Bronx Community College of the City University of New York
Department of Mathematics and Computer Science

Syllabus: **MTH 23 Probability and Statistics** (3 credits, 3 hours per week)

Prerequisite: MTH 5 or equivalent; co-requisite ENG 2 and/or RDL 2 if required

TEXT (Bundle): Understanding Basic Statistics by Brase & Brase, 7th ed. (Enhanced
WebAssign access card & loose-leaf textbook), Cengage Learning.
(7th Edition, ISBN-13: 9781337372763, ISBN-10: 1337372765)

Calculator: scientific calculator (suggested: TI-36X Pro)

Learning Objectives: On successful completion of this course, students will be able to
1. Sort, analyze and present numerical data using sample spaces, measures of central tendency, measures of variation, and measures of dispersion.
2. Recognize correlations between data sets using scatter diagrams; express linear correlations using least squares regression; determine the strength of the correlation via the correlation coefficient.
3. Predict experimental outcomes using basic techniques of probability (permutations, combinations, counting techniques, tree diagrams).
4. Recognize the features of a binomial experiment and apply the binomial probability distribution.
5. Recognize the features of a normal distribution and compute probabilities using the standard normal distribution.
6. Infer population parameters using sampling distributions and the Central Limit Theorem.
7. Limit the error of estimation by calculating confidence intervals.
8. Accept or reject a hypothesis by establishing a level of significance.

This course addresses the following **General Education Proficiencies**: analysis, interpretation, evaluation, and integration of information to formulate and solve problems; use of mathematical and scientific methods to formulate and solve problems and to understand the physical, natural and social worlds. This course may be used to satisfy **Category B** (Mathematical and Quantitative Reasoning) of the CUNY **Pathways Required Core.**

Topics, Text Sections and Homework: (*optional topics)

	SECTION	TOPIC	PAGES	PROBLEMS
1. Getting Started	1.1	What is statistics?	10-12	1-15
	1.2	Random Samples	18-20	1-3, 8-20
	1.3	Introduction to Experimental Design	29-31	1, 2, 5-11
	2.1	Frequency Distributions, Histograms, and Related Topics	52-59	1-10, 15-20
2. Organizing Data	2.2*	Bar Graphs, Circle Graphs, and Time-Series Graphs	65-69	1-14
	2.3*	Stem-and-Leaf Displays	73-76	1-9

Suggested Grading Guidelines: Homework, quizzes, oral presentations, projects, etc. (1/3 of grade); In-class tests (1/3 of grade); Final Exam (1/3 of grade).

SLF 4/09 AW 3/10 RG 5/12 KD 3/15 KD 8/16 KD 7/17