STATISTICS Math 140-D008, 46977 (4 credits) MW 6:00-7:50PM T120 Prof. Battaly **http://www.battaly.com/stat/**
Textbook: Introductory Statistics,MyLabRev,10th ed. N.Weiss 2016 TI-84 Spring 2025 **Gertrude.Battaly@sunywcc.edu**

Date	Section	Topic
Jan 22	1-1,1.2,2.1-2.2	The Nature of Statistics, Simple Random Sample; variables
27	2.2-2.3	Organizing Data
29	2.4-2.5,3.1	Distribution Shapes, Central Tendencies
Feb 3	3.2	Variation
5	3.4,3.5	5 Number Sum, Boxplots, Populations
10	4.1-4.2	Probability, Events
12	4.3,6.1-6.2	Rules of Probability, Normal Distribution, Standard Normal Curve
17	6.3-6.4	Normally Distributed Variables, Normal Probability Plots
19	7.1-7.3	Sampling Error, Mean, distribution of sample mean
24	8.1-8.2	Estimating Population Mean, Confidence Intervals for 1 Population Mean
** **26**	***8.2-8.3	***** Test # 1 (Ch. 1-7) *****,Margin of Error, Conf. Interval, σ unknown
Mar 3	9.1-9.2	Hypothesis Testing
5	9.3-9.4	P-value Approach, Hyp. Test – 1 Mean
10	9.5, 10.1	Hypothesis Test 1 Population Mean; Sampling Distrib Diff 2 Sample Means
12	10.2-10.3	Inferences 2 Population Means Independent Samples
24	10.4-10.5	Mann-Whitney Test, Inferences Paired Samples
26	10.6-10.7,12.1	'Paired Wilcoxon, CI Population Proportion
##**W**31	12.2-12.3	Inferences 1 Population Proportion, 2 Population Proportions
Apr2	13.1-13.2	Chi-squared Distribution, Goodness-of-Fit
7	13.3,13.4	Independence
** **9**	***	***** Test # 2 (Ch. 8-10) *****
14	14.1-14.2	Linear Regression, 1 Independent Variable
16	14.3-14.4	Coefficient of Determination, Linear Correlation
21	15.1-15.2	Regression Model, Inferences for Slope of Population Regression Line
23	15.3-15.4	Estimation, Prediction, Inferences in Correlation
28	15.5-16.2	Test for Normality, F-distribution, One Way ANOVA Logic
30	16.3	ANOVA Procedure
May 5	16.5	Kruskal-Wallis Test
7		Last day of classes: Overview of FE, Which Procedure?
12		**FINAL EXAM (2 hours)** [May 13 if school is closed on May 12]

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

All students are expected to attend the scheduled classes and be present for Tests and the Final Exam.
Class Ave: Mean of Tests and Quizzes, Quiz Ave= 1 test.
Tests: In class on dates noted above, **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 project/paper (See below). Material covered on test includes material since last exam.
Quizzes: May be given in class or online. There will be 6 to 9 quizzes. For 6 or 7 quizzes, your 5 best quizzes will be averaged. For 8 or more quizzes, your 6 best quizzes will be averaged. Covers material from previous week. If a quiz is not taken, the grade for that quiz is 0. **Missing more than 2 (if 7 quizzes) or more than 3 (if 9 quizzes) impacts your grade.** There will be **NO MAKEUPS.**
FINAL: Comprehensive; **Date: May 12** (Note: If WCC is closed on 5/12, then the Final Exam will be on 5/13)
PROJECT/REPORT: 4-5 pages, typed, double spaced. Subject should be one of the topics covered on the test to be replaced. Students will personally collect and analyze data in accordance with the topic selected. The data must be original and not gathered from online sources. For a grade of C, the paper must include 1) a list of the data collected, 2) analysis of the data, 3) a conclusion warranted by the procedure used, and 4) 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 of the analysis, historical development of statistical methods, relationship of the topic to other topics in the course, etc. Required only if a test is missed. See http://www.battaly.com/stat/PROJECT_REPORT_STATS.pdf
ATTENDANCE: Absence from class will not affect final grade, except as it effects quiz and test grades.
ASSIGNMENTS: All odd problems for sections covered, unless otherwise noted. See page 1 of Class Notes.
W ### LAST DAY TO WITHDRAW with a W (3/31) ### | No classes Spring Break 3/17, 3/19

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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

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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.

