King Fahd University of Petroleum and Minerals
Mathematics Department
Dhahran, Saudi Arabia
STAT 212: Business Statistics II (Term 231)
Coordinator: Abdulaziz Almutlaq

Course Objectives: Introducing basic concepts of probability and statistics to business students. Emphasis will be given on the understanding of the nature of randomness of real-world problems, the formulation of statistical methods by using intuitive arguments and thereby making meaningful decisions

Learning Outcomes: By completing this course, students should
  ➤ Know the correspondence between levels of measurement and statistical procedures.
  ➤ Know the assumptions underlying statistical procedures.
  ➤ Select the appropriate statistical procedure for various applied business situations.
  ➤ Accurately compute procedures manually and by *MINITAB* and interpret the results of these statistical procedures.
  ➤ Finally, make the right decision.

Textbook and Statistical Package:
  ➤ Basic Business Statistics: Concepts and Applications, 12th edition, by Berenson, M.L., Levine, D.M., and Krehbiel, T.C., Pearson-Prentice Hall (2012).
  ➤ MINITAB Statistical Package will be used.
  ➤ Scientific calculator with statistical functions in every class, quiz and exam.

Assessment*

Activity	Weight
Homework (online) and Class Evaluation	10% (40 points)
▪ 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 $y = \dfrac{median(Exam\ I)\% + median(Exam\ II)\%}{5}.$	10% (40 points)
Major Exam 1: Chapters 9, 10 & Section 12.5 **Major 1,TBD**	25% (100 points)
Major Exam 2: Chapters 12, 13 **Major 2,TBD**	25% (100 points)
Final Exam (Comprehensive)	30% (120 points)

MINITAB: All MINITAB commands and procedures will be explained in the class and the student are expected to understand the outputs and how to read them.

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

Weekly Schedule (Tentative)

Week	Sections & Topics	Notes
Week 1 27/8 – 31/8	9.1 Fundamentals of Hypothesis-Testing Methodology 9.2 T-Test of Hypothesis for the Mean (σ Unknown)	
Week 2 03/9 – 07/9	9.3 One-Tail Tests 9.4 Z Test of Hypothesis for the Proportion 12.5 Chi-Square Test for the Variance or Standard Deviation	
Week 3 10/9 – 14/9	10.1 Comparing the Means of Two Independent Populations 10.2 Comparing the Means of Two Related Populations	
Week 4 17/9 – 21/9	10.3 Comparing the Proportions of Two Indep. Populations 10.4 F Test for the Ratio of Two Variances 12.1 Chi-Square Test for the Difference Between Two Proportions	
Week 5 25/9 – 28/9	12.2 Chi-Square Test for Differences Among More Than Two Proportions 12.3 Chi-Square Test of Independence 12.4 McNemar Test for the Difference Between Two Proportions (Related Samples)	National Day 24/9
Week 6 01/10 – 05/10	13.1 Types of Regression Models 13.2 Determining the Simple Linear Regression Equation 13.3 Measures of Variation	
Week 7 08/10 – 12/10	13.4 Assumptions 13.5 Residual Analysis 13.6 Introduction to Autocorrelation	
Week 8 15/10 – 19/10	13.7 Inferences About the Slope and Correlation Coefficient 13.8 Estimation of Mean Values and Prediction of Individual Values 13.9 Pitfalls in Regression	
Week 9 22/10 – 26/10	14.1 Developing a Multiple Regression Model 14.2 R^2 , Adjusted R^2, and the Overall F Test 14.3 Residual Analysis for the Multiple Regression Model	
Week 10 29/10 – 02/11	14.4 Inferences Concerning the Population Regression Coefficients 14.5 Testing Portions of the Multiple Regression Model 14.6 Using Dummy Variables and Interaction Terms in Regression Models	
Week 11 05/11 – 09/11	15.3 Collinearity 15.4 Model Building 15.6 Checking Model Adequacy	
Week 12 12/11 – 16/11	16.1 The Importance of Business Forecasting 16.2 Component Factors of Time-Series Models 16.3 Smoothing an Annual Time Series	
19/11 – 23/11	**Midterm Break**	
Week 13 26/11 – 30/11	16.4 Least-Squares Trend Fitting and Forecasting 16.5 Autoregressive Modeling for Trend Fitting and Forecasting	
Week 14 03/12 – 07/12	16.6 Choosing an Appropriate Forecasting Model 16.7 Time-Series Forecasting of Seasonal Data	
Week 15 10/12 – 14/12	16.8 Online Topic: Index Numbers	
Week 16 17/12 – 19/12	17/12 : Normal Thursday 18/12 & 19/12 : Exam preparation break	

Important Rules
1- Student is not allowed to enter the exam hall without either KFUPM ID cards or Saudi ID/ Iqama ID cards.
2- Students are not allowed to carry mobile phones and smart watches to the exam halls.
3- Students need to strictly adhere to the attendance policy of the university.
4- DN-Grade will be assigned to the eligible students after their instructors have warned them twice.

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 or any other electronic devices.

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 must bring an official excuse from Students Affairs. Otherwise, he will get zero in the missed exam.

Attendance
Students are expected to attend all lecture classes.
➢ If a student misses a class, he is responsible for any announcement made in that class.
➢ A DN grade will be awarded to any student who accumulates more than 20% unexcused absences (9 lectures) or 33.3% excused and unexcused absences (15 lectures)
Note: Absences are counted as follows:
1. For UTR-Lectures, missing one lecture is counted as 1 absence.
2. For UTR-Lectures, coming LATE to the lecture twice is counted as 1 absence.

The usage of mobile phones and apple watches
- 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.

Tips on how to enhance your problem-solving abilities
- Do all homework assignments on time.
- Solve review problems available at the end of each section and 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.
- Practicing homework problems and reviewing the class lectures will make exam problems easier to tackle.
- Try to make good use of the office hours of your instructor. Always bring partial solutions of the questions that you want to discuss with your instructor.

Suggested Exercises:

Chapter	Exercises
9	9.2, 9.6, 9.8, 9.14, 9.16, 9.18, 9.24, 9.26, 9.36, 9.40, 9.44, 9.48, 9.50, 9.54, 9.58, 9.72
10	10.2, 10.10, 10.12, 10.20, 10.30, 10.32, 10.36, 10.38, 10.46
12	12.2, 12.6, 12.8, 12.12, 12.16, 12.22, 12.24, 12.28, 12.29
13	13.1, 13.2, 13.4, 13.16, 13.26, 13.40, 13.42, 13.55, 13.56, 13.58
14	14.1, 14.2, 14.6, 14.10, 14.16, 14.20, 14.24, 14.28, 14.32, 14.36, 14.38, 14.40, 14.42, 14.44
15	15.14, 15.15, 15.18, 15.22, 15.23
16	16.1, 16.2, 16.3, 16.4, 16.10, 16.12, 16.13, 16.18, 16.30, 16.34, 16.40, 16.42, 16.46, 16.48 Online topic (index numbers): 16.67, 16.69