



Syllabus of STAT 110: General Statistics 1441H (2019-2020)

Course Textbook:

- G. Bluman (2016). *Elementary Statistics a Step by Step Approach*. McGraw-Hill Education. Customized edition for the Department of Statistics at King Abdulaziz University.

Course Grading:

- Online assignments (10%)
- Midterm #1 (25%)
- Midterm #2 (25%)
- Final Exam (40%)

Used software:

- Microsoft® Excel + MegaStat Excel Add-in

Supporting materials and resources:

- Please visit the coordinator website for online support: fmalam.kau.edu.sa
- Course enquiries are to be addressed to: fmalam@kau.edu.sa

CH1 THE NATURE OF PROBABILITY & STATISTICS OUTLINE						
Section	Page	Outline	Example	Exercise	Review Exercise	Chapter Quiz
1-1	Descriptive & Inferential Statistics					
	<i>P 1 – 3</i>	1. Definition of (Statistics, Variable, Data, Population, Sample)	-	1, 2	-	16,17
	<i>P 3 – 4</i>	2. Area of Statistics (Inferential & Descriptive)	1-1	9 to 17	1 to 8	14,22
1-2	Variables & Types of Data					
	<i>P 6</i>	1. Types of Variables (Qualitative & Quantitative)	-	5 to 10	19 to 26	5
	<i>P 6 – 7</i>	2. The Quantitative Variable Classification (Discrete & Continuous)	1-2	11-16	27 to 34	6,8,14,24
	<i>P 8 – 9</i>	3. Measurement Scales (Nominal & Ordinal)	Table 1-2	23,27,28,29	10,15,18	11,23
1-3	Data Collection & Sampling Techniques					
	<i>P 11</i>	1. Surveys & Surveys Methods	-	-	-	-
	<i>P 12-16</i>	2. Methods of Sampling (Random, Systematic, Stratified, Cluster), Table 1-4	1-5	11-16	39-43	10,14,19
1-4	Experimental Design					
	<i>P18</i>	1. Types of Studies (Observational & Experimental)	-	15-18	45-48	12
	<i>P19</i>	2. Independent & Dependent Variable	-	19-22	49-52	-

CH2 FREQUENCY DISTRIBUTIONS & GRAPHS						
Section	Page	Outline	Example	Exercise	Review Exercise	Chapter Quiz
2-1	Organizing Data					
	P 42	1. Definition of (Raw Data, Sample Size “n”, Frequency Distribution)	-	-	-	-
	P 43 – 51	2. Three Types of Frequency Table: - Categorical (Table form, Frequency, Percent) - Grouped (Table form, Class limit, Class Width, Class midpoint, Frequency, Percent, Cumulative Frequency) - Ungrouped (Table form, Class limit, Frequency, Percent, Cumulative Frequency)	2-1* 2-2** 2-3*	2, 5, 6	-	1,3,12,14
2-2	Histograms, Frequency Polygons, & Ogives					
	P 57 – 61	1. Histogram, Frequency Polygon, Ogive, (shape, and extract the basic information from the shape).	2-4** 2-5** 2-6**	-	-	2,6,8
2-3	Other Types of Graphs					
	P 74 – 79	1. Bar Graph, Time series graph. (Shape, and extract the basic information from the shape).	2-8* 2-10*	-	-	7,15,17
	P 80 – 82	2. Pie Graph (Shape, degree and extract the basic information from the shape).	2-11* 2-12*	-	-	10
	P 86 – 89	3. Stem-and-leaf plot.	2-14**	17-18**	23-24**	27**

CH3 DATA DESCRIPTION “FOR RAW DATA”

