COURSE SYLLABUS

GENERAL STATISTICS

STAT 110

SPRING 2015

Instructors Information

	Section(s)	*Instructor*	*Email*	*Office Hours*	*Office 7th Building*
1.	**AA1(2131), EA1(101-A)**	Lamis Alamoudi	alamoudilamis@hotmail.com	U.T.R:9-10 U.T:11-12 W:10-11, 12-2	**3-115**
2.	**AA6(2141), BA6(2130), CA5(1004)**	Samah Sindi	samah.sindi@gmail.com	U. M. T. W. R : 10 -12	**50/C**
3.	**BA1(79-B), DA1(1156)**	Abeer Balubaid	akbalubaid@gmail.com	U:8-10,1-2 M.W: 11-12 T:8-11	**3-115**
4.	**EA5(1004), FA1(2130)**	Reema Alamoudi	reema_31@hotmail.com	U. T. R: 9-10, 12-1 U. T : 1-2	**70/C**
5.	**HA2(1133),IA2(2141), JA2(2165)**	Areej Abdulazim	areej-salah@hotmail.com	U:10-12 M.W: 11-12, 2:30-3:30 T.R:11-12	**3-115**
6.	**CA(2141), GA1(1132)**	Shafya Alhidairah	shafya.alhidairah@gmail.com	U.T.R:10-12 M.W:8-9	**50/C**

Exercises Instructors

All sections	Samah Sindi, Areej Abdulazim, Duaa Bogari.

Exercises Schedule

Day	*Time*	*7th Building Room*
Sunday		
Monday		
Tuesday	**12 - 1**	**1165**
Wednesday		
Thursday		

Course Information

Course name and number: General Statistics (STAT 110)
Course website address: **http://lalamodi.kau.edu.sa**
(Check the course website regularly for updated materials and announcements)

Course prerequisites: None. However, analytical skills, quantitative reasoning, and logical sense are important acquired skills to succeed in this class.

Course Description
This course is designed to teach students how to use a broad base of statistical methods and concepts to organize, analyze, and interpret data. This course consists of three main parts:

1. Data analysis and description
2. Probability and random variables
3. Inferential statistics

Main goal for this class is to familiarize students with the various techniques of statistical analyses that are utilized in different disciplines. Emphasis will be on the basic concepts and their meaning, as well as their applications and interpretation.

Teaching methods

The form of this course will mainly be lecturing with demonstration and explanation. Students will be engaged in solving problems with Q & A sessions, and discussion with conclusion.

Learning Resources

Textbook: Elementary Statistics, A Step By Step Approach, **9th Edition** by Allan Bluman, McGraw/Hill, 2012. Available at Alsheqary bookstore.

Textbook Website: www.mhhe.com/bluman

Students' Learning Outcomes

The successful completion of this course will enable the students to

Chapter 1: The Nature of Probability and Statistics
After completing this chapter, you should be able to
1. Demonstrate knowledge of statistical terms.
2. Differentiate between the two branches of statistics.
3. Identify types of data.
4. Identify the measurement level for each variable.

5. Identify the four basic sampling techniques.
6. Explain the difference between an observational and an experimental study.
7. Explain how statistics can be used and misused.
8. Explain the importance of computers and calculators in statistics.

Chapter 2: Frequency Distributions and Graphs
After completing this chapter, you should be able to
9. Organize data using frequency distributions.
10. Represent data in frequency distributions graphically using histograms, frequency polygons, and ogives.
11. Represent data using Pareto charts, time series graphs, and pie graphs.
12. Draw and interpret a stem and leaf plot.

Chapter 3: Data Description
After completing this chapter, you should be able to
13. Summarize data using measures of central tendency, such as the mean, median, mode, and midrange.
14. Describe data using measures of variation, such as the range, variance, and standard deviation.
15. Identify the position of a data value in a data set, using various measures of position, such as percentiles, deciles, and quartiles.
16. Use the techniques of exploratory data analysis, including boxplots and five-number summaries, to discover various aspects of data.

Chapter 4: Probability and Counting Rules
After completing this chapter, you should be able to
17. Determine sample spaces and find the probability of an event, using classical probability or empirical probability.
18. Find the probability of compound events, using the addition rules.
19. Find the probability of compound events, using the multiplication rules.
20. Find the conditional probability of an event.
21. Find the total number of outcomes in a sequence of events, using the fundamental counting rule.
22. Find the number of ways that r objects can be selected from n objects, using the permutation rule.
23. Find the number of ways that r objects can be selected from n objects without regard to order, using the combination rule.
24. Find the probability of an event, using the counting rules.

Chapter 5: Discrete Probability Distributions
After completing this chapter, you should be able to
25. Construct a probability distribution for a random variable.
26. Find the mean, variance, standard deviation, and expected value for a discrete random variable.
27. Find the exact probability for X successes in n trials of a binomial experiment.
28. Find the mean, variance, and standard deviation for the variable of a binomial distribution.

