MATH 113 – C01: Analytic Geometry and Calculus I
Summer 2022

COURSE INFORMATION:

Instructor: Jingya Yan

Lectures: MTWRF 10:30 am – 12:50 pm, Horizon Hall 1008

Recitations: TR 1:30 pm – 2:45 pm, Innovation Hall 222

E-mail: jyan20@gmu.edu

Office Hours: TR 3:00 pm—4:30 pm or online by appointment

Office: Exploratory Hall 4405

COURSE DESCRIPTION:

Understanding functions (polynomial, rational, exponential, logarithmic, and trigonometric) and knowing how to derive their limits, derivatives, and integrals.

RECITATION INFORMATION:

You will work with groups of 4-6 to solve certain problems on the whiteboard. Your recitation grade will be a combination of attendance, participation, and your score on the worksheets.

PREREQUISITES:

C or better in Math 105 or a pass the Math Placement Test.

COURSE MATERIALS:

Chapter 1 – 5 of Thomas' Calculus (Early Transcendentals) by Hass, Heil and Weir (fourteenth edition, Pearson publisher).

An access code for MyMathLab is required for this course. To register: Click the link MyMathLab in Blackboard – Course Content and follow the instructions.

Please use your official GMU registration name and your GMU email address to register your MML account.

TENTATIVE SCHEDULE (SUBJECT TO CHANGE):

Week 1:

Jun 27: 1.1 Functions and graphs; combining functions

Jun 28: 1.2, 1.3 Shifting and Scaling Graphs; Trigonometric Functions

Jun 29: 1.5 Exponential Functions

Jun 30: 1.6 Inverse Functions and Logarithms

Jul 1: 2.1 Rates of Change and Tangent Lines to Curves; Limits

Week 2:

Jul 4: No Classes

Jul 5: 2.2, 2.4 Limits

Jul 6: 2.5, 2.6 Continuity, Limits Involving Infinity; Asymptotes of Graphs

Jul 7: 3.1 – 3.3 Derivatives, Differentiation Rule

Jul 8: **Test 1**

Week 3:

Jul 11: 3.4, 3.5 Rate of Change; Derivatives of Trigonometric Functions

Jul 12: 3.6, 3.7 Chain Rule; Implicit Differentiation

Jul 13: 3.8, 3.9 Derivatives of Inverse Functions and Logarithms, Inverse Trigonometric Functions

Jul 14: 3.10, 3.11 Related Rates, Linearization and Differentials

Jul 15: 4.1, 4.2 Extreme Values of Functions on Closed Intervals; Mean Value Theorem

Week 4:

Jul 18: 4.3, 4.4 Monotonic Functions; First Derivative Test; Concavity and Curve Sketching

Jul 19: 4.5, 4.6 L'Hopital's Rule; Optimization

Jul 20: 4.7, 4.8 Newton's Method, Antiderivatives

Jul 21 5.1, 5.2 Area and Estimating with Finite Sums, Sigma Notation and Limits of Finite Sums

Jul 22 **Test 2**

Week 5:

Jul 25 5.3, 5.4 Definite Integral, Fundamental Theorem of Calculus

Jul 26 5.5 Indefinite Integrals and the Substitution Method

Jul 27 5.6 Definition Integral Substitutions and the Area Between Curves.

Jul 28 Review

Jul 29 **Final Exam**

GRADING:

Two Tests: 20% each

MyMathLab Homework and Quizzes: 15%

Bi-weekly Written Assignments: 5%

Recitation Grade: 15%

Final Exam: 25%

Grade Breakdowns:

A+	A	A-	B+	B	B-
≥98%	92% - 98%	90% - 92%	88% - 90%	82% - 88%	80% - 82%
C+	C	C-	D	F	
78% - 80%	72% - 78%	70% - 72%	60% - 70%	<60%	

You will find homework and quizzes on MyMathLab. Late homework and quizzes are accepted with 20% penalty within one week after the original deadline; after one week you will get zero. Usually, there will be homework and quizzes **every day**. You will have infinite number of attempts for your homework and **5 attempts** for quizzes. The lowest homework score and lowest quiz score will be dropped.

Written Problems will be assigned on Tuesdays of Week 1 and Week 3 and **collected in class on Tuesdays of Week 2 and Week 4** to help you improve your solution written skills. Solutions will be posted on the same day. **Late submission will not be accepted**.

There are two tests and one comprehensive final exam. All exams will be taken in class. No make-up exams will be scheduled unless you have a documented excused absence. Calculators are **not allowed**.

DISABILITY SERVICES:

https://ds.gmu.edu/

MATH TUTORING CENTER:

https://science.gmu.edu/academics/departments-units/mathematical-sciences/math-tutoring/tutoring-center-hours-and

HONOR CODE:

Please see the Office for Academic Integrity (https://oai.gmu.edu/) for a full description of the code and the honor committee process, and the Honor Code Policies of the Department of Computer Science (https://cs.gmu.edu/resources/honor-code/) regarding the course project. GMU is an Honor Code university. The principle of academic integrity is taken seriously and violations are treated gravely. If you rely on someone else's work in an aspect of the course project, you should give full credit in the proper, accepted form. Another aspect of academic integrity is the free play of ideas. Vigorous discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions. When in doubt (of any kind) please ask for guidance and clarification.