

**INSTRUCTOR INFORMATION****Instructor:** John Grade**Email:** jdgrade@matcmadison.edu**Availability:** 10:30am – 11:30am in Room D2649-D**CLASS INFORMATION**

This is not an easy course, or one with a light workload. It is a useful course in which students focus on a handful of highly-relevant topics to develop the deep level of understanding needed to use numbers when making and defending decisions. “Should my business hire another worker or lay someone off? Which car should I buy? Was I overcharged? What is that deceptive political ad really saying? Is that policy fair?” Expect to brainstorm, discuss, critique, and evaluate. Students will write, speak, and present much more than in a traditional math course.

Credits: 3**Course Format :** face to face**Class Schedule:** Monday, Wednesday, Friday from 1:00pm – 2:15pm (35211)**Location:** Truax campus, Room #D3614**Supplies:**

- You must have consistent and reliable access to a computer with internet access for this class. If you do not have a personal computer, set aside time when you can work on the computers at Madison College. A crashed computer or problems with the internet connection at home will **not** be an acceptable excuse for submitting late work.
- A calculator will be needed for numerical evaluation. Do yourself a favor and buy one that handles fractions. I use the TI-30X-IIS, which costs \$12 and is simple enough to use and powerful enough to handle everything in the course.
- Notebook & Folder (to keep handouts/group work)

Course Description:

This course provides a pathway to earning a college-level liberal-arts mathematics course. All college students, regardless of their college major, need to be able to make reasonable decisions about fiscal, environmental, and health issues that require quantitative reasoning skills. An activity based approach is used to explore numerical relationships, graphs, proportional relationships, algebraic reasoning, and problem solving using linear, exponential and other mathematical models. Students will develop tools that support the use of key mathematical concepts in a variety of contexts. This course is the first in a two part sequence and is not designed for Science, Technology, Engineering, or Math (STEM) students.

Pre-requisites: Grade of C or better in Basic Algebra, 77854793 or Basic Algebra, 74854793; OR COMPASS: Pre-Algebra 43-99 or Algebra 1-50; OR Acceptance Biointensive Certificate 900072

PROGRAM OUTCOMES: The following program outcomes are addressed in this course:

1. Demonstrate operation sense by communicating verbally and symbolically the effects of common operations on numbers
2. Apply quantitative reasoning strategies to solve real-world problems involving ratios, rates, proportions, and scaling
3. Describe the underlying structure of quantitative reasoning problems using the language and structure of algebra
4. Translate quantitative reasoning problems from a variety of contexts into mathematical models

Updated 8/22/14



RESPONSIBILITIES AND POLICIES:

Integrity: Academic Integrity is an expectation in all MATC classes. Plagiarism, cheating and collusion are prohibited at MATC. **Online work must be your own.** Students who fail to observe these standards are subject to disciplinary action which may include a failing grade and/or suspension from the institution. MATC has a strong policy on Academic Misconduct which is published on the MATC website located at <http://madisoncollege.edu/academic-integrity>.

Withdrawal Policy: If a situation arises that prevents the successful completion of this course, please note that it is each student's responsibility to formally withdraw from this course.

Group Work: Working in groups and communicating clearly are key components of this course. Expect to work together during most of each class period. Be prepared to brainstorm, discuss, critique, and evaluate.

Online Work: The online work in this course is not just a set of additional problems that provide extra practice; the online work in this class is an integral part of the instruction. New concepts are introduced online before class, and concepts developed during class are extended online after class. The average student in this class is expected to spend **10-15 hours per week outside of class.** Every lesson includes a homework assignment that must be submitted online before the next class session. The homework is divided into two main sections: PNL and OCE. The Preparing for the Next Lesson (PNL) is done *before* class and gives a preview of the lesson you will be doing next. The Out of Class Exercises (OCE) has a section that reviews the high-level concepts from the last lesson and another section that provides example problems that reinforce, extend, and add detail to the material from the last lesson.

The online part of the course is designed both to help you learn the material and to assess your understanding. Online work will contribute to your course grade in two ways. First, your average OCE score over the course will contribute 20% to your overall course grade according to the table at the right. Second, 10% of the average OCE score for each module will be added to your module assessment grade as extra credit.

| Average OCE Score | Course Grade Contribution |
|-------------------|---------------------------|
| 88% - 100% | 20% |
| 80% - 87% | 19% |
| 70% - 79% | 17% |
| 60% - 69% | 15% |
| Below 60% | OCE × 20% |

Assessments: There will be an assessment given at the end of each of the 4 modules in the course. There will be no make-ups. A comprehensive final assessment will be given at the end of the course. The lowest score of your 4 assessments may be replaced with your final assessment score if that improves your overall grade. The final assessment score cannot be dropped. Tentative exam times are suggested on the course outline below. Exact dates and material covered on assessments will be announced in class prior to the exam date. Assessments will be done on paper in class.

Notebook, Participation, Attitude (NPA): You will record your work and your notes in your own notebook or binder, and you will record your final results in a workbook. Both will be collected with each of the 4 module assessments and will be graded on organization, clarity, and completeness (a grading rubric will be provided). Regular class attendance is essential. Some assignments will be completed entirely during class. If you are absent, you may not be able to make up those assignments. If you miss course material due to absence, it is your responsibility to contact your classmates as soon as possible regarding missed material. If you miss three classes, you will be



required to meet with the instructor to discuss your progress in the course. Your positive interactions with classmates are expected. This will be discussed further during the first 2 weeks of class.

