

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
DEPARTMENT OF MATHEMATICS & STATISTICS
DHAHRAN, SAUDI ARABIA
STAT201: INTRODUCTION TO STATISTICS
Course Outline, Semester 201

Instructor: Musawar Amin Malik

Office: 5-306

Telephone: 013-860-2396

Email: mmalik@kfupm.edu.sa

Office Hours: TR: 9:00 – 10:00 am, UT: 12:00 – 1:00 pm or by appointment.

Text and Package:

(1) Introductory Statistics by Ross, S. H., 3rd edition, Elsevier, 2010.

(2) **MINITAB**

We will use Minitab thru VPN by logging in to our labs in building 5.

Course Objectives:

STAT201 introduction to statistics is intended to be the first course in statistics for students. The emphasis is on understanding how to use statistics to solve real-world problems. Upon completion of this course you should:

- Be familiar with the techniques of data analysis studied;
- Understand the basic elements of probability studied;
- Understand the assumptions, methods, and implications associated with various methods of statistical inference studied; and
- Be proficient in using **MINITAB** and be able to interpret the associated output.

Assessment

Assessment for this course will be based upon, class work, online assessments, project/assignment/test/oral test, lab, midterm exam, and final exam (comprehensive), with the following weights:

Activities	Weight
Class work (Homework, attendance, Quizzes and participation)	15%
Online Assessment 1 (Chapters 1 to 4)	15%
Midterm Exam (Chapters 1 to 6)	15%
Online Assessment 2 (Chapters 7 to 9)	15%
Project/Assignment/Test/Oral test	5%
Lab Exam	10%
Final exam (Comprehensive)	25%

Syllabus and coverage of material

<i>Week</i>	<i>Section</i>	<i>Topics</i>	<i>Reminder</i>
Week 1 Aug 30 - Sep 3	1.1 -1.3	Introduction, the nature of statistics, populations and samples	
Week 2 Sep 6 - 10	2.1-2.5 3.1- 3.4	Introduction, frequency tables & graphs, histograms, stem-&-leaf plot, set paired data. Mean, median, and mode	
Week 3 Sep 13 - 17	3.5-3.7 4.1-4.2	Variance & standard deviation, empirical rule and sample correlation coefficient. Probability: sample space & events,	
Week 4 Sep 20 - 22	4.3-4.4 4.5	Properties, and equally likely outcomes Conditional probability and independence	
Sep 23 - 24			National Day Holidays
Week 5 Sep 27 - Oct 1	5.1-5.2	Discrete random variables	Online Assessment 1 Tuesday, Sep. 29
Week 6 Oct 4 - 8	5.3-5.5	Expected value & variance, binomial random variables	
Week 7 Oct 11 - 15	6.1-6.3	Continuous random variables, normal random variables	
Week 8 Oct 18 - 22	6.4-6.7	Standard normal random variable, probabilities, additive property and percentiles	Midterm Exam Thursday, Oct. 22
Week 9 Oct 25 - 29	7.1-7.5	Sample mean, central limit theorem and sampling proportions	
Week 10 Nov 1 - 5	8.1-8.6	Point estimates of population mean, proportion & variance and interval estimates of mean	
Week 11 Nov 8 - 12	8.7, 9.1-9.2	Interval estimates of proportion. Hypotheses test & significance levels	
Week 12 Nov 15 - 19	9.3-9.5	Hypotheses tests for mean and proportion	Online Assessment 2 Thursday, Nov. 19
Week 13 Nov 22 - 26	10.1-10.4	Testing equality of means: Large & small sample	
Week 14 Nov 29 - Dec 3	12.1-12.5	Simple linear regression	
Week 15 Dec 6 - 10	12.6-12.9	Coefficient of determination and correlation coefficient	
Week 16 Dec 13 Dec 14	Catch-up and Queries		Normal Wednesday Class Normal Thursday Class

Important Notes:

