

King Fahd University of Petroleum and Minerals

Department of Mathematics

Dhahran, Saudi Arabia

STAT-212: Business Statistics II (Term 232)

Coordinator: Dr. Nasir Abbas (nasirabbas@kfupm.edu.sa)

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

- Recognize the correspondence between levels of measurement and statistical procedures.
- State and test the assumptions underlying statistical procedures.
- Select the appropriate statistical procedure for various applied business situations.
- Accurately compute procedures and interpret the results of these statistical procedures.
- Conclude the findings and make the right decision.

Textbook and Statistical Package:

- Basic Business Statistics: Concepts and Applications, 12th edition, by ML Berenson, DM Levine and TC Krehbiel, Pearson-Prentice Hall (2012).
- MINITAB and/or EXCEL outputs will be used to explain procedures.
- Scientific calculator with statistical functions in every class, quiz and exam.

Assessment*

Activity	Date	Time	Place	Material	Percentage
Homework (Online)	Through Blackboard				10% (40 points)
Class Work	<ul style="list-style-type: none"> ▪ 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: $y = \frac{\text{median}(\text{Exam I})\% + \text{median}(\text{Exam II})\%}{5}$ 				10% (40 points)
Exam I	TBA			Chapters 9, 10 & Section 12.5	25% (100 points)
Exam II	TBA			Chapters 12, 13	25% (100 points)
Final Exam	As per registrar website			Comprehensive	30% (120 points)
Total					100% (400)

Exam rules and regulations

I. Rules

1. Students must present their KFUPM, National/Iqama ID, or Driver's License Card to gain entry to the exam hall. No student will be allowed to take the exam without these forms of identification.
2. Each student must occupy the seat assigned to them during exams. Any violation of this will be considered an attempt at cheating.
3. Students are prohibited from carrying mobile phones, smartwatches, or any electronic devices into the exam hall. Any breach of this rule will be treated as an attempted act of cheating.
4. All exam questions will originate from the course material, including examples, suggested homework problems, or exercises from the book.

II. 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.

III. 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 zero in the missed exam.

Other remarks

I. Attendance:

Students are expected to attend all lecture classes.

- Students are required to strictly adhere to the university's attendance policy.
- If a student misses a class, he/she is responsible for any announcement made in that class.
- DN-Grade will be assigned to eligible students after their instructors have issued two warnings.
- 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:

- For UTR-Lectures, missing one lecture is counted as 1 absence.
- For UTR-Lectures, coming LATE to the lecture twice is counted as 1 absence.

II. The usage of mobile phones and smart 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 get 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.

III. 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 problem, 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.

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

Blackboard: All contacts or announcements between the instructor and the students are supposed to be through Blackboard, so the student must check his Blackboard at least once a day.

Tentative Weekly Schedule

<i>Week</i>	<i>Sections & Topics</i>	<i>Notes</i>
Week 1 Jan 14 – 18	9.1 Fundamentals of Hypothesis-Testing Methodology 9.2 T-Test of Hypothesis for the Mean (σ Unknown)	Jan 16, 2024 Last day for registration confirmation (11:59 PM) - Last day for adding courses.
Week 2 Jan 21 – 25	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	Jan 25, 2024 Last day for dropping course(s) without permanent record
Week 3 Jan 28 – Feb 1	10.1 Comparing the Means of Two Independent Populations 10.2 Comparing the Means of Two Related Populations 10.3 Comparing the Proportions of Two Independent Populations	
Week 4 Feb 4 – 8	10.4 F Test for the Ratio of Two Variances 12.1 Chi-Square Test for the Difference Between Two Proportions 12.2 Chi-Square Test for Differences Among More Than Two Proportions	
Week 5 Feb 11 – 15	12.3 Chi-Square Test of Independence 12.4 McNemar Test for the Difference Between Two Proportions (Related Samples)	
Week 6 Feb 18 - 21	13.1 Types of Regression Models 13.2 Determining the Simple Linear Regression Equation 13.3 Measures of Variation	Feb 22, 2024 Saudi Founding Day
Week 7 Feb 25 - 29	13.4 Assumptions 13.5 Residual Analysis 13.6 Measuring Autocorrelation: The Durbin-Watson Statistic	
Week 8 Mar 3 – 7	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 Mar 10 – 14	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 Mar 17 – 21	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	Mar 21, 2024 Last day for dropping course(s) with grade of "W" thru KFUPM Portal*
Week 11 Mar 24 – 28	15.1 The Quadratic Regression Model 15.3 Collinearity 15.4 Model Building	
Mar 29 – Apr 18	Eid Al-Fitr Holidays	
Week 12 Apr 21 – 25	15.6 Aptness of the model 16.1 The Importance of Business Forecasting 16.2 Component Factors of Time-Series Models	
Week 13 Apr 28 – May 2	16.3 Smoothing an Annual Time Series 16.4 Least-Squares Trend Fitting and Forecasting 16.5 Autoregressive Modeling for Trend Fitting and Forecasting	
Week 14 May 5 – 9	16.6 Choosing an Appropriate Forecasting Model 16.7 Time-Series Forecasting of Seasonal Data	May 09, 2024 Last day for withdrawal from all courses with grade of "W". (Note: Approval from Students affairs is required)
Week 15 May 12 – 16	16.8 Online Topic: Index Numbers	
Week 16 May 19	Catchup and Review	Normal Thursday Classes -Last Day of classes for the term

Suggested Exercises:

<i>Chapter</i>	<i>Exercises</i>
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