Stat 110
Syllabus

Bluman, "Elementary Statistics a Step by Step Approach", 8th Edition

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CH1 THE NATURE OF PROBABILITY & STATISTICS

Section	Page	Outline	Example	Review Exercise	Chapter Quiz
1-1		**Descriptive & Inferential Statistics**			
	P 3 – 4	1. Definition of (Statistics, Population, sample, , Random Variable, Data)	-	-	16, 17,
	P 4	2. Area of Statistics (Inferential & Descriptive)	-	6	14, 22
1-2		**Variables & Types of Data**			
	P 6	1. Types of Variables (Qualitative & Quantitative)	-	8	-
	P 6	2. The Quantitative Variable Classification (Discrete & Continuous)	-	9	8, 24
	P 7 – 8	3. Measurement Scales (Nominal & Ordinal)	Table 102 " nominal, ordinal "	7 (b, g, j)	11 23 (a)
1-3		**Data Collection & Sampling Techniques**			
	P 9	1. Surveys & Surveys Methods	-	-	-
	P 10 – 12	2. Methods of Sampling (Random, Systematic, Stratified, Cluster), Table 1-4	-	12	10
1-4		**Observational & Experimental Studies**			
	P 13 – 14	1. Types of Studies (Observational & Experimental)	--	17	-
	P 14	2. Independent & Dependent Variable	-	18	-

CH2 FREQUENCY DISTRIBUTIONS & GRAPHS

Section	Page	Outline	Example	Exercise	Review Exercise	Chapter Quiz
2-1		**Organizing Data**				
	P 37	**1. Definition of (Raw Data, Sample Size ' n ', Class, Frequency, Frequency Distribution)**	**-**	**-**	**-**	**-**
	P 38 – 44	**2. Three Types of Frequency Table:** **- Categorical (Table form, Frequency, Percent).*** **- Grouped (Table form, Class limit, Class Boundaries, Class Width, Frequency, Percent, Cumulative Frequency).**** **- Ungrouped (Table form, Class limit, Class Boundaries, Class Width, Class midpoint, Frequency, Percent, Cumulative Frequency).*****	**2-1** **2-2** **2-3**	**-** **3 (a, b, c)** **-**	**-**	**12** **14**
2-2		**Histograms, Frequency Polygons, & Ogives**				
	P 51 – 56	**1. Histogram, Frequency Polygon, Ogive, (shape, and extract the basic information from the shape).**	**2-4, 2-5, 2-6**	**-**	**-**	**8**
2-3		**Other Types of Graphs**				
	P 68 – 72	**1. Bar Graph, Pareto Chart, Time series graph.** **(Shape, and extract the basic information from the shape).**	**2-8, 2-9, 2-10,**	**-**	**-**	**15**
	P 73 – 76	**2. Pie Graph** **(Shape, degree and extract the basic information from the shape).**	**2-12**	**-**	**-**	**10**

** Categorical Frequency Distribution*

Class	***Frequency (f)***	***Percent (P)***
Categorical class		$P = \frac{f_i}{\sum f}$
Total	$\sum f = n$	$\sum P = 100\%$

**Grouped Frequency Distribution

Class limit	Class Boundaries	Frequency (f)	Class Midpoint	Percent (P)	Cumulative Frequency
L_i - U_i	(L_i - 0.5 , U_i +0.5)		$C.M = \frac{L+U}{2}$	$P = \frac{f_i}{\sum f}$	f_1 $f_2 + f_1$ $f_3 + f_2 + f_1$ . . . $f_n + \ldots + f_2 + f_1 = n$
Total		$\sum f = n$		$\sum P = 100\%$	

*** Ungrouped *Frequency Distribution*

Class limit	***Class Boundaries***	***Frequency (f)***	***Percent (P)***	***Cumulative Frequency***
C_1 C_2 . . . C_n	$(L_i - 0.5 , U_i + 0.5)$		$P = \frac{f_i}{\sum f}$	f_1 $f_2 + f_1$ $f_3 + f_2 + f_1$ . . . $f_n + \ldots + f_2 + f_1 = n$
Total		$\sum f = n$	$\sum P = 100\%$	

CH3 DATA DESCRIPTION " *FOR ROW DATA* "

Section	Page	Outline	Example	Exercise	Review Exercise	Chapter Quiz
		Introduction				
	P104-105	**1. The main idea in this chapter.** **2. Introduction of:** **- Measures of central tendency.** **- Measures of variation.** **- Measures of position.** **- Exploratory Data Analysis**	**-**	**-**	**-**	**-**
3-1		**Measures of central tendency**				
	P106	**1. Definition of (Statistic, Parameter)**	**-**	**-**		**16**
	P106-107	**2. Mean μ & $\overline{X}$**	**3-1, 3-2**	**2 3 7**	**1**	**23**
	P109-111	**3. Median (MD)**	**3-4 To 3-8**			**23**
	P111-112	**4. Mode & Types of mode**	**3-9 3-10 3-11**			**10, 23**
	P114	**5. Midrange (MR)**	**3-15 3-16**			**20, 23**
	P115	**6. Weighted Mean**	**3-17**	**26, 28**	**7, 8, 9**	**-**
	P116	**7. Properties &Uses of central tendency:** **- Mean (1, 4, 6)** **- Median (1, 2, 4)** **- Mode (1, 2, 3, 4)** **- Midrange (1, 2, 3)**	**-**	**32 (a, c, d, f), 33**	**-**	**1, 3, 4, 5,**
	P117	**Distribution Shapes**	**-**	**-**	**-**	**21**

CH3 DATA DESCRIPTION " *FOR ROW DATA* "