Chapter 6: The Normal Distribution
After completing this chapter, you should be able to
29. Identify distributions as symmetric or skewed.
30. Identify the properties of a normal distribution.
31. Find the area under the standard normal distribution, given various z values.
32. Find probabilities for a normally distributed variable by transforming it into a standard normal variable.
33. Find specific data values for given percentages, using the standard normal distribution.
34. Use the central limit theorem to solve problems involving sample means for large samples.

Chapter 10: Correlation and Regression
After completing this chapter, you should be able to
35. Draw a scatter plot for a set of ordered pairs.
36. Compute the correlation coefficient.
37. Compute the equation of the regression line.
38. Compute the Spearman rank correlation coefficient.

Course Schedule (Tentative)

Lecture	Reading Materials (Chapter-Section)	Class Materials		Assignments		Chapter Quiz
		Title	**Examples**	**Section Exercises**	**Review Exercises**	
Introduction						
1.	1-1	Introduction	Course Syllabus & Book Guided Tour	Read Algebra Review Appendix A	Section (1-1): 1-8 Section (1-2): 9-34 Section (1-3): 39-44 Section (1-4): 38 , 39, 45-50	All **EXCEPT** 9, 25
	1-1	Descriptive and Inferential Statistics				
2.	1-2	Variables and Types of Data				
3.	1-3	Data Collection and Sampling Techniques				
4.	1-4	Observational and Experimental Studies				
	1-5	Uses and Misuses of Statistics				
5.	2-1	Introduction Organizing Data	2-1, 2-2 , 2-3	5-8 , 9-12 , 14 , 19	1 , 5 , 13 , 18, 20 , 23	All **EXCEPT** 28
6.	2-1					
7.	2-2	Histograms, Frequency Polygons, and Ogives	2-4, 2-5, 2-6, 2-7	3, 13, 19 , 20		
8.	2-3	Other Types of Graphs	2-8, 2-9, 2-10, 2-11, 2-14	2, 7, 12 , 17, 22		
9.	3-1	Introduction			1 , 6 , 14 , 19 , 22 , 25, 26	All **EXCEPT** 9 ,12, 24, 27 , 28 , 29 , 31
	3-1	Measures of Central Tendency for Ungrouped Data	3-1, 3-2, 3-4, 3-5, 3-6, 3-7, 3-8, 3-10, 3-12, 3-13, 3-14	2, 6, 25 , 26 , 29 , 30		
10.	3-2	Measures of Variation for Ungrouped Data	3-16, 3-18, 3-21, 3-23, 3-24	6 , 27 , 29		
11.	3-3	Measures of Position (Standard Scores and Quartiles)	3-27, 3-28, 3-34, 3-36	13 , 14 , 16 , 30		

12.	3-4	Exploratory Data Analysis	3-37, 3-38	5, 9, 12		
13.	10-1	Introduction			**Ch 10:** 5, 6	**Ch 10:** 1, 2, 7, 10, 12 to 17, 19, 20
	10-1	Scatter Plots	10-1, 10-2, 10-3			
14.	10-1	Correlation	10-4, 10-5	**Ch 10:** 14, 15		
15.	13-6	The Spearman Rank Correlation Coefficient (no ties)	13-7	**Ch 13**: 8, 10	**Ch 13:** 10	
16.	10-2	Regression	10-9, 10-10, 10-11	**Ch 10:** 14, 15, 33		
17.	4-1	Introduction				
	4-1	Sample Spaces and Probability	4-1, 4-3, 4-4, 4-6, 4-8, 4-9, 4-11, 4-10, 4-12, 4-13, 4-14	10-15 , 21 , 22 , 25		
18.	4-2	The Addition Rules for Probability	4-15, 4-17, 4-18, 4-19, 4-21, 4-22	3 , 5 , 9 , 11 ,13 , 24		
19.	4-3	The Multiplication Rules and Conditional Probability	4-23, 4-25, 4-26, 4-27, 4-28, 4-29, 4-31, 4-32, 4-33, 4-36, 4-37	1 , 2 , 3 , 6 , 8 , 16 , 20 , 21, 27 , 30 , 35, 37 , 41 , 45, 51	1 , 9 , 12 , 16 , 25 , 28	All **EXCEPT** 23 , 24, 29 , 34, 38 , 48
20.	4-4	Counting Rules	4-38, 4-39, 4-42, 4-43, 4-44, 4-45, 4-47, 4-48, 4-49	1 , 3 , 12 , 17 , 19 , 21 , 23 , 43 , 59 , 63		
21.						
22.	4-5	Probability and Counting Rules	4-51, 4-52, 4-54	3 , 6 , 7 , 11(a,b,c) , 12		
23.	5-1	Introduction			1, 2, 3, 8, 16, 17	All **EXCEPT** 19, 20, 25 to 33
	5-1	Probability Distributions	5-2, 5-3, 5-4	7 to 12, 13 to 18		

