MATH 113: Calculus I with Analytic Geometry (4 credits) **Summer 2023**

INSTRUCTOR

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ONLINE OFFICE HOURS

Monday 10:30am-12:00pm
Wednesday 10:30am-12:00pm

Zoom Link: https://gmu.zoom.us/j/96985823715

Please email me for in-person or alternate online appointments.

TEXTBOOK

The textbook is *Thomas' Calculus: Early Transcendentals*, 14^{th} edition, Thomas, Hass, Heil and Weir. We will be using the online homework system MyLab Math which also contains the ebook if you do not want a physical copy.

You will also need the companion workbook *"Just-in-Time: Algebra & Trigonometry for Early Transcendentals Calculus"* by Mueller and Brent, 4/e.

Since this course is a synchronous online course, you are expected to attend class during scheduled sessions and participate in group activities. You are also expected to have a working internet connection, a microphone and a webcam. It is recommended that you have some kind of electronic tablet to write digitally such as an ipad, MS surface, wacom tablet etc.

PREREQUISITE & REGISTRATION

You must have received a passing score on the Transcendentals section of the Math Placement Test or a grade of C or better in Math 105 (or equivalent). Please contact me if you are unsure if you meet the prerequisites for the course.

MATERIAL TO BE COVERED

Generally, Chapters 1-5 in the textbook.
The pace of the course is fast. A comfortable working knowledge of virtually all Appendix A material and content from Chapters 1 is assumed. The demands of the course will require a serious time commitment, in terms of both class attendance and homework time outside of class.

LEARNING GOALS AND OUTCOMES

Learning Goals and Objectives for Math 113

I. Students are able to interpret quantitative information (i.e., formulas, graphs, tables, models, and schematics) and draw inferences from them.
   (a) Students will illustrate how functions are represented by graphs.
   (b) Students will sketch graphs of polynomial, exponential and trigonometric functions, and interpret graph parameters.
   (c) Students will construct the relationship between the graph of a function and its inverse.
   (d) Students will identify the graph of the derivative of a function from the graph of the function itself, and do the same for the antiderivative of a function.

II. 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.
   (a) Students will find the rate-of-change of a function (e.g., velocity) from the function itself (e.g., position) and find the function (e.g. position) from its derivative (e.g. velocity)

(b) Students will find relative maxima and minima of a function (e.g., maximize profit or area)

(c) Students will solve for the zeros of the derivative of a function

(d) Students will evaluate areas under curves and compute the net change in a function between two values of the independent variable.

III. Students are able to evaluate logical arguments using quantitative reasoning.

(a) Students will interpret quantitative solutions to problems for plausibility and accuracy

(b) Students will use various formulas for computing derivatives, and know why these formulas hold.

IV. Students are able to communicate and present quantitative results effectively.

(a) Student exams will be graded in part on clarity of presentation of work and not just on the final answer.

(b) Students may from time to time be asked to explain concepts qualitatively on exams and quizzes.

(c) If students are involved in group work they will be required to explain concepts to peers.

Calculators

We will use calculators sparingly in this course. I encourage you to attempt all homework problems without calculators, though some questions may require one. Calculators may be required for some problems on MyLab Math, however it is expected that you do all written assignments, with rare exceptions, without the use of a calculator.

Required Technology

We will be using the online learning system MyLab Math. To sign up, please go to the website mymason.gmu.edu and click sign-in using your GMU NetID. Click the **Math 1113 Spring 2023** course link. On the left hand side there is a link for **MyLab Math**. In there click the link for the **MyLab/Mastering Course Home** and follow the instructions.

You are required to have signed up for MyLab Math by Thursday, May 25. There is a two-week trial available when registering for MyLab Math if you do not already have your student access code.

Since this has a synchronous component, you are expected to have a working internet connection, a microphone and a webcam. It is recommended that you have some kind of electronic tablet to write digitally such as an ipad, MS surface, wacom tablet etc.

Handwritten assignments, including the worksheets and/or exams will be uploaded to Gradescope. You will need a way to scan your documents and upload a single PDF. Alternative file types, or multiple files are not supported.

This course uses BlackBoard as the learning management system. You will need a browser and operating system that are listed compatible or certified with the BlackBoard version available on the myMason Portal. Log in to MyMason at mymason.gmu.edu to access this course.

