NEW YORK CITY COLLEGE OF TECHNOLOGY
The City University of New York

DEPARTMENT: Mathematics
COURSE: MAT 1272
TITLE: Statistics
DESCRIPTION: An introduction to statistical methods and statistical inference. Topics include descriptive statistics, random variables, distributions, sampling estimation and inference, t-tests, Chi-square tests and correlation.
TEXT: Introductory Statistics 9th edition Prem S. Mann John Wiley & Sons

CREDITS: 3
PREREQUISITES: MAT 1190 or higher
                             Spring 2020

                             Prepared by:
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A.   Testing Guidelines:

The following examination schedule is suggested.
1.   A one-hour exam at the completion of Lessons 1 - 5
2.   A one-hour exam at the completion of Lessons 7 - 11
3.   A one-hour exam at the completion of Lessons 13 - 18
4.   A one-hour exam at the completions of Lessons 20 - 25
5.   A one session Final Examination.

B.   Requirement: A statistical calculator. Instructions for the TI Graphing Calculator 83 or higher are provided in the textbook.

C.   Homework

  On-line Assignments noted on the syllabus contain exercises similar to those in the practice problems sets. These exercises are available on the Wiley Plus Web Site. The Web Site provides help with the solutions and records homework grades for each assignment. The assignment grade has been designed to allow students two attempts at each question for full credit. Further attempts will reduce the credit by 30% . Hints and solutions are provided.

REGISTER for the on-line text and WileyPlus using the Course ID _____(provided by instructor).

Lessons	Sections to Read	Homework
Lesson 1	**1.1** Statistics and Types of Statistics **1.2** Basic Terms **1.3** Types of Variables **1.5** Population vs. Sample	**Practice Homework** **1.1:** 1.1, 1.3 **1.2**: 1.5, 1.6 **1.3**: 1.7 , 1.9 **1.5**: 1.13, 1.19, 1.21, 1.25 **Graded On-Line HOMEWORK CHAPTER 1**
Lesson 2	**2.1** Organizing and Graphing Qualitative Data **2.2** Organizing and Graphing Quantitative Data (omit subsections: 2.2.5 and 2.2.8)	**Practice Homework** **2.1:** 2.1, 2.5, 2.7 b **2.2**: 2.9, 2.11, 2.17 a - d **Graded On-Line HOMEWORK CHAPTER 2**
Lesson 3	**2.3** Stem-and-Leaf Displays **1.7** Summation Notation using a T1 84 **3.1** Measures of Central Tendency for Ungrouped Data **Learn how to use the calculator to find measures of central tendency**	**Practice Homework** **2.3:** 2.25 , 2.27 **1.7:** 1.37, 1.39 **3.1**: 3.1, 3.9, 3..13 abd, 3.19 **Graded On-Line HOMEWORK CHAPTER 3 # 1 of 2**
Lesson 4	**3.2** Measures of Dispersion for Ungrouped Data (omit coefficient of variance) **Learn how to use the calculator to find standard deviation** **3.4** Use of Standard Deviation only section 3.4.2 **3.5** Measures of Position **3.6** Box-and-Whisker Plot outliers, left and right skews	**Practice Homework** **3.2:** 3.29, 3.35a,c, 3.39a,c, 3.43 **3.4:** 3.59, 3.63 **3.5:** 3.69, 3.73 **3.6**: 3.75, 3.77 AND **Graded On-Line HOMEWORK CHAPTER 3 # 2 of 2**
Lesson 5	**13.1** Simple Linear Regression Model (Omit 13.1.7) **13.4.** Linear Correlation – only calculating *r* **13.4.1** **Learn how to use the calculator to find slope and y-int of regression line and the value of r. To find r go to CATALOG scroll down to DIAGNOTIC and turn it ON. (press enter twice)**	**Practice Homework** **13.1:** 13.2, 13,4, 13.11. 13.15, 13.19a,b 13.21 all parts **13.4**: 13.45 - 13.53 odd, 13.57a,b, **Graded On-Line HOMEWORK CHAPTER 13**
Lesson 6	**Exam1**	

