STATISTICS Math 140, 81953 (4 credits) MW 4:00-5:50PM T110 Prof. Battaly **http://www.battaly.com/stat/**
Textbook: INTRODUCTORY STATISTICS ,10th ed. N.A.Weiss 2016. TI-83or84 Fall, 2018

Date	Section	Topic
Sep 5	1-1,1.2,2.1-2.2	The Nature of Statistics, Simple Random Sample; variables
10	2.2-2.3	Organizing Data
12	2.4-2.5,3.1	Distribution Shapes, Central Tendencies
17	3.2,3.4	Variation, 5 Number Sum, Boxplots
19	3.5,4.1-4.2	Populations; Probability, Events
24	4.3,6.1-6.2	Rules of Probability, Normal Distribution, Standard Normal Curve
26	6.3-6.4	Normally Distributed Variables, Normal Probability Plots
Oct 1	7.1-7.3	Sampling Error, Mean, distribution of sample mean
3	***8.1-8.2	*** **Test # 1 (Ch. 1-6)** ***, Estimating Population Mean
8	8.2-8.3	Margin of Error, Confidence Intervals for 1 Population Mean
10	9.1-9.2	Hypothesis Testing
15	9.3-9.4	Critical Value Approach, P-value Approach, Hyp. Test – 1 Mean
17	9.5, 10.1	Hypothesis Test 1 Population Mean; Sampling Distrib Diff 2 Sample Means
22	10.2-10.3	Inferences 2 Population Means Independent Samples
24	10.4-10.5	Mann-Whitney Test, Inferences Paired Samples
29	10.6-10.7,12.1	Paired Wilcoxon, CI Population Proportion
31	12.2-12.3	Inferences 1 Population Proportion, 2 Population Proportions
### **W 5**	13.1-13.2	Chi-squared Distribution, Goodness-of-Fit
Nov 7	***13.3	*** **Test # 2 (Ch. 7-10)** ***, Association
12	13.4,13.5	Independence, Homogeneity
14	14.1-14.2	Linear Regression, 1 Independent Variable
19	14.3-14.4	Coefficient of Determination, Linear Correlation
21	15.1-15.2	Regression Model, Inferences for Slope of Population Regression Line
26	15.3-15.4	Estimation, Prediction, Inferences in Correlation
28	15.5-16.2	Test for Normality, F-distribution, One Way ANOVA Logic
Dec 3	16.3	ANOVA Procedure
5	16.5	Kruskal-Wallis Test
10	Ch16	ANOVA, Kruskal-Wallis
12		Last day of classes: Overview of FE, Which Procedure?
17		**FINAL EXAM (2 hours)** [Dec 18 if school is closed on Dec 18]

FINAL GRADE = 2/3 Class Ave. + 1/3 Final Exam

Class Ave: Mean of Tests and Quizzes, Quiz Ave= 1 test.
Tests: Full period (50 minutes), **NO MAKEUPS**. If a test is not taken, the grade for that test is 0.
One test grade may be replaced with a 4 to 5 page paper (See below).
Material covered on test includes material since last exam.
Quizzes: Unannounced, **any WEDNESDAY, NO MAKEUPS** If there are 6 or more quizzes, 2 quizzes will be dropped before the average is computed; if less than 6 quizzes, 1 quiz dropped. Covers material from previous week. If a quiz is not taken, the grade for that quiz is 0.
FINAL: Comprehensive; **Date: Dec 17** (Note: If WCC is closed on 12/17, then Final Exam on Dec 18)
PAPER: 4-5 pages, typed, double spaced. Subject should be one of the topics covered on the test to be replaced. For a grade of C, the paper must include 1) a complete description/explanation of the topic with an example and 2) three references. Use citations of the form (author, page) for ALL content new in this course. For a higher grade, the paper should include such additional information as scientific or social applications, historical development of technique, relationship of the topic to other topics in the course, etc. Required only if a test is missed. An outline must be submitted prior to writing the paper. See scoring sheet.
ATTENDANCE: Absence from class will not affect final grade, except as it effects quiz and test grades.
ASSIGNMENTS: All odd problems unless otherwise noted.
W ### LAST DAY TO WITHDRAW with a W (11/5) ### | class is scheduled 11/22 (night before Thanksgiving)

