
Quantitative Reasoning

Section 004: TR 9-10:15 AM, IN-208

Instructor: Claire Merriman

Email: emerrima@gmu.edu

Office: Exploratory Hall, Room 4452

Office Hours: Mon/Wed 3:30-4:30,
Tues/Thurs 1:30-2:30

Grading:

Syllabus quiz and practice tests: 5%

In class collaboration: 7%

Hawkes Certify and Quizzes: 15%

Written Homework: 3%

In class quizzes: 10%

Midterm Exams: 45%

Final Exam: 15%

Grading Scale:

A+	97-100	A	93-96	A-	90-92
B+	87-89	B	83-86	B-	80-82
C+	77-79	C	73-76	C-	70-72
D	60-69	F	0-59		

Deadlines:

Syllabus Quiz and Hawkes Introductory Video Lesson Certify Quiz: January 22 11:59 pm

Paper Homework: February 13, March 20, April 24 at the start of class

Practice Tests: February 14, March 21, April 24 at 11:59 pm

Hawkes: Fridays when there is no exam

Exams:

Quizzes: Thursday when no exam

Midterms: February 20, March 27, May 1

Final: May 8, 7:30-10:15 am

Course Information

Math 106 meets the quantitative reasoning requirement, one of the Foundation requirements of Mason Core. The goal of the Foundation requirement is to help ensure that students are equipped with the tools and techniques necessary to succeed in college and throughout their lives and careers.

The learning objectives for this requirement are:

1. Students are able to interpret quantitative information (i.e., formulas, graphs, tables, models, and schematics) and draw inferences from them.
2. Given a quantitative problem, students are able to formulate the problem quantitatively and use appropriate arithmetical, algebraic, and/or statistical methods to solve the problem.
3. Students are able to evaluate logical arguments using quantitative reasoning.
4. Students are able to communicate and present quantitative results effectively.

The course will introduce the following material: Inductive and Deductive Reasoning, Sets, Logic, Counting, Probability, Statistics and Finance.

Textbook and Software

Text/Online learning system: *Viewing Life Mathematically 2nd edition* by Denley. Student course fees paid for access to the eBook and online homework system. You do not need to spend any more money on any materials (except a calculator) for this class. You may choose to also purchase the printed book from the bookstore, but most students are fine without it. Follow prompts for Hawkes on Canvas.

Handwritten assignment grading: All other assignments will be graded and returned on Gradescope. You can access Gradescope through Canvas.

Needed equipment: internet, computer, excel, calculators: You will be required to have a calculator for the course with an e^x function and factorial function (!). You may also be permitted to use excel or Desmos for some more involved calculations.

Classroom Expectations

Learning mathematics requires you *do* mathematics. This means that you will spend part of class working on math problems, and you will have times that you struggle to solve them. The goal is for this to be a *productive struggle*, where you emerge with a greater understanding of the concepts.

I expect this course to be a place where you will be treated with respect. All members of this class are expected to contribute to a respectful, welcoming and inclusive environment for every other member of the class.

Discrimination against any individual based on age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status will not be tolerated.

Assignment Descriptions

Syllabus quiz and Hawkes Introductory Video Lesson Certify Quiz

The Hawkes Introductory Video Lesson Certify Quiz includes an introduction to the online homework system. This is due **by the end of day on January 22**, regardless of whether you are in the Monday/Wednesday or Tuesday/Thursday section. This quiz is available through Hawkes and graded for correctness.

The syllabus quiz is due **by the end of day on January 22**, regardless of whether you are in the Monday/Wednesday or Tuesday/Thursday section. This quiz is available through Hawkes and graded for correctness.

Practice Tests

The practice tests are due **by the end of day the Friday before each test**. These practice tests are available through Hawkes, slightly longer than the in-class test, and graded for *completion*.

In-class collaboration

Throughout the semester, there will be some in-class, collaborative work to help you understand the material. These assignments will be graded on a mix of completion and correctness. The lowest 3 scores will be dropped.

