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: Math Proficiency Index of at least 60

TEXT: Understanding Basic Statistics by Brase & Brase, 8th ed., Cengage Learning.
(ISBN-13: 9781337558075, ISBN-10: 1337558079)

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	18-21	1-3, 8-20
	1.3	Introduction to Experimental Design	30-32	1, 2, 5-11
2. Organizing Data	2.1	Frequency Distributions, Histograms, and Related Topics	54-60	1-10, 15-20
	2.2*	Bar Graphs, Circle Graphs, and Time-Series Graphs	67-70	1-14
	2.3*	Stem-and-Leaf Displays	75-78	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).

Academic Integrity
Academic dishonesty (such as plagiarism and cheating) is prohibited at Bronx Community College and is punishable by penalties, including failing grades, dismissal and expulsion. For additional information and the full policy on Academic Integrity, please consult the BCC College Catalog.

Accommodations/Disabilities
Bronx Community College respects and welcomes students of all backgrounds and abilities. In the event you encounter any barrier(s) to full participation in this course due to the impact of a disability, please contact the disAbility Services Office as soon as possible this semester. The disAbility Services specialists will meet with you to discuss the barriers you are experiencing and explain the eligibility process for establishing academic accommodations for this course. You can reach the disAbility Services Office at: disability.services@bcc.cuny.edu, Loew Hall, Room 211, (718) 289-5874.

If you test positive for COVID while taking an in-person/hybrid course:
- Using your BCC email account, please email all your **in-person and/or hybrid** professors of your status.
    - Please include your emplid # and current phone number in your email.
    - Please also email us at healthservices@bcc.cuny.edu .
    - Your professor will work with you to complete class work while you are in quarantine.
- You will be called by a Health Services staffer. It is critical that you connect in a timely matter with this staff member for contact tracing information.
- You will need to submit a negative COVID test to Health Services (healthservices@bcc.cuny.edu) before you are allowed access to the campus.

Your negative test result must come from your doctor or a medical provider (e.g. CityMD, Urgent Care, etc.). We will **not** accept a negative home test result.

SLF 4/09 AW 3/10 RG 5/12 KD 3/15 KD 8/16 KD 7/17 RG 5/19 EA 1/22 prepreq. 1/23 COVID