Math 114 Section 007, Spring 2021

Analytic Geometry and Calculus II: Syllabus

Instructor

Alexander Shumakovitch   E-mail: ashumak@gmu.edu

Office Hours (via Blackboard Collaborate):   Mondays, Tuesdays, Wednesdays, and Thursdays at **6:00pm − 7:00pm** or by appointment.

Lectures (4 credits)

Section 007: Monday and Wednesday **7:20pm − 9:10pm**, held **synchronously** on Blackboard.
          All class related notes will be posted as PDF documents on Blackboard after each lecture.

Teaching Assistant

Don Brusaferro   E-mail: dbrusafe@gmu.edu

Office Hours (via Zoom):   Tuesdays and Thursdays at **1:00pm − 2:00pm**

Recitations

Section 319: Tuesday **6:20pm − 7:10pm**, held **synchronously** on Blackboard.
Section 320: Tuesday **7:20pm − 8:10pm**, held **synchronously** on Blackboard.

Prerequisites

A minimum grade of 'C' in MATH 113 (Calculus I).

Course Description

This is the second semester of a standard year-long sequence in single-variable calculus. The main topics are applications of definite integrals, advanced techniques of integration, first-order differential equations, infinite series, and parametric equations.

Textbook for the Course

"Thomas' Calculus: Early Transcendentals (**14th edition**)*"* by Joel Hass, Christopher Heil, and Maurice Weir; Pearson (2017) with **MyLab Math** (also known as **MyMathLab**) access code.

Acceptable ISBN-13 numbers: 978-0134764528 (eTextbook **only**), 978-0134768519 (eTextbook **and** paperback, Single-Variable Calculus **only**),   and 978-0134665573 (eTextbook **and** hardcover), available at the George Mason Bookstore.

The eTextbook will be linked from the Blackboard web page for the course.

Additional Information about the Course

Available on the Blackboard web page for the course: `https://blackboard.gmu.edu`

Important Dates

Monday, September 25: First class meeting
Tuesday, February 16: Last date to drop a course without a 'W' on the transcript
Monday, March 1: Last date to drop a course with a 'W' on the transcript
Wednesdays, April 28: Last class meeting
Monday, May 3: Final examination

LEARNING OUTCOMES

By the end of the course, you should be able to
- Apply the definite integral to find areas and volumes;
- Find integrals using integration by parts, trig substitution, and partial fractions techniques;
- Solve first-order linear differential equation;
- Categorize the convergence of an infinite series;
- Express algebraic and transcendental functions using Maclaurin and Taylor series;
- Analyze, create and recognize polar and parametric graphs.

HOMEWORK

Homework for each week will be assigned on **Tuesday** of that week on Blackboard. Every assignment will list sections from the textbook that have to be studied, online homework to be completed using **MyLab Math**, and practice problems.

Important:
- Online homework will be due by **11:59pm** on Tuesday one week after it is assigned;
- After the due time is reached, the correct answers are revealed and the assignment can not be worked on anymore;
- Late homework **will not be accepted**.

You are strongly advised to start working on the homework as soon as the corresponding material is covered in class, while your knowledge of this material is still fresh. This will also help you avoid missing the deadlines.

Besides usual online assignments, additional practice problems will be listed. You are strongly encouraged to solve these problems since they can help you better prepare for the exams.

QUIZZES AND EXAMS

There will be **eleven** 15-minute quizzes as well as **two** midterm exams and one final exam. The quizzes will be administered through MyLab Math every Wednesday, starting from **February 3**, with the exception of the days of the two midterm exams. The quizzes will be timed and available for **45 minutes** from **9:15pm** until **10:00pm**.

The midterms will be given on Wednesdays **February 24** and **April 7** through Blackboard. They will be timed at **1.5 hours** and available for **2 hours** from **7:30pm** until **9:30pm**. All times are **local Virginia time**, that is, US Eastern Time (ET). There will be no regular lectures on the days of the midterm exams.

The final exam is comprehensive and cumulative. It will be timed at exactly **2 hours** and take place through Blackboard on Monday, May 3, at **7:30pm − 9:30pm**.

Important:
- You are expected to **work alone** on all the tests;
- You are **allowed** to use our textbook or class notes while working on the tests;
- Performing Internet searches and communicating with one another is **strictly prohibited**;
- Use of calculators is **not permitted**.

