Quantitative Reasoning
MTH-108-XXX

Rowan College at Burlington County
STEM Division
Semester / Year

Credits: 3

Contact Hours: 3 Lecture (3/0/0)

Prerequisite/Corequisite: MTH-008: Quantitative Reasoning Clinic

Meeting Days: Please enter meeting days

Meeting Times: Please enter meeting times

Meeting Location: Please enter meeting location

Instructor Information:
Instructor: Please list your contact information

Office Hours
Instructor: Please list how students can seek extra help.

Course Description:
This course builds upon algebra and introduces mathematical concepts that students will apply to solve quantitative reasoning problems. Topics include concepts, methods, and visual representation in numerical reasoning, statistical thinking, and problem solving. Students will apply these problems in areas such as personal finance, environment, population, health, and data in students' daily lives.

Required Text and other Materials
Textbook: Sobecki, D. & Mercer, B. (2021). Math in Our World: A Quantitative Reasoning Approach, 2nd edition.

Calculator: Scientific or Graphing Calculator

Hardware: Access to a computer and the internet will be required for some portions of the course.

Course Learning Outcomes

Upon completion of this course, students will be able to

- Use data and graphical representations of data and functions to interpret and communicate quantitative problems.
- Utilize percentage change and average rate of change to identify trends in the behavior of data
- Solve algebraic problems from areas such as personal finance and consumer index numbers.
- Apply basic concepts of statistics to data.
- Use technology to analyze and solve real-world quantitative problems.

General Education Outcomes

Quantitative Knowledge and Skills: Mathematics

- Students will analyze data to solve problems utilizing appropriate mathematical concepts.
- Students will translate quantifiable problems into mathematical terms and solve these problems using mathematical or statistical operations
- Students will logically solve problems using the appropriate mathematical technique.

Core Course Content

- Numerical Reasoning
- Statistical Thinking
- Quantitative Applications

Course Content

- Numerical Reasoning
    - Data representations (manually, spreadsheet, calculator)
    - Organizing data visually using charts and graphs (manually, spreadsheet)
    - Representations of functions and equations (manually, spreadsheet)
    - Ratios and proportions
    - Weighted averages
    - Percentage change and rate of change
    - Units, conversions, rates
    - Index numbers, such as CPI
- Statistical Thinking
    - Probability
    - Measures of center
    - Measures of spread
    - Standard deviation, z-score, and normal distribution
- Quantitative Applications
    - Modeling
    - Personal finance
    - Linear functions
    - Linear regression
    - Exponential functions

SECTION 2: Course Structure

Course and Classroom Policies

Please explicitly state your policies. e.g., classroom civility, additional attendance and absence notification requirements, late policy, extra credit policy, participation, cell phone, email, missed tests, etc. Any policy that an instructor has must be listed in the syllabus. These policies must not contradict any college policies.

Criteria for Grade Determination

Please explicitly state how grades will be assigned in detail.

Assessment Methods

Clearly defined assignments/assessments to be given in class (e.g., homework, exams, mid-terms, finals, papers, rubrics, etc.). Please be sure to include any specific assessments that must be implemented per Division. It is strongly recommended that at least 60% of the course grade be proctored summative assessments. Hands on projects are encouraged for the remainder of the course grade. The required textbook is equipped with group project ideas, individual problems, Excel projects, and application problems.

Course Schedule or Calendar

The order in which material will be presented, topics that will be discussed during each class meeting, when assignments are due, when evaluations will be conducted, and the type of activity students will participate in (e.g. lectures, film screenings, guest presentations, assigned course readings, independent research, writing assignments, student presentations, as well as group activities and discussions). Should include a "Right of Revision" statement allowing the instructor flexibility. If easier, can present this information in table format.

The example table below can be modified, but all the material listed must be covered.

Course Schedule

Class Session	Course Content
1	1-1 Inductive and Deductive Reasoning
2	1-2 Estimation and Interpreting Graphs
3	1-3 Problem Solving Strategies
4	2-1 Review of Percents
5	2-3 Simple Interest
6	2-4 Compound Interest
7	**Test 1 (in class)**
8	3-1 Basic Probability
9	3-2 Sample Spaces and Counting Techniques
10	3-3 Combinatorics
11	3-4 Probability Using Counting Techniques
12	3-6 Addition Rules for Probability
13	3-7 Multiplication Rules and Conditional Probability
14	**Test 2 (in class)**
15	4-1 Gathering and Organizing Data
16	4-2 Representing Data Graphically
17	4-3 Measures of Average
18	4-4 Measures of Variation
19	4-5 Measures of Position in a Data Set
20	4-6 Normal Distribution and Z-Scores
21	4-7 Applications of the Normal Distribution
22	4-8 Correlation and Regression Analysis
23	**Test 3 (in class)**
24	5-1 Ratios and Proportions
25	5-2 The Basics of Graphing Functions
26	5-3 Modeling with Linear Functions
27	5-4 Modeling with Exponential and Log Functions
28	**Project Presentations****
29	**Test 4 (in class)**

NOTE: This schedule is set up for a typical 15-week semester where class meets twice per week. The instructor should adjust the schedule appropriately for terms of different lengths or for more/less frequent meetings each week.

