

# MATH-108– Introductory Calculus with Business Applications (3 credits)

## Spring 2021

### Instructor:

Joanna Jauchen

### Contact Me:

Email: [jjjauchen@gmu.edu](mailto:jjjauchen@gmu.edu)

GMU emergency closing info: 703-993-1000 Official emergency closing info

### Office Hours & Location:

Monday 1 -4 pm

By appointment – I have such flexible hours and can usually set an appointment for you for the next day if you email me.

### Discord:

We're trying Discord for student questions this semester (It's sorta like a discussion board). You can sign up here:

<https://discord.gg/SsD74gTb>

Post questions about math to discord, or about test dates, etc.

Personal questions about grades, extensions, or stuff that only applies to you as an individual should be emailed to Joanna.

### Prerequisites:

For precise information goto <http://catalog.gmu.edu/> And click on “Courses” on the left, then select Prefix: “MATH” and Code: “108”.

Either one of the following requirements will suffice.

- Specified score on the Math Placement Test for Math-108.  
<https://science.gmu.edu/academics/departments-units/mathematical-sciences/mathematical-sciences-testing-center>
- Successful completion of self-paced algebra program offered by the Math Literacy Center.

Those who have problems registering should talk to Christine Amaya, the Senior Secretary of the Department of Mathematical Sciences, [camaya@gmu.edu](mailto:camaya@gmu.edu), phone (703)-993-1460.

### Course Description:

To provide a basic and firm understanding of elementary calculus, with a view towards applications in business as well as other discipline.

This course is offered as an online Asynchronous course, taught using Blackboard, with 3 proctored exams (two term exams and one final exam). You must be able to take exams at GMU or at an approved proctoring facility.

### Goals:

Quantitative Reasoning: This course satisfies GMU's Quantitative Reasoning Foundation Requirement.

The learning outcomes that we will achieve to meet that 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 arithmetic, 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.

Course Goals: The course itself seeks to satisfy the following goals:

1. Students improve and solidify their algebraic skills.
2. Students understand and apply derivatives as a tool to analyze change in quantified models.
3. Students analyze and interpret results in the context of Business and IT applications.

4. Students understand and compute integrals and their relationship to derivatives.

## Required Items

### Required Materials:

1. Access Code only (\$90 online) to access the ebook and MyMathLab (this is my recommendation) for *Calculus for Business, Economics, Life Sciences and Social Sciences*. At the bookstore, this is listed as \*Required\*. See blackboard for more information about MyMathLab.

OR

*Calculus for Business, Economics, Life Sciences and Social Sciences* Plus NEW MyMathLab (\$150 new) - at the bookstore website this says "CALCULUS F/BUS., ECON...(LOOSE) – W/ACCESS"

If you buy a used book, please be sure you have an access code. It is required for this course.

2. Calculator: You may use a Scientific or graphing calculator in this course. Please be aware that you are required to show evidence for graphing in this course. No credit is given for just drawing the graph that you see on your calculator.

### Required Technologies:

1. You need regular and consistent access to a computer, connected to the internet for this course.
2. It is highly recommended that you have access to high speed Internet to watch video lectures.
3. This online course is taught via Blackboard Courses. To get to our course, login to <http://mymason.gmu.edu>, select the Courses Tab, and Math 108 can be found in the Course List.
4. You need access to your GMU email account. In order to ensure student privacy, I only correspond with you via your GMU email.
5. All videos lectures are posted on YouTube. You need to be able to access youtube to participate in this course

### Required Meeting Dates:

This course is offered entirely online with no required synchronous meeting dates. Exams are given on specific dates, as listed in the schedule at the end of this syllabus. These will be taken online

## Assignments

### Grading:

I use a weighted average in this course. Here are the weightings:

MyMathLab Homework Average	20%
Quiz Average	20%
Exam 1	20%
Exam 2	20%
Final Exam	20%

Grades are not curved, and the standard grade breakdown applies for overall course grades:

A	90% - 100%
B	80% - 90%
C	70% - 80%
D	60% - 70%

F Below 60%

+/- added at instructor discretion

**MyMathLab Homework and quizzes (accepted late with penalty):**

We will use MyMathLab in this course to complete homework and also to do some quizzes.

See Start Here in Blackboard to sign up for the MyMathLab Homework system.

MyMathLab is not operated by GMU. For technical difficulties: <https://support.pearson.com/getsupport/s/contactsupport>

MyMathLab is a computer graded system. If you get problems right, they are marked correct. There is no partial credit on individual questions. The computer system, like most technical systems is picky about inputs, so please check your answers before submitting your work.

MyMathLab homework and quizzes are due on the due date at 11:59 pm.

MML Homework is accepted late with a 20% penalty. MML Quizzes are also accepted late with a 20% penalty (also up to certain deadlines). Last day to turn in MML Homework and quizzes is outlined in the schedule on the last page.