Section	Page	Outline	Example	Exercise	Review Exercise	Chapter Quiz
3-2		**Measures of variation**				
	P124-125	1. Range (R)	3-19 3-20	2, 7, 8	-	23
	P125-129	2. Population (Just the symbol & Formula)& Sample Variance & Standard Deviation	3-23	1, 3, 4, 7, 8	1	18, 19, 23
	P132	3. Uses of the Variance & Standard Deviation	-	-	-	-
	P132-133	4. Coefficient of Variation	3-25 3-26	9, 28, 30	10, 11	29, 30
3-3		**Measures of position**				
	P142-143	1. Standard Scores (z)	3-29 3-30	1, 9, 11, 13, 15	20	14, 32
	P143-148	2. Percentiles	3-32 3-33 3-34 3-35	3, 24, 25, 26, 27	-	33 (a, b)
	P149-150	3. Quartiles	3-36	5, 31	-	12
	P151-152	4.Outliers	3-37	30	14	22
3-4		***Exploratory Data Analysis***				
	P162	1. The Five-Number Summary	-	1 to 3	-	13
	P162-165	2. Boxplot	3-38 3-39	7 to 10	-	-

CH10 CORRELATION & REGRESSION

Section	Page	Outline	Example	Exercise	Review Exercise	Chapter Quiz
		Introduction				
	P 534 – 535	1. Definition of (Correlation, Regression, Simple Relationship, Independent Variable, dependent Variable, Positive Relationship, Negative Relationship)	-	-	-	1
10-1		**Scatter Plots & Correlation**				
	P 535 – 538	1. Scatter Plots, Scatter Plots graph (Shape, and extract the information from the shape).	10-1, 10-2, 10-3	-	-	12 2, 3, 7, 14, 17
	P 538 – 542	2. Correlation, Correlation Coefficient.	10-4, 10-5, 10-6	12 to 27 (b, e)	-	
10-2		**Regression**				
	P551 -552	1. Line of Best Fit	-	-	-	16 10, 13, *15*
	P 552 – 559	2. Determination of the Regression Line Equation	10-9, 10-10, 10-11,	12 to 27	-	

CH13 NONPARAMETRIC STATISTICS

Section	Page	Outline	Example	Exercise	Review Exercise	Chapter Quiz
13-6		**The Spearman Rank Correlation Coefficient**				
	P 700 - 702	Rank Correlation Coefficient	13-7	5 to 14 (a)	-	-

CH4 PROBABILITY & COUNTING RULES

Section	Page	Outline	Example	Exercise	Review Exercise	Chapter Quiz
		Introduction				
	P 182	1. Definition of Probability.	-	-	-	-
4-1		**Sample Spaces & Probability**				
	P 183 - 186	1. Basic Concepts: (Probability Experiment, Outcome, Sample Space, Tree Diagram, Events)	4-1, 4-3, 4-4	-	-	2, 3, 9, 12, 18, 19, 20, 21
	P 186 -189	2. Classical Probability (everything)	4-6, 4-9	10, 12, 13, 15, 19, 21	1, 8	
	P 189 -191	3. Complementary Events	4-10, 4-11	18	-	
	P 191 -193	4. Empirical Probability	4-12, 4-13, 14-14	17, 20, 24, 25	3, 5, 6, 7	
4-2		**The Addition Rules for Probability**				
	P 199 -203	(everything)	4-15, 4-16, 4-17, 4-18, 4-19, 4-21, 4-22	2 to 22, 24	-	4, 6, 22
4-3		**The Multiplication Rules & Conditional Probability**				
	P 211 -213	The Multiplication Rules (Independent case)	4-23, 4-25, 4-26, 4-27	1, 3, 4, 6, 8	-	-
4-4		**Counting Rule**				
	P 224 -226	1. Fundamental Counting Rule	4-38, 4-39, 4-40	all	-	8, 11, 14, 15, 16, 17
	P 227	2. Factorial Notation	-		-	
	P 227 -229	3. Permutations	4-42, 4-43, 4-44, 4-45		-	
	P 229 -231	4. Combinations	4-46 to 4-49		-	

CH5 DISCRETE PROBABILITY DISTRIBUTIONS						
Section	***Page***	***Outline***	***Example***	***Exercise***	***Review Exercise***	***Chapter Quiz***
5-1	**Probability Distributions**					
	P 253 – 259	**(everything)**	**5-1 to 5-4**	**1 to 28 & 30**	**1,2,3**	**1,5,7,8,11 ,12,13,14**
5-2	**Mean, Variance, Standard Deviation, and Expectation**					
	P 259 – 268	**(everything)**	**5-5 to 5-13**	**-**	**-**	**17**
5-3	**The Binomial Distribution**					
	P270 -278	**(everything), *without using binomial table***	**5-15 to 5-17 5-21 to 5-23**	**1,3,5,6, 14,15,16**	**15**	**3,6,9,10,31**

CH6 THE NORMAL DISTRIBUTION

Section	Page	Outline	Example	Exercise	Review Exercise	Chapter Quiz
		Introduction				
	P 300-302	(everything)	-	-	-	-
6-1		**Normal Distribution**				
	P 302 - 303	1. Normal Distribution shape	-	4,5		1,2,5,7,8,12
	P 303	2. Normal Distribution definition	-			
	P 303	3.Summary of the Properties of the Theoretical Normal Distribution (1 to 8)	-			
	P 304 - 313	4. The Standard Normal Distribution (everything *without formula*)	6-1 to 6-4 *using standard normal table*	3,6 to 39		
6-2		**Applications of the Normal Distribution**				
	P 316 - 320	(everything *without Finding X)*	6-6 to 6-8	-		3
6-3		**The Central Limit Theorem**				
	P 331 - 333	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		6,11,13,14 15
	P 333 - 336	The Central Limit Theorem	6-13 to 6-15			