** Depending on project selections by the instructor, this class activity can be moved to another class session if appropriate.

SECTION 3: College Information

College Policies (use verbatim)
In order for students to know their rights and responsibilities, all students are expected to review and adhere to all regulations and policies as listed in the College Catalog and Handbook. These documents can be accessed at http://www.rcbc.edu/publications. Important policies and regulations include, but are not limited, to the following:

- Grading Standards
  - Withdraw (W) and Incomplete Grade (I)
  - Withdrawal date for this semester
- Student Code of Conduct
- Use of Communication and Information Technology
- College Attendance Policy
  - Students are required to attend all class, clinical, laboratory, and studio sessions for the full duration of each such instructional session. Faculty are required to record student attendance, and grade penalties for absence will be imposed when a student exceeds a ten percent non excused absence rate, not to exceed 10% of the final grade.
  - For all on-campus courses, including hybrid and hybrid-mixed-mode on-campus meeting days, excused absences include: suspected COVID-19 related illness (i.e., exhibiting symptoms), tested positive for COVID-19, or demonstrated need to quarantine. For all VLC courses and hybrid and hybrid-mixed-mode virtual meeting days, excused absences include: suspected COVID-19 related illness (i.e., exhibiting symptoms that prevent the student from participating online).
  - Students are responsible for informing their instructor as soon as the situation is known and following all other guidelines as outlined by the college. Failure to do so may lead to the absence not being excused. Students are also responsible for communicating with instructors to make reasonable arrangements for the completion of course requirements not completed due to absence.
- Academic Dishonesty/Plagiarism
  - Specifically, the term "plagiarism" includes, but is not limited to, the use by paraphrase direct quotation, of the published or unpublished work or sections of a work of another person without full and clear acknowledgement, whether intentional or not. This includes any material copied directly or paraphrased from the internet. Plagiarism also constitutes the unacknowledged use of materials prepared by another person or agency engaged in the selling of a term papers or other academic materials, including material taken from or ordered through the Internet. For more information on academic dishonesty/plagiarism see Board Policy #903-C.

Office of Student Support and Disability Services (use verbatim)
In accordance with Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act (ADA) and the ADA Amendments Act, the Student Support Services Office's mission is to ensure all students with disabilities are provided access to educational and extracurricular activities while on college premises through support in the form of reasonable accommodations such as adaptive technology, counseling, note-taking assistance, and American Sign Language interpreters. Students who have disabilities must self-identify, provide documentation of disability(ies), attend an intake appointment, and sign a Disability Release Form (rcbc.edu/studentsupport) prior to the start of the semester to ensure reasonable accommodations. For more information please contact the Office of Student Support at ext. 1208. For additional information on this policy please refer to the current catalog.

Educational Technology Statement (use verbatim)
Rowan College at Burlington County (RCBC) advocates the use of technology to enhance instruction. Students should assume that classroom and online technology will be used throughout their coursework at RCBC, as it will most certainly be used in their future education and careers. The College provides on-campus facilities for the convenience of the RCBC community. Various college departments, including the Office of Information Technology and the Office of Distance Education, provide technology training and assistance to faculty and students.

Student Success Services (use verbatim)
RCBC offers a variety of free services for its students including those listed below. Descriptions of these services, as well as many others, can be found in the College Catalog and Handbook and on the RCBC website at https://www.rcbc.edu/students.

- **Academic Advising (**https://www.rcbc.edu/advising**)**
- **Struggling Personally or Academically** (https://rcbc.edu/need-help-now)
- **Career Services (**https://www.rcbc.edu/careers**)**
- **EOF (**https://www.rcbc.edu/eof**)**
- **Financial Aid (**https://www.rcbc.edu/financial-aid**)**
- **International Students Office (**https://www.rcbc.edu/internationall**)**
- **ESL Advising & Support (**https://rcbc.edu/esl)
- **Library (**https://www.rcbc.edu/library**)**
- **Office of Veteran Services (**https://www.rcbc.edu/vets**)**
- **RCBC Foundation -Scholarship information (**https://www.rcbc.edu/foundation**)**
- **RCBC bookstore (**https://www.rcbc.edu/bookstore**)**
- **Rowan University Partnership (**https://www.rcbc.edu/rowan**)**
- **Student Support Counseling (**https://www.rcbc.edu/counseling)
- **Tutoring (**https://www.rcbc.edu/tutoring**)**
- **Test Center (**https://www.rcbc.edu/test-center)
- **Transfer Services (**https://www.rcbc.edu/transfer**)**

This syllabus is subject to change at the instructor's discretion.