Academic Support Information

Website: https://www.sunywcc.edu/academics/asc/

Students with Accessibility Needs

Website: https://www.sunywcc.edu/student-services/accessibility-services/

Westchester Community College (WCC) is committed to creating a learning environment that meets the needs of its diverse student body. If a student has a documented accessibility need, it is the student's responsibility to self-identify by signing up through the Accessibility Services Office (A-SO) either online or in person. Once signed up for accommodations, the student must inform the professor via a Referral to Faculty notification provided by the ASO. A Testing Accommodations Request form must be completed online or in person no later than three business days before the quiz/exam date to allow for accommodations to be arranged with the ASO.

The ASO is located in room G-51 on the ground floor of the Library in the back of the Academic Support Center. For more information regarding accommodations offered at WCC you may visit the Accessibility Services Office Website at https://www.sunywcc.edu/ student-services/accessibility-services.

A "Test Room Booking" form must be completed online or in-person no later than three business days before the quiz/exam date to allow for accommodations to be arranged with the ASO. The ASO is located in Room G-51 on the ground floor of the Library, in the back of the Academic Support Center (ASC).

Information on Title IX

Website: https://www.sunywcc.edu/about/title-ix/

Westchester Community College values and respects the self-worth and belonging of all individuals in our community and affirms their right to engage in an environment that is safe, nonthreatening, and respectful.

In accordance with Title IX of the Education Amendments of 1972, Westchester Community College prohibits unlawful sexual harassment against any participant in its education programs or activities. Sexual harassment includes quid pro quo (this for that) harassment, hostile environment, sexual assault, dating/domestic violence, stalking, unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct or communications constituting sexual harassment as prohibited by state and federal law. This prohibition against sexual harassment - including sexual violence - applies to students, WCC employees, and visitors to campus.

Community members who have been or know someone who has been the victim of sexual violence, assault, harassment, stalking, domestic/dating violence, or any other form of sexual misconduct are encouraged to make a report to the College. Incidents of Sexual Misconduct should be reported to the college Title IX Coordinator, as outlined in the WCC Title IX policy. For more information on Title IX, resources or options to file a report, please visit: https://www.sunywcc.edu/about/title-ix. Anonymous reports are accepted.

Reports of sexual misconduct, hate or bias incidents and general incident reporting can be made at Westchester Community College's Incident Reporting Page found here.

Diversity Statement

SUNY Westchester Community College fosters an intentionally inclusive campus culture that celebrates and respects the diversity of the community while acknowledging the differences among the lived experiences of individuals. The college will promote equity, disseminate knowledge, and take visible actions to remove barriers to access and advancement that adversely affect individuals from marginalized communities.

Delayed Opening/Early Closing/Weather Announcements

Website: https://www.sunywcc.edu/about/weather-announcements/

Amendments or Changes to Syllabus

The instructor reserves the right to makes changes to the syllabus.
Changes would be communicated through Brightspace.

MATH 140 – Statistics 4 credits

A general introduction to statistical methods for students in all academic disciplines. Topics include: descriptive methods and the presentation of data, a thorough treatment of the basic concepts of probability, techniques of statistical inference and decision-making through hypothesis testing, the methods of correlation and regression analysis, and the application of non-parametric methods in various subject areas.

Notes: Specific graphics calculator required; wait until first day of class before purchasing.

Prerequisites: Successful completion of MATH 93 or MATH 94; or Course Placement; or SAT Math >/= 530; or ACT Math >/= 22 or NYS REGENTS (Algebra 1, Algebra 2, OR Geometry) scores >/=80

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All students must read and sign the below statement regarding requirements for withdrawing from class after the official college Final Withdrawal Date.

I understand that the final date to withdraw from this class is Monday, March 31, 2025.
If I need to withdraw after that date, I will need to have a note sent to Professor Battaly from the WCC Health Office, explaining the medical need to withdraw.

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Date Name