LAGUARDIA COMMUNITY COLLEGE
CITY UNIVERSITY OF NEW YORK
DEPARTMENT OF MATHEMATICS, ENGINEERING AND COMPUTER SCIENCE

MAT108 — QUANTITATIVE LITERACY

Instruction: 3 credits / 3 hours

Prerequisites: MAT 096, CSE 099 or equivalent

Catalog Description:

Students will develop confidence with numerical information by performing measurements, making calculations, addressing the uncertainty and incomplete information in a situation, evaluating inferences, and completing relevant reading and writing exercises. Spreadsheets will be used for the creation, storage, manipulation, evaluation and presentation of data and information. The course uses current events as the focus for the study of issues requiring numeracy. Students are expected to post to online discussion forums and make presentations about their class activities.

Purposes and Goals: Upon completion of this course, the student should be able to:

1. Identify the quantitative aspects and interrelationships within situations arising in events relating to a variety of disciplines of interest to students.
2. Distinguish a correlation between quantities in a situation from a causal relationship.
3. Understand methods for voting, consensus building, and apportionment to better participate in democratic processes.
4. Use appropriate software systems to store and manipulate data, and to convert data to useful information.
5. Use data, chart and graphs and correct mathematical language to express quantitative evidence in support an argument.
6. Critically evaluate statements and opinions that are allegedly based on reliable data.

Instructional Objectives: The instructor is expected to:

1. Explain how to identify quantitative factors in a situation and their interrelationships.
2. Provide example clearly identifying the distinction between correlation and causal relationships.
3. Introduce descriptive constructs for quantitative data, like units of weight and measurement, counts, rates, indices, percentages and functional relationships.
4. Introduce the causes of uncertainty: randomness, incomplete information and fluctuation.
5. Provide examples of how charts and graphs are used to convey information.
6. Explain how to use spreadsheets systems and presentation systems to store and manipulate data, to convert data to useful information and to present quantitative information effectively.
7. Describe what makes deductive and inferential statements valid and highlight where abuses commonly occur.
8. Discuss methods for voting, consensus building, and fair allocation.

Performance Objectives: During the course, students should learn how to:

1. Identify the quantitative factors (parameters), and interrelationships within a situation.
2. Distinguish between correlation and causation in the relationships among quantities.
3. Manipulate data in a spreadsheet and make an effective presentation using charts and graphs are used to convey information.
4. Provide written examples correctly using descriptive constructs for quantitative data, like units of weight and measurement, indices, percents, increases/decreases in data values, and functional relationships.
5. Identify when a statement from an article or advertisement is invalid.
6. Determine the results from examples of methods for voting and consensus building.
7. Critically evaluate statements and opinions that are allegedly based on reliable data.

Attendance:

Students are expected to attend all class meetings and complete all homework assignments. Students are held responsible for all notes, announcements, and materials whether or not they have attended the class. Students should consult the college catalog to find out the terms and conditions under which a WU, an Incomplete, or an F grade may be given by the instructor.

Textbooks:

Title: Math for Life, Crucial Ideas You Didn't Learn in School
Author: Jeffrey Bennet
Publisher: Roberts and Company, ISBN: 978-1-936221-43-1

Title: New Perspectives on Microsoft Excel 2010 (Brief Edition)
Author: Parsons, Oja, Ageloff, Carey
Publisher: Course Technology, ISBN-10: 0-536-74292-5

Recommended:
Title: Pathways to Math Literacy
Author: Dave Sobecki and Brian Mercer
Publisher: McGraw Hill Education, ISBN: 978-1-259-28890-6

Evaluation:

Homework and Web Activities	20%
Mid-semester Exam	20%
5 Quizzes	20%
2 Projects w/ Presentation	15%
Final Examination	25%

The following schedule may be modified by the instructor, based on the selection of topics from past and current events. Accordingly, text materials may come from sources other than those listed.

Topic	**Text**
Using Numbers Effectively: Measurements, Counts, Units and Conversion	Bennet Chap. 1 and Chap. 2
Introduction to Spreadsheets, Types of Data and Data Operations	Parsons Chap. 1
US/World By the numbers: Obtaining Data	Various sources
Growth rates, patterns, functional relationships; Estimations and predictions.	Bennet Chap. 9
Converting Data into Information, Formulas and Functions	Parsons Chap. 2
Demographics Distributions	Various sources
Creating Charts and Graphs	Parsons Chap. 4
Writing about Quantitative topics	Various sources
Sources of Uncertainty, Correlation and Causation	Bennet Chap. 3
The Math of Politics, The Politics of Math	Various sources
Student Project Presentation – Multiple Topics	

Sample Applications
The Dollar Value of a Life
Mortality Statistics
Assessing and Comparing Risks
Healthcare Decision-Making
Wealth Imbalance in the US
Global Climate Change
Voting Systems
Gerrymandering
The U. S. Census
Setting Policy - “55 Saves Lives”

The Final Exam will be held during Finals Week.