Written homework

The week before each test, a written homework assignment is **due at the beginning of the class Thursday the week before each test**. The homework problems are available on Canvas and Gradescope, with additional problems added until a week before the due date. These assignments are part of studying and will be graded for correctness. Late assignments will be reduced by 20 percentage points (ie, 2 points for an assignment worth 10 points) per 24 hours after the deadline.

You are encouraged to work together on the problems; **however, you must write up your own solutions and submit them individually**.

You will need to scan and upload your homework before the deadline. Assignments should be legible—you should work out problems then write up a new, final version. Homework should be on a separate page or in a separate file from your course notes. Problems or assignments that are messy may result in lower grades.

Hawkes Certify and Quizzes

Each lesson of the software offers three modes:

1. **Learn** is an interactive presentation of the material found in your textbook and includes instructional video clips and example problems.
2. **Practice** gives you access to unlimited practice problems, provides error-specific feedback for commonly made mistakes, hints for all incorrect answers, and includes an interactive Tutor with Step-by-Step guidance and fully worked out solutions. Note that every question type from Certify can be found in the Practice mode.
3. **Certify** is the homework portion of the lesson. After answering the set of questions without exceeding the available strikes (or lives), you will receive a perfect 100% score for your homework. If you are not able to Certify in your attempt, you are able to start a new set of questions over again with no penalty. In the meantime, you may wish to spend more time in the Practice mode before attempting Certify again. You have unlimited attempts in each lesson to receive full credit before the due date.

Additional videos can be found at www.hawkestv.com.

Lowest score is dropped.

In class quizzes

At the start of class on Thursday, there will be a 10-minute quiz, unless there is an exam. You may use one, double-sided, letter (printer paper) size page of handwritten notes during the quiz, which must be turned in with

your quiz. You may also use a calculator without internet access (ie, not your phone). Lowest score is dropped.

Midterm Exams

There will be three in class midterm exams in class. IDs will be checked at the start of each exam. You may use one, double sided, letter (printer paper) size page of handwritten notes during the exam, which must be turned in with your exam. You may also use a calculator without internet access (ie, not your phone).

Final Exam

The final exam in this course is cumulative and will follow the same format as the Midterm Exams. The exam will take place in the classroom. IDs will be checked at the start of each exam. You may use three, double sided, letter (printer paper) size page of handwritten notes, which must be turned in with your exam. You may also use a calculator without internet access (ie, not your phone).

Ways to get help

Office Hours and Tutoring

The best way to succeed in this course is to ask for help before you fall behind. This includes working with your classmates and asking questions during class. Here are other ways to get help:

- **Office hours:** Office hours are a time I am in my office to help you with the material in the course. They can also be a time to meet or work with other students in the class.
- **Email:** Please put "MAT 106" in the subject line. I will try to respond to emails within 24 hours on weekdays.
- **The Math Tutoring Center:** no appointment necessary tutoring provided by the mathematics department. See [Tutoring Center website](#) for information about how to access the Tutoring Center and for the current schedule.

Hawkes

Contact Hawkes with any technical questions, including creating your username and password, finding your Access Code or license number, or completing your work.

Phone: 1.800.426.9538 available Monday-Friday, from 8:00am-10:00pm ET.

Email: support@hawkeslearning.com

Chat: www.hawkeslearning.com/chat Chat support is available 24/7.

Other course policies

Academic Honesty

George Mason has established institutional academic standards. Three fundamental principles to follow at all times are that

1. all work submitted be your own, as defined by the assignment
2. when you use the work, the words, or the ideas of others, including fellow students or online sites, you give full credit through accurate citations; and
3. if you are uncertain about the ground rules on a particular assignment or exam, ask for clarification.

No grade is important enough to justify academic misconduct.

The use of "study sites," such as Chegg and Course Hero, or generative AI, such as ChatGPT and Microsoft CoPilot, is not allowed in this course for any purpose. Other computer aided math solvers, except the required calculator, may not be used on any assignments for this course except where specified by the assignment instructions.