Course Grades

Your final grade will be calculated as follows:

Recitation	15%
MyLab Math Homework	15%
MyLab Math Quizzes	15%
Semester Exams (15% each)	30%
Final Exam	25%

Homework & Quizzes

Homework assignments will be listed on MyLab Math. The homework is broken into each section, however multiple sections may be due each week. Please pay attention to the due dates. Homework will be available on Monday at the beginning of the week and will be due on Sundays at 11:59pm.. For full credit you must submit your solutions to the homework during this designated time period. Homework submitted late will receive a 25% deduction.

Homework assignments are provided with a help menu which includes links to things like videos, practice problems, similar examples, and the link to the textbook section pertaining to the material. You will have unlimited chances to complete each homework problem, so if you miss a question please take advantage of these help menus. Four homework assignments will be dropped.

Quizzes will cover material from the homework as well as lecture and will be similar to homework problems. Quizzes will be given through MyLab Math weekly throughout the semester. **If you do not take the quiz when it is open there will be no makeup for the quiz, no exceptions.** The lowest quiz grade will be dropped.

There will be multiple graded assignments every week. Whether it is a homework, quiz, test or other assessment; you are responsible for all assignments and their due dates. Makeups will not be given for assignments that are missed.

MyLab Math is a powerful online, homework, tutorial and assessment system that accompanies your new textbook. Students can take assessments, and receive personalized study plans based on their results. In many cases students can also access video clips, PowerPoint presentations, and other animations for each section and from selected exercises. MyLab Math is NOT a program operated by GMU. If you are experiencing technical difficulties using the program, then you can email or chat with Customer Support directly through the Pearson Education Customer Service website. You could also call the Pearson Customer Service and Technical Support number. DO NOT CALL THE GMU HELP DESK OR YOUR PROFESSOR!

Tests & Final Exam

There are 2 tests scheduled in this class. Tests will cover material from the homework as well as the lecture, however test questions will usually be more challenging that homework and quiz questions.

Exams will be taken online using HonorLock. You must have a working webcam and reliable internet. If you are unable to test on the day of the exam, you must ask me beforehand (by email only) so that I can determine if your situation warrants a make-up test. **Do not assume you will be given a make-up unless you get confirmation from me.** You must be able to validate your excuse with documentation or you will not be allowed a make-up.

No collaboration is allowed on exams or quizzes. Any indication that you have worked together, used someone else's ideas, copied, or allowed a fellow student to copy your work is a violation of the George Mason Honor Code. Once you receive an exam or quiz, you are not allowed to leave the exam room until you are ready to turn the exam in.

Below is the tentative schedule of the tests, any changes will be announced in class or on Blackboard. Exact material to be covered on the tests will be determined the class before the test. The final exam will be cumulative.

Test 1	Monday, June 19
Test 2	Monday, July 17
Final Exam	Thursday, July 27

These dates are tentative and subject to change.

Recitation The recitations for this course are based on an active learning model, meaning that student participation is key. You are required to attend, and participate in, the online recitations every week. Recitation grades will be determined by the TA for the course and will be based on attendance and participation. All students are required to work on the recitation activities with their assigned groups. You must have your webcam on to receive full participation credit for the recitation.

Honor Code THIS IS IMPORTANT. It is expected that each student in this class will conduct himself or herself within the guidelines of the Honor Code. Among other things, this means that sharing information of any kind about exams or quizzes (either before or during the exam) will result, at a minimum, in a grade of zero for all parties involved. All work must be your own and submitted by you as the student registered for the class. See academicintegrity.gmu.edu for a copy of the Honor Code.

Obtaining Help There are many outlets available for you to get help in this class. This course is designed to ensure that students are able to keep up with the material, but that does require student communication. In addition to my set weekly office hours, I am very happy to schedule appointments. There will also be weekly TA office hours. Additionally, the Math Tutoring Center is available in person and remotely and is free to all Math 113 students. More information on how to access that tutoring can be found on their website, https://science.gmu.edu/academics/departments-units/mathematical-sciences/math-tutoring.

Accommodations If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services. All academic accommodations must be arranged through that office. Office of Disability Services Student Union Building I (SUB I), Room 4205 Phone: 703.993.2474

E-mail & Blackboard E-mail is a vital form of communication for an online class. I frequently send announcements through email so make sure that you activate and check your GMU email account regularly. All students are required to use their George Mason email for communication and for MyLab Math. Please put Math 113 in the subject field anytime you send me an e-mail. If you want to discuss your grade via e-mail it *must* be done using your GMU e-mail account.

Unscheduled and Late Closings If the university has an unscheduled closing-because of weather or some other unforeseen occurrence you should assume that we will pick up with the schedule where we left off. Make sure you check your GMU e-mail account and the Blackboard page for any announcements.