		1.3	Basic Vocabulary of Statistics
		1.4	Identifying Types of Variables
		2.2	Organizing Categorical Data
		2.4	Visualizing Categorical Data.
2	Jan. 21-25	2.3	Organizing Numerical Data
		2.5	Visualizing Numerical Data.
		2.6	Visualizing Two Numerical Data.
3	Jan.28-Feb.1	3.1	Central Tendency
		3.2	Variation and Shape.
4	Feb. 4-8	3.3	Exploring Numerical Data
		3.4	Numerical Descriptive Measures for a Population
5	Feb. 11-15	4.1	Basic probability concepts
		4.2	Conditional Probability
6	Feb. 18-21	4.3	Bayes' Theorem
		5.1	Probability distribution for discrete random variable
	Feb. 22		SAUDI FOUNDING DAY
7	Feb. 25-29	5.3	Binomial distribution
		5.4	Poisson Distribution
		5.5	Hypergeometric Distribution
8	Mar. 3-7	6.1	Probability distributions
9	Mar. 10-14	6.2	Normal distribution
		6.4	Uniform Distribution
10	Mar. 17-21	6.5	Exponential Distribution Continuous
		6.6	Normal Approximation to the Binomial
11	Mar. 24-28	7.3	Sampling Distributions.
		7.4	Sampling Distribution of the Mean
		7.5	Sampling Distribution of the Proportion
	Mar. 29 – Apr. 18		EID AL-FITR Holidays

12	Apr. 21-25	8.1	Confidence interval Estimate of the Mean (σ known)
13	Apr. 28-May. 2	8.2	Confidence interval Estimate of the Mean (σ unknown)
		8.3	Confidence interval Estimate for the Proportion
		8.4	Determining Sample Size
14	May. 5-9	10.1	Confidence interval Estimate for the Difference Between Two means
15	May. 12-16	10.2	Confidence interval Estimate for the Mean Difference
		10.3	Confidence interval Estimate for the Difference Between Two Proportions
16	May. 19		A Normal Sunday Class/Last day of classes for the term (**Review/ Catching up**)

Suggested Practice Exercises

Sr.	Ch	Exercises #
1	1	1.1, 1.5, 1.7, 1.11, 1.25, 1.27
2	2	2.5, 2.11, 2.20, 2.22, 2.24, 2.27, 2.37, 2.39, 2.44, 2.46
3	3	3.3, 3.4, 3.8, 3.13, 3.23, 3.28 3.33, 3.39, 3.40, 3.63
4	4	4.3, 4.8, 4.14, 4.17, 4.19, 4.23, 4.31, 4.37, 4.61
5	5	5.1, 5.3, 5.19, 5.23, 5.24, 5.30, 5.33, 5.42, 5.43
6	6	6.1, 6.5, 6.6, 6.9, 6.23, 6.29, 6.33, 6.51
7	7	7.18, 7.19, 7.20, 7.21, 7.25, 7.27, 7.45
8	8	8.5, 8.9, 8.12, 8.23, 8.30, 8.32, 8.38, 8.43, 8.48
9	10	10.12 (c), 10.14 (d), 10.20 (d), 10.23 (d), 10.29 (c & d)

Some tips to enhance your problem-solving skills:

- Do all homework assignments on time.
- Practice (but not memorize) more problems than those given in the above list.
- Solve some review exercises available at the end of each chapter.
- Solve the problems on your own before reading the solution or asking for help.
- If you find it difficult to handle a certain type of problems, you should try more problems of the same type.
- Try to make good use of the office hours of your instructor. Always bring your solution trials to discuss them with your instructor.