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 05 or equivalent; co-requisite ENG 02 and/or RDL 02 if required

TEXT: Understanding Basic Statistics by Brase & Brase, BROOKS/COLE, Cengage
Learning.   (6th Edition, ISBN 978-1-111-82702-1)

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 A** (Mathematical and Quantitative Reasoning) of the CUNY **Pathways
Required Core.**

Topics, Text Sections and Homework:

	SECTION	TOPIC	PAGES	PROBLEMS
1. Getting Started	1.1	What is statistics?	10-12	1-15
	1.2	Random Samples	18-20	1-16
	1.3	Introduction to Experimental Design	28-29	1-9
2. Organizing Data	2.1	Frequency Distributions, Histograms, and Related Topics	50-54	1-16
	2.2	Bar Graphs, Circle Graphs, and Time-Series Graphs	60-63	1-14
	2.3	Stem-and-Leaf Displays	67-70	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