Lesson 7	**4.1** Experiment, Outcomes and Sample Space **4.2** Calculating Probability	**Practice Homework** **4.1:** 4 .1, 4.3, 4.7 , 4.9 **4.2**: 4.15, 4.17, - 4.21 odd, 4.25, 4.27 **Graded On-Line HOMEWORK CHAPTER 4 # 1 of 4**
Lesson 8	**4.3.** Different Probability Concepts **4.3.1** Marginal and Conditional Probabilities and Related **4.3.2** Mutually Exclusive Events **4.3.3** Independent vs. Dependent	**Practice Homework** **4.3**: 4.29 – 4.31 all, 4.33 a, b, 4.35 **Graded On-Line HOMEWORK CHAPTER 4 # 2 of 4**
Lesson 9	**4.3. 4** Complementary Events **4.4.** Intersection of Events and the Multiplication Rule	**Practice Homework** **4.3:** 4.32, 4.33 (c), 4.39 b , 4.41 **4.4**: 4.43, 4.45 a, b, c, 4.49 (a), 4.53-4.57 odd, 4.61 **Graded On-Line HOMEWORK CHAPTER 4 # 3 of 4**
Lesson 10	**4.5** Union of Events and the Addition Rule **4.6.** Counting Rule, Factorials, Combinations, and Permutations **Learn how to use the calculator for combinations and permutations (MATH)**	**Practice Homework** **4.5**: 4.67, 4.71 (a), 4.73, 4.75 **4.6:** 4.83, 4.87, 4.91, 4.93 odd **Graded On-Line HOMEWORK CHAPTER 4 # 4 of 4**
Lesson 11	**5.5** The Hypergeometric Probability Distribution **5.1** Random Variables	**Practice Homework** **5.5 :** 5.43, - 5.45 all **5.1**: 5.1 – 5.3 all **Graded On-Line HOMEWORK CHAPTER 5 # 1 of 3**
Lesson 12	**Exam 2**	
Lesson 13	**5.2** Probability Distributions of a Discrete Random Variable **5.3** Mean and Standard Deviation of a Discrete Random Variable **Learn how to use the calculator to find mean and standard deviation* See last page of syllabus**	**Practice Homework** **5.2**: 5.5 - 5.7 all, 5.11 **5.3:** 5.15 - 5.19 odd, 5.23 **Graded On-Line HOMEWORK CHAPTER 5 # 2 of 3**
Lesson 14	**5.4** The Binomial Probability Distribution **Use formulas to find mean and standard deviation** **Learn how to use the binomial probability table on the calculator**	**Practice Homework** **5.4:** 5.27, 5.29, 5.30, 5.33 - 5.37 odd **Graded On-Line HOMEWORK CHAPTER 5 # 3 of 3**

Lesson 15	**6.1** Continuous Probability Distribution and the Normal Probability Distribution **Learn to use the calculator to find area under standard normal curve – back of Chapter 6**	**Practice Homework** **6.1:** 6.1, 6.5 – 6.17 odd **For:** 6.11-6.17 **-draw normal curve and shading the** **requested area(s).** **Graded On-Line HOMEWORK CHAPTER 6 # 1 of 3**
Lesson 16	**6.2** Standardizing the Normal Distribution **6.3** Applications of the Normal Distribution **Learn to use the calculator with non standard normal distributions.**	**Practice Homework** **6.2:** 6.19 using the formula, and use the calculator for 6.21 – 6.23 odd **6.3**: use the calculator for 6.25 – 6.31 odd **Write answers in a complete sentence.** **Graded On-Line HOMEWORK CHAPTER 6 # 2 of 3**
Lesson 17	**6.4** Determining the of z and x Values when an Area Under the Normal Curve is Known **Learn to use the calculator to find z-score given the area or percentage.**	**Practice Homework** **6.4:** use the calculator for: 6.37, Hint: use the calculator to find z score and then use the z-score, mean and standard deviation to find x. 6.39 a-d, 6.40, 6.41 be sure to **write answers in a** **complete sentence.** **Graded On-Line HOMEWORK CHAPTER 6 # 3 of 3**
Lesson 18	**Exam 3**	
Lesson 19	**7.1** Sampling Distributions, Sampling Error, and Non-sampling Errors **7.2** Mean and Standard Deviation of $\overline{x}$ **7.3** Shape of the Sampling Distribution of $\overline{x}$	**Practice Homework**: **7.1:** 7.1 -7.3 all, 7.4 use the calculator for parts a – c. **7.2**: 7.7, 7.11, 7.14, 7.15 use the formulas **7.3**: 7.18, **Graded On-Line HOMEWORK CHAPTER 7 # 1 of 2**