Section	Page	Outline	Example	Exercise	Review Exercise	Chapter Quiz	
Introduction							
3-1	P110-111	1. The main ideas in this chapter. 2. Introduction of: <ul style="list-style-type: none"> - Measures of central tendency. - Measures of variation. - Measures of position. - Exploratory Data Analysis 	-	-	-	-	
	Measures of Central Tendency						
	P111	1. Definition of (Statistic, Parameter)	-	-		1,3 to 6, 8,10,11,16,17,20,21	
	P111-112	2. Mean μ & \bar{X}	3-1** 3-2**	1** 2** 3**	1**		
	P115-116	3. Median (MD)	3-4** 3-5**				
	P116-117	4. Mode & cases of mode	3-6** 3-7 3-8**	31			
	P119-120	6. Weighted Mean	3-14*	25*, 26*			
	P120-121	7. Properties & uses of central tendency: <ul style="list-style-type: none"> - Mean (1, 4, 6) - Median (1, 2, 4) - Mode (1, 2, 3, 4) 	-	29 (a, c, d, e, f)	5*, 6*		
	P121-122	Distribution Shapes	-	-	-		

CH3 DATA DESCRIPTION “<u>FOR RAW DATA</u>”						
Section	Page	Outline	Example	Exercise	Review Exercise	Chapter Quiz
3-2	<i>Measures of Variation</i>					
	<i>P129</i>	1. Range (R)	3-16** 3-17**	2	7**	18, 19, 23**, 26
	<i>P130-135</i>	2. Population (Just the symbol & Formula) & Sample Variance & Standard Deviation	3-20** 3-21**	1, 3, 4 6**, 7**, 14**		
	<i>P138</i>	3. Uses of the Variance & Standard Deviation	-	-		
<i>P138-139</i>	4. Coefficient of Variation	3-23 3-24	27-30	13, 14		
3-3	<i>Measures of Position</i>					
	<i>P148-149</i>	1. Standard Scores (z)	3-27* 3-28*	1*, 9*, 10*, 11* to 16*	22*	9*, 14, 22
	<i>P149-155</i>	2. Percentiles	3-30* to 3-33*	21* to 24*	-	
	<i>P155-156</i>	3. Quartiles	3-34** 3-35**	5 25** to 28**	-	
<i>P157-158</i>	4. Outliers	3-36**	29**, 30**	25**, 26**		
3-4	<i>Exploratory Data Analysis</i>					
	<i>P168</i>	1. The Five-Number Summary	-	1** to 3**	-	13
<i>P168-171</i>	2. Boxplot	3-37** 3-38**	7, 8, 10	-		

CH10 CORRELATION & REGRESSION						
<i>Section</i>	<i>Page</i>	<i>Outline</i>	<i>Example</i>	<i>Exercise</i>	<i>Review Exercise</i>	<i>Chapter Quiz</i>
10-1	Scatter Plots & Correlation					
	<i>P 371 – 374</i>	1. Scatter Plots, Scatter Plots graph (Shape, and extract the information from the shape). Definition of (Correlation, Regression, Simple Relationship, Independent Variable, dependent Variable, Positive Relationship, Negative Relationship)	10-1** 10-2** 10-3**	7	-	2, 7, 11, 12, 13, 14
	<i>P 374 – 378</i>	2. Correlation, Linear Correlation Coefficient.	10-4** 10-5** 10-6**	3, 4, 8 11**, 12**	-	
10-2	Regression					
	<i>P 386 - 387</i>	1. Line of Best Fit	-	5, 8	-	10, 15, 16
	<i>P 387 – 391</i>	2. Determination of the Regression Line Equation	10-9** 10-10** 10-11**	3**, 4**, 6**, 7**, 11** to 27**	-	

CH13 NONPARAMETRIC STATISTICS						
<i>Section</i>	<i>Page</i>	<i>Outline</i>	<i>Example</i>	<i>Exercise</i>	<i>Review Exercise</i>	<i>Chapter Quiz</i>
13-6	The Spearman Rank Correlation Coefficient					
	<i>P 459 - 462</i>	Rank Correlation Coefficient	13-7**	-	-	-

