Moberly Area Community College
Common Syllabus

MTH142 Quantitative Reasoning

Instructor: [Name]
Office number: [Number]
Office hours: [Hours]
Contact information: [Contact Info]
Classroom number: [Number]
Class days and time: [Days and Time]

Catalog Description: MTH142 Quantitative Reasoning (3-0-3)
This course is designed to fulfill general education requirements for students pursuing non-STEM (Science, Technology, Engineering, and Mathematics) degrees and career paths. Topics include: proportional reasoning, statistical reasoning, and mathematical modeling. Emphasis is placed on critical thinking and improving students’ ability to apply mathematics. (FA, SP, SU)

Prerequisite: Eligible placement score, grade of "C" or higher in MTH095, or successful completion of the appropriate module in the Computer Assisted Pre-Algebra sequence, or grade "C" or higher in MTH160

Text(s): The text is an eBook included with the class. Print books are optional and available in limited quantities in the MACC bookstore.
Title: Using and Understanding Mathematics: A Quantitative Reasoning Approach
Author: Jeffrey Bennett, William Briggs
Edition: 7th Edition
Publisher: Pearson

Other Required Materials: scientific calculator (recommended TI-36X Pro)

Purpose of Course: This course is designed to prepare the student to solve mathematical problems arising in business, economics, life science, and social sciences. This course meets the AA mathematics degree requirement and may be more appropriate than Precalculus Algebra for students not intending to continue in mathematics.

Course Objectives:
Upon successful completion of this course, students will be able to think critically and solve problems in the following areas:

- Proportional Reasoning
  - Ratios, proportions, rates and percentages
  - Units and unit conversions
• Absolute and relative change
• Geometric proportions

Statistical Reasoning
• Visual displays of qualitative and quantitative data
• Probability
• Descriptive statistics
• Correlation and causation
• Normal distribution

Mathematical Modeling
• Analyze patterns and functions
• Linear functions
• Exponential functions
• Scatterplots and best fit curves
• Financial math

Additional Topics
• Geometry

Course Content:
Chapter 2 - Approaches to Problem Solving
Chapter 3 - Numbers in the Real World
Chapter 4 - Managing Money
Chapter 5 - Statistical Reasoning
Chapter 6 - Putting Statistics to Work
Chapter 7 - Probability: Living with the Odds
Chapter 8 - Exponential Astonishment
Chapter 9 - Modeling Our World
Chapter 10 - Modeling with Geometry

Assessment of Student Learning:
Grades will be calculated in the Canvas gradebook where 60% mastery will be necessary for completion of the course, however students who wish to transfer or who are enrolled in special programs may have a minimum of 70% mastery required. Please check with your transfer institution or program director. Grades will be updated at least after each chapter test throughout the semester in the Canvas gradebook.

The grading scale will be structured as follows:
A - 90 - 100%
B - 80 - 89%
C - 70 - 79%
D - 60 - 69%
F - 59% or below
Points will be accumulated by:

Homework/Quizzes/Projects: 20%
Chapter/Unit Tests: 60%
Final Exam: 20%

Expected Study Time Commitments: Students should expect to spend approximately 2 to 4 hours per week studying, reading, and working on assignments for each registered credit hour. For example, 6 to 12 study hours per week may be expected for a 3 credit hour class.

Testing Expectations: This is a credit-bearing course. Retakes of tests are not allowed for individual students. Contact the Math Department Coordinator and/or refer to the course pages in the Math Department Canvas Shell for guidelines.

Make-up and late work: Per instructor’s policy

Tardiness: Per instructor’s policy in relationship to points given in the course and not in relationship to attendance.

Schedule of Student Assignments/Activities: Instructors will identify a Student Assignment/Activities schedule. Instructors have the prerogative to construct the schedule by class periods or weeks in order to cover the entire curriculum. A sample schedule is attached.