#	Sec.	Topic				
24.	5-2	Mean, Variance, Standard Deviation, and Expectation	5-5, 5-6, 5-7, 5-8, 5-9, 5-10, 5-12, 5-13	1, 2, 10, 15, 18, 20		
25.	5-3	The Binomial Distribution	5-15, 5-16, 5-17, 5-18, 5-22, 5-23	1,2, 8, 14, 15, 22, 24, 30		
26.	5-3	The Mean and Variance for the Binomial Distribution				
EXAM 2						
27.	6-1	Introduction Normal Distributions				
28.	6-1	The Standard Normal Distribution	6-1, 6-2, 6-3, 6-4, 6-5	28, 34, 35, 40, 41, 43, 47(b), 48(b), 49(c), 50		All EXCEPT 16, 17, 29 to 34
29.	6-2	Applications of the Normal Distribution	6-6, 6-7, 6-8, 6-9, 6-10	5, 8, 15 (a,b), 19, 22, 24, 26, 36	5, 6, 9, 16	
30.						
31.	6-3	The Central Limit Theorem (Distribution of Sample Means)	6-13, 6-14, 6-15	8, 15, 16, 18, 22, 23		
Final Examination For STAT 110 Students						

Grading Policy:

Exam 1	**30%**
Exam 2	**30%**
Final	**40%**

IMPORTANT: NO EXTRA CREDIT.

Exam 1/Exam 2

There will be two in-class exams; each weighs 30% for a total of 60 % of your final grade.

You cannot afford to miss any exam without an excuse. **No Make-up exams will be given to individual students**. If necessary, a makeup test for one missed exam (excused and properly documented) will be given in the last week of the semester.

Final

The final exam (40%) will be cumulative and comprehensive. i.e. it will consist of parts covered in Exams 1 and 2 and materials since the last exam.

All exam questions will be Multiple Choice Questions (MCQs) **and resemble examples, homework problems and quizzes.**

Use the objectives at the beginning of each chapter as guidelines when studying the material and use them as benchmarks against which you can test mastery of contents.

Exam dates are pre set so plan your schedule accordingly. All STAT 110 Sections will have the same exam, same time.

During all exams, only **scientific calculators** and the **"Important Formulas"** sheet from the textbook will be permitted. You also need to bring your University ID card. Use of mobile phones and electronic translators will not be permitted during exams. Any attempt to cheat during exams will not be tolerated.

Homework

There will be weekly assignments, referred to in the above table as "**Assignments**". Formation of study groups is encouraged, you can discuss homework problems with your classmates but to succeed in this course you must individually work problems that apply the ideas presented in class and in the text. **Your time and effort in solving homework problems will directly affect your performance in the exams.**

There will be **optional** tutorial sessions to solve assignment problems with the instructor. All STAT 110 students are encouraged to attend these sessions. Times and rooms are listed at the first table.

Attendance and Class Policy:

Introductory statistics is a not an easy course and much of the material needs to be presented in different ways in order to make sense. It is also cumulative. Each new concept is built on the last one. It is especially important to master the material thoroughly at the start of the course. It is therefore very important that you attend classes regularly in your registered section.

You are expected to attend the class from the beginning. **It is your responsibility to make up for any missed materials or assignments.**

Please be considerate and **put your mobile on silent or turn it off during class. No food is allowed during class.** You may come late or leave early without disturbing your classmates. **Any disturbance or distraction will not be tolerated.**

You're expected to follow the **University Dress Code**, and staying in class with your Abaya on is not part of it. Your appearance in class speaks for your personality.

Student Responsibilities

The instructor is not responsible for the student's learning, **the student is**. Spoon feeding is not for college students. The instructor is responsible for **facilitating** the student's learning by providing appropriate resources, managing the learning experience, providing the student with frequent feedback, and encouraging the student to reflect on and assess his or her own learning.

- ❑ Take an **active role** in learning the material. You will understand and remember the material best when you **take notes**, **solve homework problems**, **quiz yourself**, and **ask questions**.
- ❑ You are expected to **participate in class**. This class is designed to facilitate interaction and discussion in class, so your participation is encouraged. The more you participate, the more you will internalize the material, and thus, the better you will score on the exams.
- ❑ Learning requires a sufficient investment of time and effort. For each credit hour, an average student is expected to spend at least 3 working hours outside classroom doing homework, reading, and studying for the course. So for this three credit hour course, the student is expected to spend **at least 9 working hours weekly** preparing, studying, solving problems and doing assignments.
- ❑ You are expected to **attend all classes**. Attendance does not directly affect your grade, although on the basis of past experience, it is the truly exceptional student who can afford to miss more than two or three classes.
- ❑ The correct way to study the material is to **read** the text before coming to class, **listen** carefully in class, **follow** the examples, **take notes**, **ask** questions, **reread** carefully the text at home, and finally, **do** the assigned homework and try to relate the information to your own experience and make up your own examples of the material.
- ❑ The textbook follows a step by step approach and it has ample of examples and exercises. The resources available to students from the publisher are for you to use. **They are indispensable resources.**

Good Luck
STAT 110 Team