



DEPARTMENT OF MATHEMATICS AND COMPUTER & INFORMATION SCIENCE

APPLIED STATISTICS MA2000

Departmental Syllabus

TEXTBOOK: **Essentials of Statistics** Plus MyStatLab with eText, 5th Edition, by Mario F. Triola, Pearson 2015, ISBN-13: 9780133864960.

Prerequisite: A grade of **C** or higher in MA1010 Powertrack Math or Placement level of College Algebra-MA1020 or higher.

COURSE DESCRIPTION: Applied Statistics is a General Education course intended to develop the statistical literacy of all students regardless of their major. The emphasis is on organizing and summarizing data, applying appropriate statistics, and on understanding and interpreting the results of statistical tests. Real data derived from a variety of fields including education, psychology, sociology, life and physical sciences, economics, and business will be used throughout the course.

COURSE OBJECTIVES: To become proficient in organizing and summarizing data, using statistical tests and interpreting the results of these tests. All students are required to meet the SUNY Learning Objectives which are as follows. Students will demonstrate the ability to:

- Interpret and draw inferences from mathematical models such as graphs tables and schematics.
- Represent mathematical information symbolically, visually, numerically and verbally.
- Employ quantitative methods to solve problems.
- Estimate and check mathematical results for reasonableness.
- Recognize the limits of mathematical and statistical methods.

ATTENDANCE: Class attendance is required and a record of attendance will be kept. If you miss a class it is your responsibility to find out what material was covered in class, what the homework was and if any announcements have been made about the schedule for upcoming exams.

COURSE EVALUATION & GRADING: Course grade will be based on midterm exams, quizzes, homework, and Final Exam. The Final exam is **cumulative** and it counts at least **30%** of the course grade. The grading scale is as follows:

A = [94, 100] A ⁻ = [90, 93]	B ⁺ = [87, 89]	C ⁺ = [77, 79]	D ⁺ = [67, 69]	F = [0, 59]
	B = [84, 86]	C = [74, 76]	D = [64, 66]	
	B ⁻ = [80, 83]	C ⁻ = [70, 73]	D ⁻ = [60, 63]	

TUTORIAL: Drop-in tutorial is available in the Mathematics Learning Center during the Fall and Spring semesters.

ACCOMMODATIONS FOR STUDENTS WITH SPECIAL NEEDS: If you have or suspect you may have a physical, psychological, medical or learning disability that may impact your course work, please contact Stacey DeFelice, Director, The Office of Services for Students with Disabilities (OSSD), NAB, 2065, Phone: 516-628-5666, Fax (516) 876-3005, TTD: (516) 876-3083. E-mail: defelices@oldwestbury.edu. The office will help you determine if you qualify for accommodations and assist you with the process of accessing them. All support services are free and all contacts with the OSSD are strictly confidential.

TOPICS TO BE COVERED

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1. Introduction to Statistics

- 1.2 Statistical Thinking and Critical Thinking
- 1.3 Types of Data
- 1.4 Collecting Sample Data

2. Summarizing and Graphing Data

- 2.2 Frequency Distributions
- 2.3 Histograms
- 2.4 Graphs that Enlighten and Graphs that Deceive

3. Statistics for Describing, Exploring, and Comparing Data

- 3.2 Measures of Center
- 3.3 Measures of Variation
- 3.4 Measures of Relative Standing & Boxplots

4. Probability

- 4.2 Basic Concepts of Probability
- 4.3 Addition Rule
- 4.4 Multiplication Rule: Basics

5. Discrete Probability Distributions

- 5.2 Probability Distributions
- 5.3 Binomial Probability Distributions
- 5.4 Parameters for Binomial Distributions
- 5.5 Poisson Distribution - *augmented by instructor note*

6. Normal Probability Distributions

- 6.2 The Standard Normal Distribution
- 6.3 Applications of Normal Distributions
- 6.5 Central Limit Theorem

7. Estimates and Sample Size

- 7.3 Estimating Population Mean

8. Hypothesis Testing

- 8.2 Basics of Hypothesis Testing
- 8.4 Testing a Claim about a Mean

9. Inferences from Two Samples

- 9.3 Two Means: Independent Samples
- 9.4 Two Dependent Samples (Matched Pairs)

10. Correlation and Regression

- 10.2 Correlation
- 10.3 Regression