Statement to Connect Course with General Education Outcomes: In compliance with MACC’s General Education outcomes, the student who successfully completes this course will be able to:

- Higher Order Thinking: Students will demonstrate the ability to distinguish among opinions, facts, and inferences; to identify underlying or implicit assumptions; to make informed judgments; to solve problems by applying evaluative standards; and to reflect upon and refine those problem-solving skills. This outcome involves creative thinking, critical thinking, and quantitative literacy.
- Managing Information: Students will demonstrate the ability to discern when there is a need for information; and to identify, locate, evaluate, and effectively and responsibly use and share that information for the problem at hand.

College Policies:

Academic Dishonesty: MACC board policy is as follows: “Academic dishonesty by students damages institutional credibility and unfairly jeopardizes honest students; therefore, it will not be tolerated in any form.” Forms of academic dishonesty include but are not limited to the following: violations of copyright law, plagiarism, fabrication, cheating, collusion, and other academic misconduct. Incidents of dishonesty regarding assignments, examinations, classroom/laboratory activities, and/or the submission of misleading or false information to the College will be treated seriously. The procedure for handling academic dishonesty is outlined in the Student Handbook (Policy Handbook, M.010). In cases of alleged academic dishonesty, the burden of proof is on the student, not on the instructor.
Attendance Policy: Students are expected to attend all class sessions for which they are enrolled. The College reserves the right to drop or withdraw students from courses due to lack of attendance.

Students need to be aware that dropping/being dropped from a course and their last date of attendance in the course may impact their financial aid.

MACC faculty are required to track attendance and report lack of attendance. An instructor must complete the appropriate steps to drop a student within one week following the student’s violation of the attendance policy. Additionally, a student’s attendance rate will be calculated based upon the first day the academic session begins (not the student’s date of enrollment in the course). If a student does not attend a course as defined below, the student will be dropped as “Never Attended.”

Term Length Drop Calculations

16-week: Any student who misses two (2) consecutive weeks of class will be dropped from the course by the instructor unless acceptable justification is provided by the student and the student still has the opportunity to be successful in the course.

8-week: Any student who misses one (1) consecutive week of class will be dropped from the course by the instructor unless acceptable justification is provided by the student and the student still has the opportunity to be successful in the course.

4-week: Any student who misses two (2) consecutive days of class will be dropped from the course by the instructor unless acceptable justification is provided by the student and the student still has the opportunity to be successful in the course.

Intersession: Any student who misses one (1) day of class will be dropped from the course by the instructor unless acceptable justification is provided by the student and the student still has the opportunity to be successful in the course.

Acceptable justification may include, but is not limited to, family emergencies, illness or injury, college-approved co-curricular and extra-curricular activities, and religious holidays.

Definition of Course Attendance

<table>
<thead>
<tr>
<th>In Seat Course</th>
<th>Physically attending scheduled, face-to-face, class meetings</th>
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</thead>
<tbody>
<tr>
<td>Virtual Course</td>
<td>Being present, via appropriate platform, for scheduled class meetings/activities</td>
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</table>
Hybrid Course: Physically attending scheduled, face-to-face, class meetings and active participation in the online portion of the course which may include any or all of the following:
• Completion of quizzes or exams during class meetings and online
• Submission of assignments during class meetings and online
• Participation in discussions during class meetings and online

Online Course: Active participation in an online course includes the following:
• Completion of quizzes or exams
• Submission of assignments
• Participation in threaded discussions

Simply logging into the Learning Management System (Canvas) and/or accessing the course and course related material does not constitute active participation for the online component of hybrid courses or for online courses. (*Policy Handbook*, I.090 & M.095)

**Student Email:** MACC Mail is the official student email system at MACC. Official college communication is sent via this email system. Students are responsible for checking their MACC Mail account regularly. Students may also receive notifications and reminders from MACC through the online learning platform. However, students should remain aware that the online learning platform messaging system and MACC Mail (student email) system are two separate systems.