Penalties are applied for late work are regardless of excused or unexcused absence.

**Exams (including the Final Exam):**

There are 2 term exams in this course, and one comprehensive final exam. There are no make-up exams, unless you have a documented excused absence (that is an absence that I consider excused). Decisions about excused absences are solely at the discretion of the instructor. Because exams are given through an entire week, for any absence, I'll request documentation for the entire week. Get those exams done!

Exam dates are provided on the last page in the schedule. I reserve the right to change exam dates as the semester progresses (in this online course, this rarely happens except in extreme circumstances).

All Exams will be taken completely online. There are no make-ups for the Final Exam.

All exams are given to uphold strict academic integrity standards. The following policies are in place for each exam.

1. No collaboration is allowed on the exams. Any indication that you have worked together, used someone else's ideas, use someone else's work, copied, or allowed a fellow student to copy your work is a violation of the GMU Honor Code. The exam should be your work and your work only.
2. You may use a scientific calculator on the exam to do numerical computations only.
3. You may use your own notes and problems you have recorded by hand. No other resources may be used on any assignments in the course.

**Late Work Policy:**

- MyMathLab assignments: A late penalty is deducted for any late work you turn in. This includes homework and quizzes.
- Exams: No exams may be taken late without an excused absence which is fully documented, and deemed to be excused by the professor. If you are going to miss an exam, you should contact the instructor prior to missing to check if your absence is excused. If you can't check prior, check in within 24 hours to avoid any miscommunication.

In this course, I allow late MyMathLab Homework and quizzes (with penalty) as a blanket "life happens to people" policy. This covers sickness, having work, have a computer break, having a cruddy day where somehow stuff just didn't get done, etc.

I don't want to get into the business of judging when adults are "excused" from assignments or not. So, this policy is out of respect for the fact that you are the best judge of when you need to postpone assignments to get the other parts of your life done.

## Help and Resources

### Study Groups (EXTRA CREDIT)

This semester, I am offering extra credit for coming to one of the study groups that is offered. During week 1, fill out the survey to figure out when we will hold study groups. That sign up is here: <http://whenisgood.net/f74q5xh> Select all times where you could come the \*full hour\*. Sign up before Jan 29!!!!

We'll schedule those starting in week 2 so look for an announcement.

Extra credit will be awarded on the following basis:

1. You have to attend the study group for a full hour to get credit for attending. This is one hour all at one time. So you can't come 15 min one day and 10 min another day, etc. Come at least once during the week and stay for at least an hour. You also need to have a working mic/video for attendance to count. Your cell phone should work. If this is a major hurdle, please email me.

During these study groups, the Learning assistants will be online to answer any questions you have. If you don't have questions, just login, work on your homework and you can ask questions when they pop up.

2. If you attend 4-7 study groups, you get 1 point added to your overall grade.  
If you attend 8-10 study groups, you get 2 points added to your overall grade.  
If you attend 11 or more study groups, you get 3 points added to your overall grade.  
These are added at the end of the term. I calculate your grade and then add points. There's not excused absences for this.
3. You must follow the Learning assistants' instructions on how to get credit for attending. Without following these, you will not get credit for attending.

### Tutoring:

The Math Tutoring Center is operating during the summer online. For hours of operation see <https://science.gmu.edu/academics/departments-units/mathematical-sciences/math-tutoring/tutoring-center-hours-and>

Please also see the information under Office hours in Blackboard. I have office hours, and I have 3 undergrad assistants in this course who all have office hours.

### Academic dishonesty and the GMU Honor Code:

You are expected to follow the GMU Honor Code <http://academicintegrity.gmu.edu/honorcode/>

No collaboration is allowed on graded assignments, quizzes or tests. Any indication that you have worked together, used someone else's ideas, copied, or allowed fellow student to copy your work is a violation of the GMU Honor Code.

**Some** of the behaviors that will be considered cheating are:

- Communicating with another person during an assessment
- Copying material from another person from any assignment being graded
- Allowing another person to copy from any assignment being graded
- Use of unauthorized assistance on any assignment being graded
- Use of unauthorized notes or books during an assessment
- Providing or receiving a copy of a quiz or exam used in the course
- Use of a cell phone or pager during an assessment

**Withdraw & Audit** See the GMU website for important add/drop deadlines: <https://registrar.gmu.edu/calendars/summer-2020/>

### Learning Differences & Special Needs:

If you have a learning or physical difference that may affect your academic work, please see me and contact the Office of Disability Services (ODS) at 993-2474, <http://ods.gmu.edu> . All academic accommodations must be arranged through the ODS.

Efforts have been made to make this course accessible for students with learning and physical differences. If you find you have

additional needs beyond those that have been provided, again, please contact me and ODS so I can be sure that the course is meeting your needs.