Important Dates

Last day to add: Tuesday, January 28

Last day to drop with 100% Tuition Refund: Tuesday, February 4

Last day to drop with 50% Tuition Refund: Tuesday, February 11

Last day to drop without Tuition Refund: Tuesday, February 25

Last day of classes: Monday, May 5

Final Exams: Wednesday, May 7-Wednesday, May 14

Tentative course schedule—Adjustments to schedule will be in Hawkes and Canvas

January 20-24: Ratios, Percentages, Rates, and Proportionality	1.2 Estimating 4.1 Proportions, Percentages, and Ratios 4.2 Using Percentages	Syllabus Quiz and Hawkes Introductory Video Lesson Certify Quiz due Wednesday 11:59 pm Hawkes Certify Lessons due Friday 11:59 pm
January 27-31: Ratios, Percentages, Rates, and Proportionality	4.3 Rates, Unit Rates, and Rates of Change 4.4 Using Rates for Dimensional Analysis 4.5 Proportionality	10 minute quiz start of class Thursday Hawkes Certify Lessons due Friday 11:59 pm
February 3-7: Algebra: Equations, Inequalities, and Functions	5.1 Linear Equations and Functions 5.2 Linear Modeling	10 minute quiz start of class Thursday Hawkes Certify Lessons due Friday 11:59 pm
February 10-14: Functions	5.7 Exponential Functions	10 minute quiz start of class Thursday Handwritten homework due start of class Thursday Hawkes Certify Lessons due Friday 11:59 pm Practice Test due Friday 11:59 pm
February 17-21: Exam 1	Review/ Catch up lecture Exam 1	Exam in class Thursday
February 24-28: Finance	6.1 Understanding Interest 6.2 Saving and Investing	10 minute quiz start of class Thursday Hawkes Certify Lessons due Friday 11:59 pm
March 3-7: Finance	6.3 Borrowing Money 6.4 Budget	10 minute quiz start of class Thursday Hawkes Certify Lessons due Friday 11:59 pm
March 10-14: Spring Break		
March 17-21: Numeration	7.4 The Metric System 7.5 Converting between the US Customary System and the Metric System	10 minute quiz start of class Thursday Handwritten homework due start of class Thursday Hawkes Certify Lessons due Friday 11:59 pm Practice Test due Friday 11:59 pm
March 24-28: Exam 2	Review/ Catch up lecture Exam 2	Exam in class Thursday
March 31-April 4: Probability	10.1 Introduction to Probability 10.2 Counting Outcomes	10 minute quiz start of class Thursday Hawkes Certify Lessons due Friday 11:59 pm
April 7-11: Probability	10.3 Probability of Single Events 10.4 Addition and Multiplication Rules of Probability	10 minute quiz start of class Thursday Hawkes Certify Lessons due Friday 11:59 pm
April 14-18: Statistics	11.1 Statistical Studies 11.2 Displaying Data	10 minute quiz start of class Thursday Hawkes Certify Lessons due Friday 11:59 pm
April 21-25: Statistics	11.3 Describing and Analyzing Data 11.4 The Normal Distribution	10 minute quiz start of class Thursday Handwritten homework due start of class Thursday Hawkes Certify Lessons due Friday 11:59 pm Practice Test due Friday 11:59 pm
April 28-May 2: Exam 3	Review/ Catch up lecture Exam 3	Exam in class Thursday

Section 004: May 8, 7:30-10:15 am Section 007: May 12, 7:30-10:15 am	FINAL EXAM	FINAL EXAM
---	-------------------	-------------------

Common Policies Affecting All Courses at George Mason University

These four policies affect students in all courses at George Mason University. This Course Policy Addendum must be made available to students in all courses (see [Catalog Policy AP.2.5](#)).

Academic Standards

Academic Standards exist to promote authentic scholarship, support the institution's goal of maintaining high standards of academic excellence, and encourage continued ethical behavior of faculty and students to cultivate an educational community which values integrity and produces graduates who carry this commitment forward into professional practice.

As members of the George Mason University community, we are committed to fostering an environment of trust, respect, and scholarly excellence. Our academic standards are the foundation of this commitment, guiding our behavior and interactions within this academic community. The practices for implementing these standards adapt to modern practices, disciplinary contexts, and technological advancements.