**ADA Statement:** Students who have disabilities that qualify under the Americans with Disabilities Act may register for assistance through the Office of Access and ADA Services. Students are invited to contact the Access/ADA Office to confidentially discuss disability information, academic accommodations, appropriate documentation and procedures. The Office of Access and ADA Services is located in the Main Library and the phone number is (660) 263-4110 ext. 11240. Students may also contact the Columbia office at 573-234-1067 ext. 12120.

**Title IX Statement:** MACC maintains a strict policy prohibiting sexual misconduct in any form, including sexual harassment, sexual discrimination, and sexual violence. All MACC employees, including faculty members, are considered mandated reporters of sexual misconduct and as such are expected to contact the Title IX Coordinator when they become aware, in conversation or in writing, of an incident of sexual misconduct. For more information on this policy or to learn about support resources, please see [http://www.macc.edu/sexual-misconduct-policy (links to an external site)] or contact Ms. Cheryl Lybarger, MACC’s Title IX Coordinator, at 660-263-4110, ext. 11369 or CherylLybarger@macc.edu.
## Tentative Schedule MTH142 – Quantitative Reasoning

This content is a minimum requirement.

<table>
<thead>
<tr>
<th>Week 1</th>
<th>Welcome &amp; Syllabus 4A: Taking Control of Your Finances</th>
<th>4B: The Power of Compounding</th>
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</thead>
<tbody>
<tr>
<td>Week 2</td>
<td>4C: Savings Plans and Investments</td>
<td>4D: Loan Payments, Credit Cards and Mortgages</td>
</tr>
<tr>
<td>Week 3</td>
<td>3A: Uses and Abuses of Percentages</td>
<td>3B: Putting Numbers in Perspective</td>
</tr>
<tr>
<td>Week 4</td>
<td>Course Project or Extensions of content</td>
<td>Test #1</td>
</tr>
<tr>
<td>Week 5</td>
<td>5A: Fundamentals of Statistics</td>
<td>5C: Statistical Tables and Graphs 5E: Correlation and Causality</td>
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<td>Week 6</td>
<td>6A: Characterizing Data</td>
<td>6B: Measures of Variation</td>
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<tr>
<td>Week 7</td>
<td>6C: The Normal Distribution</td>
<td>7A: Fundamentals of Probability 7B: Combining Probabilities</td>
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<tr>
<td>Week 8</td>
<td>7B: Combining Probabilities Course Project or Extensions of content</td>
<td>Test #2</td>
</tr>
<tr>
<td>Week 9</td>
<td>8A: Growth: Linear versus Exponential</td>
<td>8B: Doubling Time and Half-Life</td>
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<td>Week 10</td>
<td>9A: Functions: The Building Blocks of Mathematical Models</td>
<td>9B: Linear Modeling</td>
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<td>Week 11</td>
<td>9C: Exponential Modeling</td>
<td>Course Project or Extensions of content</td>
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<td>Week 12</td>
<td>Test #3</td>
<td>2A: Working with Units</td>
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<td>Week 13</td>
<td>2B: Extending Unit Analysis</td>
<td>10A: Fundamentals of Geometry</td>
</tr>
<tr>
<td>Week 14</td>
<td>10B: Problem Solving with Geometry</td>
<td>Course Project or Extensions of content</td>
</tr>
<tr>
<td>Week 15</td>
<td>Test #4</td>
<td>Course Project or Extensions of content Review</td>
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<tr>
<td>Week 16</td>
<td>FINAL EXAMS</td>
<td><strong>Instructors: Please see posted curriculum for details on each section in the Math Department Canvas shell. This is a “hands-on” type of course. Feel free to incorporate activities which are embedded in the chapters or activity manual which is located in Instructor Resources in MyMathLab. You are required to get through all of the listed sections to meet the Student Learning Outcomes set forth by the state.</strong></td>
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</table>