**Counseling and Psychological Services:**

Counseling and Psychological Services are available for GMU students.

<http://caps.gmu.edu>

703-993-2380

**Student Support and Advocacy Center:**

SSAC provides guidance to students experiencing hardship or trauma, or otherwise encountering barriers to success.

<https://ssac.gmu.edu/>

703-993-3686

**University Policies**

The University Catalog, <http://catalog.gmu.edu>, is the central resource for university policies affecting students, faculty and staff conduct in university academic affairs. Other policies are available at <http://universitypolicy.gmu.edu/>. All members of the university community are responsible for knowing and following established policies.

# Math 108 Schedule Spring 2021 - Online

Each unit contains the following:

## Ungraded Assignments:

1. Watch the video lecture posted on the Blackboard website and in MML.

## Graded Assignments:

1. MyMathlab Homework: Due by 11:59 pm EDT on due dates listed below
2. MyMathLab quiz: Due by 11:59 pm EDT on due dates listed below
3. Exams are due in MML by 11:59 pm on dates listed below. Exams are online available on exam days, for limited time periods.

Course dates are tentative and subject to change.

Unit	Dates	Topic	Due Dates
0	Before Class	Get Ready for Class	Feb 1 <ul style="list-style-type: none"> <li>• How to use MyMathLab and Syllabus Quiz</li> <li>• Self-Placement Quiz</li> </ul> <p>These are mandatory, and you cannot start on Unit 1 until these two are complete.</p>
1	Jan 25 – Feb 1	Class Introduction Functions and Graphing	Feb 1 <ul style="list-style-type: none"> <li>• MML Homeworks</li> <li>• MML Quiz</li> </ul>
2	Feb 2 – 8	Finite limits and Infinite limits	Feb 8 <ul style="list-style-type: none"> <li>• MML Homeworks</li> <li>• MML Quiz</li> </ul>
3	Feb 9 – 15	Polynomials and Rational Functions	Feb 15 <ul style="list-style-type: none"> <li>• MML Homeworks</li> <li>• MML Quiz</li> </ul>
4	Feb 16 – 22	Exponential functions Log functions	Feb 22 <ul style="list-style-type: none"> <li>• MML Homework</li> <li>• MML Quiz</li> </ul>
5	Feb 23 – Mar 1	Review and Exam 1	<b>Mar 1</b> <ul style="list-style-type: none"> <li>• <b>Last day to turn in all MML work from Units 1, 2, 3, and 4.</b></li> </ul> <b>Mar 1</b> <ul style="list-style-type: none"> <li>• <b>Exam 1 Review MML</b></li> <li>• <b>Exam 1</b></li> </ul>
6	Mar 2 - 8	Rates of Change and the derivative	Mar 8 <ul style="list-style-type: none"> <li>• MML Homework</li> <li>• MML Quiz</li> </ul>
7	Mar 9 - 15	Exponential and Log derivatives	Mar 15 <ul style="list-style-type: none"> <li>• MML Homeworks</li> <li>• MML Quiz</li> </ul>
8	Mar 16 - 22	Product, Quotient and Chain Rules	Mar 22 <ul style="list-style-type: none"> <li>• MML Homework</li> <li>• MML Quiz</li> <li>•</li> </ul>
9	Mar 23 - 29	Implicit Differentiation and Applications	Mar 29 <ul style="list-style-type: none"> <li>• MML Homeworks</li> <li>• MML Quiz</li> </ul>
10	Mar 30 – Apr 5	Review and Exam 2	<b>Apr 5</b> <ul style="list-style-type: none"> <li>• <b>Last day to turn in all MML work from units 6,</b></li> </ul>

			<b>7, 8, and 9</b>  <b>Apr 5</b> <ul style="list-style-type: none"> <li>• <b>Exam 2 Review MML</b></li> <li>• <b>Exam 2</b></li> </ul>
11	Apr 6 - 12	Extrema and Concavity	<b>Apr 12</b> <ul style="list-style-type: none"> <li>• MML Homework</li> <li>• MML Quiz</li> </ul>
12	Apr 13 - 19	Graphing using derivatives	<b>Apr 19</b> <ul style="list-style-type: none"> <li>• MML Homeworks</li> <li>• MML Quiz</li> </ul>
13	Apr 20 - 26	Optimization and Absolute Max and Min	<b>Apr 26</b> <ul style="list-style-type: none"> <li>• MML Homework</li> <li>• MML Quiz</li> <li>• Post-course assessment</li> </ul>
14	Apr 27 – May 3	Final Exam Review and Final Exam	<b>May 3</b> <ul style="list-style-type: none"> <li>• <b>Last day to turn in all MML work from units 11, 12 and 13</b></li> </ul> <b>May 3</b> <ul style="list-style-type: none"> <li>• <b>Final Exam Review MML</b></li> <li>• <b>Final Exam</b></li> </ul>