Our standards are embodied in our courses, policies, and scholarship, and are upheld in the following principles:

- **Honesty:** Providing accurate information in all academic endeavors, including communications, assignments, and examinations.
- **Acknowledgement:** Giving proper credit for all contributions to one's work. This involves the use of accurate citations and references for any ideas, words, or materials created by others in the style appropriate to the discipline. It also includes acknowledging shared authorship in group projects, coauthored pieces, and project reports.
- **Uniqueness of Work:** Ensuring that all submitted work is the result of one's own effort and is original, including free from self-plagiarism. This principle extends to written assignments, code, presentations, exams, and all other forms of academic work.

Violations of these standards—including but not limited to plagiarism, fabrication, and cheating—are taken seriously and will be addressed in accordance with university policies. The process for reporting, investigating, and adjudicating violations is [outlined in the university's procedures](#). Consequences of violations may include academic sanctions, disciplinary actions, and other measures necessary to uphold the integrity of our academic community.

The principles outlined in these academic standards reflect our collective commitment to upholding the highest standards of honesty, acknowledgement, and uniqueness of work. By adhering to these principles, we ensure the continued excellence and integrity of George Mason University's academic community. This document is updated annually and maintained by the Stearns Center for Teaching and Learning, in cooperation with GMU Faculty Senate Academic Policies Committee.

Student responsibility: Students are responsible for understanding how these general expectations regarding academic standards apply to each course, assignment, or exam they participate in; students should ask their instructor for clarification on any aspect that is not clear to them.

Accommodations for Students with Disabilities

Disability Services at George Mason University is committed to upholding the letter and spirit of the laws that ensure equal treatment of people with disabilities. Under the administration of University Life, Disability Services implements and coordinates reasonable accommodations and disability-related services that afford equal access to university programs and activities. Students can begin the registration process with Disability Services at any time during their enrollment at George Mason University. If you are seeking accommodations, please visit <https://ds.gmu.edu/> for detailed information about the Disability Services registration process. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email: ods@gmu.edu. Phone: (703) 993-2474.

Student responsibility: Students are responsible for registering with Disability Services and communicating about their approved accommodations with their instructor in advance of any relevant class meeting, assignment, or exam.

FERPA and Use of GMU Email Addresses for Course Communication

The [Family Educational Rights and Privacy Act \(FERPA\)](#) governs the disclosure of [education records for eligible students](#) and is an essential aspect of any course. **Students must use their GMU email account** to receive important University information, including communications related to this class. Instructors will not respond to messages sent from or send messages regarding course content to a non-GMU email address.

Student responsibility: Students are responsible for checking their GMU email regularly for course-related information, and/or ensuring that GMU email messages are forwarded to an account they do check.

Title IX Resources and Required Reporting

As a part of George Mason University's commitment to providing a safe and non-discriminatory learning, living, and working environment for all members of the University community, the University does not discriminate on the basis of sex or gender in any of its education or employment programs and activities. Accordingly, **all non-confidential employees, including your faculty member, have a legal requirement to report to the Title IX Coordinator, all relevant details obtained directly or indirectly about any incident of Prohibited Conduct** (such as sexual harassment, sexual assault, gender-based stalking, dating/domestic violence). Upon notifying the Title IX Coordinator of possible Prohibited Conduct, the Title IX Coordinator will assess the report and determine if outreach is required. If outreach is required, the individual the report is about (the "Complainant") will receive a communication, likely in the form of an email, offering that person the option to meet with a representative of the Title IX office.

For more information about non-confidential employees, resources, and Prohibited Conduct, please see [University Policy 1202: Sexual and Gender-Based Misconduct and Other Forms of Interpersonal Violence](#). Questions regarding Title IX can be directed to the Title IX Coordinator via email to TitleIX@gmu.edu, by phone at 703-993-8730, or in person on the Fairfax campus in Aquia 373.

Student opportunity: If you prefer to speak to someone **confidentially**, please contact one of Mason's confidential employees in Student Support and Advocacy ([SSAC](#)), Counseling and Psychological Services ([CAPS](#)), Student Health Services ([SHS](#)), and/or the [Office of the University Ombudsperson](#).