- **Virtual Classes:** All the classes will be conducted on Blackboard Collaborate Ultra. As a backup, we will be using Microsoft Teams also. You can join your classes by using Microsoft Team in case we face some problem with BB Collaborate Ultra. When you login to Blackboard, under course content you will click on “BB Collaborate Ultra. Online class”.
- Before the start of semester, all registered students will also be given access (with their KFUPM email ID) to Microsoft Team corresponding to their section. It is student’s responsibility to install Microsoft Teams and keep it ready to use before the start of every class.
- **Internet Connection:** You are required to have an excellent internet connection for attending virtual classes and attempting assessments. No makeup exams or attendance excuses will be given based on internet connection failure.
- **Webcam:** You are required to have a computer with webcam. During all assessments, you must keep your webcam turned on and the proctor will monitor you time to time. In addition, you will install MS Teams also on your mobile with cameras that will be focused properly on your face, hands and working area all the time during the tests, exams, quizzes etc.
- **Attendance:** If your name is called during the class and you do not respond, that would be considered absence from the class. No excuse for such absence will be accepted.
- **Excuse:** Only an excuse issued by Deanship of Student Affairs is acceptable for not attending a class, a quiz or an exam.
- **Blackboard:** All contacts or announcements between the instructor and the students are supposed to be through Blackboard, so the student must check his Blackboard regularly.
- **Quizzes and Assessments:** The quizzes and assessments will be on Blackboard under Assessments / Tests section.
- **Academic Integrity:** All KFUPM policies regarding ethics and academic honesty apply to this course.
- **Cheating and Plagiarism:** This course is composed of individual assignments. It is important that your individual assignments will be completed with your own efforts instead of copying it from your fellow student. KFUPM instructors follow “zero tolerance” approach with regard to cheating and plagiarism. During examinations (quizzes, major exams, lab tests) cheating or any attempt of cheating by use of illegal activities, techniques and forms of fraud will result in a grade of F in the course along with reporting the incident to the higher university administration.

Outfits

Students will be required to carry a calculator with statistical functions. A binder will also be an asset to organize yourself with selected lecture notes, handouts, solutions to home works, exams etc.

Notices:

Any notice about the course will be communicated to the students through blackboard.

Homework and Tutorials

Students are required to do the homework problems at home. The first hour of the lab would be devoted to solve the tutorial problems, and to guide how to solve other problems. The second hour of lab would be devoted to show students how to use the MINITAB statistical package and to use it to solve real life problems.

Homework Problems

Chapter Two: 2.2.1, 2.2.9, 2.3.2, 2.3.5, 2.4.3.

Chapter Three: 3.2.6, 3.2.14, 3.3.2, 3.3.10, 3.3.1.4, 3.4.1, 3.5.2, 3.6.1, 3.6.10, 3.7.3, 3.7.15.

Chapter Four: 4.2.3, 4.2.12, 4.3.2, 4.3.11, 4.4.2, 4.4.7, 4.5.4, 4.5.13.

Chapter Five: 5.2.6, 5.2.17, 5.3.4, 5.3.13, 5.4.8, 5.4.13, 5.5.5, 5.5.19.

Chapter Six: 6.2.3, 6.2.6, 6.3.2, 6.3.15, 6.4.2, 6.4.7, 6.5.3, 6.5.13, 6.7.4, 6.7.11.

Chapter Seven: 7.3.4, 7.3.6, 7.4.1, 7.4.4, 7.5.2, 7.5.7, 7.5.15

Chapter Eight: 8.2.4, 8.2.8, 8.3.4, 8.3.11, 8.4.2, 8.4.9, 8.5.3, 8.5.12, 8.6.2, 8.6.13, 8.7.3, 8.7.9.

Chapter Nine: 9.2.1, 9.2.3, 9.3.2, 9.3.11, 9.3.1.2, 9.4.3, 9.4.8, 9.5.2, 9.5.14.

Chapter Ten: 10.2.2, 10.2.7, 10.3.1, 10.3.10, 10.4.2, 10.4.9.

Chapter Twelve: 12.2.3, 12.3.3, 12.3.8, 12.4.6, 12.5.4, 12.5.12, 12.6.4, 12.7.3, 12.8.2, 12.9.1.

Project:

The project should be based on a real data set (with complete description about variables) and a detailed statistical analysis using MINITAB. There should be some concluding remarks that refer to the real implications of your chosen problem.