CH4 PROBABILITY & COUNTING RULES						
Section	Page	Outline	Example	Exercise	Review Exercise	Chapter Quiz
		Introduction				
	P 186	1. Definition of Probability.	-	-	-	-
4-1	Sample Spaces & Probability					
	P 186 - 189	1. Basic Concepts: (Probability Experiment, Outcome, Sample Space, Tree Diagram, Events)	4-1, 4-3, 4-4	1 to 10, 13 to 16, 19, 21, 23, 25, 32, 35, 36, 37, 40, 44	1, 4, 6	1,2,3,6,12,18, to 22, 25,26
	P 189 -192	2. Classical Probability (everything)	4-6, 4-8, 4-9			
	P 192 -193	3. Complementary Events	4-10, 4-11			
P 194 -195	4. Empirical Probability	4-12, 4-13, 14-14				
4-2	The Addition Rules for Probability					
	P 201 -205	(everything)	4-15, 4-17, 4-18, 4-19, 4-21, 4-22	1 to 9, 11,13,16 to 22, 24	7 to 12	4, 9, 27
4-3	The Multiplication Rules & Conditional Probability					
	P 213 -215	The Multiplication Rules (Independent case)	4-23, 4-25, 4-26, 4-27	1, 2, 4, 6, 8	15 (a, b, c), 16	28
	P 215 -217	The Multiplication Rules (Dependent case)	4-28, 4-29, 4-30	10, 12, 13, 14, 15, 16	13	29, 30, 31
4-4	Counting Rule					
	P 226 -229	1. Fundamental Counting Rule	4-38 to 4-41	all**	27** to 40**	7, 8, 11, 13, 15
	P 229	2. Factorial Notation	-			
	P 229 -231	3. Permutations	4-42** to 4-46**			
P 232 -234	4. Combinations	4-47** to 4-49**				

CH5 DISCRETE PROBABILITY DISTRIBUTIONS						
<i>Section</i>	<i>Page</i>	<i>Outline</i>	<i>Example</i>	<i>Exercise</i>	<i>Review Exercise</i>	<i>Chapter Quiz</i>
5-1	Probability Distributions					
	<i>P 258 – 262</i>	(everything)	5-1 to 5-4	1 to 28 & 30	1 to 4, 5* , 6-7	2,5,7,8,11-14
5-2	Mean, Variance, Standard Deviation, and Expectation					
	<i>P 265 – 271</i>	(everything)	5-5* to 5-13*	-	8* to 12*, 14*	1
5-3	The Binomial Distribution					
	<i>P276 -282</i>	(everything)	5-15** to 5-18** 5-22 to 5-24	1, 2, 5** to 16** , 17 18, 20, 25**-26** , 32	15** (a, c)	3, 4, 6, 9, 10

CH6 THE NORMAL DISTRIBUTION						
Section	Page	Outline	Example	Exercise	Review Exercise	Chapter Quiz
	Introduction					
	P 312	(everything)	-	-	-	-
6-1	Normal Distribution					
	P 312 - 315	1. Normal Distribution shape	-	4, 5		1 to 5, 7 to 10, 12, 13
		2. Normal Distribution definition	-			
		3. Summary of the Properties of the Theoretical Normal Distribution (1 to 8)	-			
	P 315 - 320	4. The Standard Normal Distribution <i>(without formula)</i>	6-1** to 6-4**	1, 3, 5 6** to 40**		
6-2	Applications of the Normal Distribution					
	P 328 - 332	Finding Probabilities Given Specific Data Values	6-6** to 6-8**	1** to 15**		
	P 328 - 334	Finding Data Values Given Specific Probabilities	6-9**, 6-10**	16**, 18** to 20**, 22**, 23**, 25**		
6-3	The Central Limit Theorem					
	P 344 - 346	Distribution of Sample Means: 1- Sampling distribution of sample means. 2- Sampling error. 3- Properties of the Distribution of Sample Means.	-	1, 4, 5, 6, 7**, 8**, 9**		6, 11, 14 15
		P 346 - 350	The Central Limit Theorem	6-13** to 6-15**		

CH8 HYPOTHESIS TESTING						
<i>Section</i>	<i>Page</i>	<i>Outline</i>	<i>Example</i>	<i>Exercise</i>	<i>Review Exercise</i>	<i>Chapter Quiz</i>
8-1	Steps in Hypothesis Testing—Traditional Method					
	Slides	Basic Concepts: <ul style="list-style-type: none"> • Statistical hypothesis • Types of hypotheses • Statistical test and test value • Types of errors • P-value 	-	-	-	-
8-2	z Test for a Mean					
	Slides	Solving Hypothesis-Testing Problems (P-Value Method)	Slides**	Slides**	Slides**	Slides**