Lesson 20	**7.3 (7.3.1)** Continued Central Limit Theorem, and Ex.7-3 & Ex 7-4 **7.4** Applications of the Sampling Distribution of $\overline{x}$	**Practice Homework** **7.3:** 7.23-7.27 odd **7.4:** 7.31, 7.35, 7.39 **Write answers in a complete sentence.** **Graded On-Line HOMEWORK CHAPTER 7 # 2 of 2**
Lesson 21	**9.1** Hypothesis Tests: An Introduction	**Practice Homework** **9.1**: 9.1 -9.5 all, 9.7 **Graded On-Line HOMEWORK CHAPTER 9 # 1 of 4**
Lesson 22	**9.2:** Hypothesis Tests about μ : σ <u>Known</u> **Only section 9.2.2** Use critical value approach (Omit 9.21)	**Practice Homework** **9.2:** 9.9, 9.11, 9.12, 9.16, 9.19 (Type 1 error is rejecting a true hypothesis), 9.21, 9.23 **Graded On-Line HOMEWORK CHAPTER 9 # 2 of 4**

Lesson 23	**9.2:** Application using critical value approach	**Practice Homework** **9.2:** 9.25 (b), 9.27 (b), 9.29 (b), 9.31 (b) S**how the rejection and non-rejection regions.** **Write answers in a complete sentence.** **Graded On-Line HOMEWORK CHAPTER 9 # 3 of 4**
Lesson 24	**9.3:** Hypothesis Tests about μ : σ <u>Unknown</u> **Only section 9.3.2** Use critical value approach only (Omit 9.3.1)	**Practice Homework** **9.3**: 9.34. 9.35, 9.38, 9.39, 9.45(a)- only using t-test, 9.45(b), 9.47 use calculator. **Show the rejection and non-rejection regions.** Write answers in a complete sentence **Graded On-Line HOMEWORK CHAPTER 9 # 4 of 4**
Lesson 25	**Exam 4**	
Lesson 26	**11.1** The Chi-Square Distribution **11.2** A Goodness-of-Fit Test	**Practice Homework** **11.1**: 11.1,11.2 11.5a **11.2**: 11.8, 11.9 – 11.15 odd **Graded On-Line HOMEWORK CHAPTER 11**
Lesson 27	**11.3** A Test about Independence or Homogeneity (Optional)	**Practice Homework 11.3**: 11.21 - 11.25 odd
Lesson 28	Review	TI calculator needed
Lesson 29	Revies	TI calculator needed
Lesson 30	**Final Examination**	TI calculator needed

The on-line text and access to Wiley-Plus are available immediately at www.wiley.com/WileyCDA/Section/id-828293.html. You have 14 days of free access. The cost for the e-book and Wiley-Plus for City Tech students is $40 when you use the promo code CTC06.

The on-line homework assignments, in the syllabus, are in Wiley Plus which also provides tutorials. These assignments are graded and recorded. Full credit is given if the correct answer is provided in the first two attempts. If a third attempt is required the grade for the question is reduced by 30%.

<u>Calculator Instruction for MA 1272</u> –
 found at the end of each of the following chapters:
Chapter 1: Entering and Editing Data
        Operations with Lists
Chapter 2: Creating a Frequency Histogram
        Creating a Stem-and-Leaf
Chapter 3: Calculating Summary Statistics
        Creating a Box Plot

Chapter 13: Find Regression Equation, r and r^2 (Diagnostic On)
Chapter 4: Calculating !, $_nC_r$, $_nP_r$
Chapter 5: * TI 84 + STAT, EDIT (enter x in column L1 and P(x) in column L2
        STAT, CALC, 1-VAR, list L1, Frequency L2 enter
         TI 83 + STAT, EDIT (enter x in column L1 and P(x) in column L2
      STAT, CALC, 1-VAR L1, L2 enter
      Calculating a Binomial Probability
       Calculating a Cumulative Binomial Probability
       Preparing a Binomial Probability Distribution
       Calculating a Hypergeometric Probability
Chapter 6: Calculating a Left Tail Probability
       Calculating a Probability between Two Variables
       Calculating a Right Tail Probability
       Determining z when a Probability is known.