Use of Electronic Devices: Other than medical devices or calculators and computers being used for math, no electronic devices may be used in the classroom without prior permission.

Audible devices must be *turned off* or they may be confiscated for the remainder of the class. Can you talk on your phone while in class? No, you may not. Texting is not allowed during exams. Phones may not be used during exams, even if they have nice calculator apps.

Technical Assistance: Computer difficulties are not a long-term excuse for non-participation. If you experience problems with your computer, contact the help desk. Student Computer Help Desk is located in the [Truax Campus Library Room A3000](#). Student lab assistants are available in person, and by phone, (608) 243-4444; toll-free at (866) 277-4445; by email at <http://madisoncollege.edu/student-helpdesk> to provide computer support to fellow students.

Banned: No weapons, tobacco products, controlled substances, or animals are allowed in the classroom. No snoring.

Disability Act Statement: MATC complies with all provisions of the Americans with Disabilities Act and makes reasonable accommodations upon request. Please contact Disability Resources Services at 246-6716 (Students who are deaf via Relay 711), room 159 at Truax or email drs@matcmadison.edu

If you have an accommodation card from their office indicating that you have a disability which requires academic accommodations, please present it so we can discuss the accommodations that you might need in this class. **It is best to request these accommodations at the beginning if not before class** so there is ample time to make the accommodations.

Other Resources:

- Peer to Peer Tutoring Services: <http://madisoncollege.edu/request-tutor>
- Counseling Services: 608-246-6076.

Syllabus Changes: The instructor will make syllabus changes based on the timeline of the class, feedback from learners and/or logistical issues and will inform you soon after a change is made.

Grading Policy & Scale:

| GRADE COMPONENT | CONTRIBUTION |
|---------------------|--------------|
| Online Work | 20% |
| NPA Grade | 10% |
| Module 1 Assessment | 13% |
| Module 2 Assessment | 13% |
| Module 3 Assessment | 14% |
| Module 4 Assessment | 15% |
| Final Assessment | 15% |

| Grade | % Attained |
|-------|------------|
| A | 93-100 |
| AB | 89-92 |
| B | 81-88 |
| BC | 77-80 |
| C | 69-76 |
| D | 60-68 |
| F | 59-below |



MATHEMATICAL REASONING SYLLABUS

Catalog #10-804-134
Fall 2014: 9/3 – 12/15

| | | | | |
|----|---|-------|-----|--|
| 1 | W | 9/3 | 1.0 | First Day Activities |
| | F | 9/5 | 1.1 | Introduction to Quantitative Reasoning |
| 2 | M | 9/8 | 1.1 | The MyQuantway Platform |
| | W | 9/10 | 1.2 | Seven Billion and Counting |
| | F | 9/12 | 1.3 | Percentages in Many Forms |
| 3 | M | 9/15 | 1.4 | Affordable Care Act |
| | W | 9/17 | 1.5 | The Credit Crunch |
| | F | 9/19 | 1.6 | Whose Footprint is Bigger? |
| 4 | M | 9/22 | 1.7 | A Taxing Set of Problems |
| | W | 9/24 | 1.8 | Interpreting Statements About Percentages |
| | F | 9/26 | 1.9 | Percent and Probability |
| 5 | M | 9/29 | | Review |
| | W | 10/1 | | ASSESSMENT |
| | F | 10/3 | 2.1 | How Crowded Are We? |
| 6 | M | 10/6 | 2.2 | Counting Our Votes |
| | W | 10/8 | 2.3 | Measuring Population Change |
| | F | 10/10 | 2.4 | Picturing Healthcare Data with Graphs |
| 7 | M | 10/13 | 2.5 | Risk Reduction |
| | W | 10/15 | 2.6 | What Is Average? |
| | F | 10/17 | 2.7 | Making Good Decisions With Good Statistics |
| 8 | M | 10/20 | 2.8 | Has the Minimum Wage Kept Up? |
| | W | 10/22 | | Review |
| | F | 10/24 | | ASSESSMENT |
| 9 | M | 10/27 | 3.1 | Acetaminophen Overdoses |
| | W | 10/29 | 3.2 | The Cost of Driving Part 1 |
| | F | 10/31 | 3.2 | The Cost of Driving Part 2 |
| 10 | M | 11/3 | 3.3 | The Fixer Upper |
| | W | 11/5 | 3.4 | Breaking Down Variables |
| | F | 11/7 | 3.5 | Comparing Apples To Apples |
| 11 | M | 11/10 | 3.6 | Balancing Blood Alcohol |
| | W | 11/12 | 3.7 | A Return to Proportional Reasoning |
| | F | 11/14 | 3.8 | Solving More Equations |
| 12 | M | 11/17 | | Review |
| | W | 11/19 | | ASSESSMENT |
| | F | 11/21 | 4.1 | Lining Up |
| 13 | M | 11/24 | 4.2 | Comparing Change |
| | W | 11/26 | 4.3 | Understanding Heart Rate |
| | F | 11/28 | | NO CLASS – THANKSGIVING |
| 14 | M | 12/1 | 4.4 | The Cost of Business |
| | W | 12/3 | 4.5 | Compounding Interest Makes Cents |
| | F | 12/5 | 4.6 | Compounding Makes More Cents |
| 15 | M | 12/8 | 4.7 | Short-Term Loans |
| | W | 12/10 | | Review |
| | F | 12/12 | | ASSESSMENT |
| 16 | M | 12/15 | | Review |
| | | 12/17 | | FINAL ASSESSMENT – 1:30pm on 12/22 in D2637 |