MATH 140 – STATISTICS STUDENT LEARNING OUTCOMES

STUDENT LEARNING OUTCOMES - Upon successful completion, the student will be able to

SLO1: The student will become acquainted with the language, philosophy, and methodology of statistics.
Objectives:

1. Use appropriate vocabularies and terminologies to express ideas and conclusions while performing descriptive and inferential statistics
2. Solve probability and statistics problems by using correct mathematical symbols, formulas and expressions
3. Choose appropriate methods to solve problems in probability, descriptive and inferential statistics

SLO2: The student will achieve competence in the manipulation and computation of mathematical formulae.
Objectives:

1. Choose appropriate formulae to solve application problems in statistics
2. Understand how a mathematical formula is derived
3. Use technology, such as TI graphing calculators to efficiently compute numerical results that involve mathematical formulae
4. Know the meaning of an approximated result from the exact result of a computation

SLO3: The student will achieve a basic understanding of probability and its application to statistical inference.
Objectives:

1. Understand the meaning of probability values and know how to calculate these values
2. Understand the concept of probability distributions and sampling distributions, as well as being able to work with key distributions such as the Binomial, the Normal, the T and the X^2 Distributions

SLO4: The student will develop competency in using statistical procedures and in reaching valid conclusions.
Objectives:

1. Be able to find and interpret confidence intervals for one and two population means, where the population standard deviation is known, versus when it is unknown
2. Be able to find and interpret confidence intervals for one population proportion
3. Know how to conduct hypothesis tests in regard to testing one and two population means, both when the population standard deviation is known and when it is unknown
4. Perform hypothesis tests for one population proportion
5. Perform the Goodness-of-Fit test and the Chi-Square Independence test
6. Understand how to perform linear regression with one independent variable

SLO5: The student will develop competency in using technology to perform statistical inferences.
Objectives:

1. Be able to use the graphing calculator to find confidence intervals and to perform various hypothesis tests
2. Be able to use the graphing calculator to compute the probability for the Binomial, the Normal, the T and the X^2 Distributions

Outcomes will be measured by one or more of the following: *Homeworks *Class participation
*Quizzes (in class or take home) *Tests (in class or take home) *Projects *Final Exam

---

The **SUNY General Education (GE) Mathematics** requirement are addressed by the objectives above. Upon successful completion, students will demonstrate the ability to:

SUNY GE 1: Interpret and draw inferences from mathematical models such as formulas, graphs, tables and schematics SLO 2, 3
SUNY GE 2: Represent mathematical information symbolically, visually, numerically and verbally SLO 1, 2, 3
SUNY GE 3: Employ quantitative methods such as, arithmetic, algebra, geometry, or statistics to solve problems SLO 1, 2, 3, 4
SUNY GE 4: Estimate and check mathematical results for reasonableness SLO 2, 3, 4
SUNY GE 5: Recognize the limits of mathematical and statistical methods SLO 2, 3, 4

Student Contributions
Students are expected to attend every class meeting, arriving on time.
Cell phones and/or other communication devices should be turned off for the duration of each class meeting.
Assignments are to be completed on time.
Students are expected to take all tests and quizzes as scheduled. There are no exemptions for any exams.
Students should expect to spend a minimum of 2 hours per week outside of class for every hour spent in class.
Students should comply with the WCC Student Code of Conduct, including: 1) respect for all, 2) no cheating.

I understand that the final date to withdraw from this class is Monday, November 5, 2018. If I need to withdraw after that date, I will need to bring a note to Professor Battaly from the WCC Health Office, explaining the medical need to withdraw.

_____ _____

Date Name