Borough of Manhattan Community College
The City of University of New York

Department of Mathematics

Quantitative Reasoning   **Class hours: 3**

MAT 161
Semester: **Instructor Information:**
Credits: **Name:**
                                                 Email:
                                                 Phone:
                                                 Office:

Course Description This course aims to teach students how to think competently about quantitative information. Students learn how to take real world problems, translate them into the language of mathematics, and solve them. Topics include thinking critically, numbers in the real world, financial management, statistical reasoning, probability, and mathematical modeling. This course satisfies the mathematics requirement for the CUNY Core. It is recommended for students who do not intend to pursue mathematics, science, or any curriculum requiring the study of Calculus.

Prerequisites: Students must have taken (or been exempt from) MAT 008, MAT012, MAT041, MAT 051, ESL 062 and RDG 062.

MAT 161 is a course for Liberal Arts students not majoring in mathematics, science, or any curriculum requiring the study of Calculus. MAT 161 is equivalent to MAT 160.

Student Learning Outcomes and Assessment:

Course Student Learning Outcomes	Measurements (means of assessment for student learning outcomes listed in first column)
1. Students will be able to interpret and draw appropriate inferences from quantitative representations, such as formulas, graphs, or tables.	Homework, quizzes, written assignments, examinations, final exam
2. Students will be able to use algebraic, numerical, graphical, or statistical methods to draw accurate conclusions and solve mathematical problems	2. Homework, quizzes, written assignments, examinations, final exam
3. Students will be able to represent quantitative problems expressed in natural language in a suitable mathematical format.	3. Homework, quizzes, written assignments, examinations, final exam

4. Students will be able to effectively communicate quantitative analysis or solutions to mathematical problems in written or oral form.	**4.** Homework, quizzes, written assignments, examinations, final exam
5. Students will be able to evaluate solutions to problems for reasonableness using a variety of means, including informed estimation.	**5.** Homework, quizzes, written assignments, examinations, final exam
6. Students will be able to apply mathematical methods to problems in other fields of study.	**6.** Homework, quizzes, written assignments, examinations, final exam

General Education Learning Outcomes	Measurements (means of assessment for general education goals listed in first column)
Quantitative Reasoning- Students will be able to use quantitative skills and the concepts and methods of mathematics to solve problems.	Homework, quizzes, written assignments, examinations , final exam

Required Text: Using and Understanding Mathematics, A Quantitative Reasoning Approach, Jeffrey Bennett and William Briggs, Pearson Addison Wesley, 5th Edition, 2011
Use of Technology: calculators may be required by the individual instructor.
Evaluation & Requirements of Students
At the beginning of the semester, the instructor will advise students of the determination of the final grade which may include classwork, homework, tests, and the final examination.

Outline of Topics and Recommended Class Hours

Class Hours & Pages	Text Section	Topic
4 hours, pages 128 – 160	3A, 3B	Uses and Abuses of Percentages, Putting Numbers in Perspective
2 hours, pages 160 – 194	3C, 3D, 3E	Dealing with uncertainty, Index numbers, How numbers deceive
6 hours, pages 198 – 247	4A, 4B, 4C	Finances, The Power of Compounding, Saving Plans and Investments
6 hours, pages 248 – 278	4D, 4E	Loan Payments, Credit Cards, and Mortgages, Income Taxes
1 hour, pages 279 – 292	4F	Understanding the Federal Budget
2 hours, pages 296 – 320	5A, 5B	Fundamentals of Statistics, Should You Believe a Statistical Study?
2 hours, pages 320	5C, 5D	Statistical Tables and Graphs, Graphics in the Media

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1 hour, pages 352 – 367	5E	Correlation and Causality
4 hours, pages 416 – 438	7A, 7B	Fundamentals of Probability, Combining Probabilities
2 hours, pages 439 – 456	7C, 7D	The Law of Large Numbers, Assessing Risk
2 hours, pages 457 – 469	7E	Counting and Probability
4 hours, pages 513 – 535	9A, 9B	Functions: The building blocks of Mathematical Models, Linear Modeling

College Attendance Policy
At BMCC, the maximum number of absences is limited to one more hour than the number of hours a class meets in one week. For example, you may be enrolled in a three-hour class. In that class, you would be allowed 4 hours of absence (not 4 days). In the case of excessive absences, the instructor has the option to lower the grade or assign an F or WU grade.

Academic Adjustments for Students with Disabilities
Students with disabilities who require reasonable accommodations or academic adjustments for this course must contact the Office of Services for Students with Disabilities. BMCC is committed to providing equal access to all programs and curricula to all students.

BMCC Policy on Plagiarism and Academic Integrity Statement
Plagiarism is the presentation of someone else's ideas, words or artistic, scientific, or technical work as one's own creation. Using the idea or work of another is permissible only when the original author is identified. Paraphrasing and summarizing, as well as direct quotations, require citations to the original source. Plagiarism may be intentional or unintentional. Lack of dishonest intent does not necessarily absolve a student of responsibility for plagiarism. Students who are unsure how and when to provide documentation are advised to consult with their instructors. The library has guides designed to help students to appropriately identify a cited work. The full policy can be found on BMCC's Web site, www.bmcc.cuny.edu. For further information on integrity and behavior, please consult the college bulletin (also available online).