Any deviation from these policies will be considered a **violation of the Mason Honor Code** and will be dealt with appropriately.

- **No** makeup exams or quizzes will be given;
- If you miss a test because of an illness, you **must** get a note from your doctor;
- If you have a legitimate conflict with the test dates and times, please contact the instructor as soon as possible, **do not wait until shortly before the test**;
- Unexplained missed exams and quizzes will **not be excused**.

The course grade will be based upon the scores on the **best eight** quizzes out of 11, two midterm exams, one final exam, recitation attendance and participation, and homework.

Best 8 Quizzes out of 11	50 points	10%
Two Midterm Exams (100 points each)	200 points	40%
Final Exam	150 points	30%
Recitation Attendance and Participation	50 points	10%
Homework	50 points	10%
Total	**500 points**	**100%**

The final grade for this course will be assigned according to the following grading scale:

Total Score:	< 60	60–70	70–74	74–77	77–80	80–84	84–87	87–90	90–94	94–97	97–100
Final Grade:	**F**	**D**	**C–**	**C**	**C+**	**B–**	**B**	**B+**	**A–**	**A**	**A+**

RECITATION ATTENDANCE

Recitations meet weekly **synchronously** using Blackboard Collaborate. You should not only attend the recitation you signed up for, but also actively participate in it. At the end of the semester, you will receive a Recitation Attendance and Participation score, assigned by the Teaching Assistant. The main goal of the recitations is to detect any troubles you might have with the course and to help you resolve them. It is your **responsibility** to ask all the questions you have during the recitation.

OVERVIEW OF MYLAB MATH (PREVIOUSLY KNOWN AS MYMATHLAB)

All the homework and quizzes will be done **electronically** using **MyLab Math**, an online interactive and educational system that accompanies the course textbook. All problems will be graded automatically. MyLab Math will be linked from the Blackboard web page for the course.

For homework assignments, you will have at most **five tries** to answer each question by clicking the "Check Answer" button. At the same time, you will get an instant feedback on whether your solution is right or wrong. The correct answers will be revealed after you use up all of your five tries or the due date of the assignment.

On quizzes, your will have exactly **one attempt** to answer all the questions. You will be able to review your answers only **after** the due date of the quiz.

TUTORING CENTER

The Math Tutoring Center will be offering online tutoring services to students currently enrolled in undergraduate Math courses at GMU. To access the Math Tutoring Center online you need to login to Blackboard, click on the Organizations tab, locate the Math Tutoring Center Organization and self-enroll in this organization.

Students should post their questions in Piazza in the folder corresponding to their course. Please state your questions clearly, consider uploading a PDF file that contains your questions. Tutors will be answering your questions as soon as possible, expect to receive an answer by the following business day, although there might be delays. If you received answers for your questions and need further clarifications, you can join an active Blackboard Collaborate session.

The Blackboard Collaborate sessions will be running during the weekdays.

In-class Rules

Please **mute** your microphone during the class, unless you are ready to ask a question. If you have questions to ask, use the chat function of the Blackboard Collaborate or click the "Raise hand" button at the bottom of your screen.

Academic Integrity and Honor Code

On Quizzes and Exams: No help given or received. All the exams are open notes and open books. On the other hand, performing Internet searches and communicating with one another is **not** allowed.

On Homework: You may work together on homework assignments, but NO COPYING. Each student must complete his or her assignments individually and independently. Your solutions must demonstrate your own level of understanding of the problems.

Definitions, policies, and procedures relating to the Mason Honor Code can be found on the Office of Academic Integrity web page. If you are not sure whether your activities constitute an Honor Code violation, please consult the instructor **immediately**.

Disabilities

Students with disabilities who will be taking this course and may need disability-related academic accommodations should contact the Office of Disability Services **as soon as possible** to register for support services: `https://ds.gmu.edu` or at 703-993-2474.

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Analytic Geometry and Calculus II: Tentative Schedule of Lectures

This schedule is based on the **14th edition** of *"Thomas' Calculus: Early Transcendentals"*.

Week	Dates	Content
1.	01/25, 01/27	Introduction; Review of Chapter 5 **6.1** Volumes Using Cross-Sections
2.	02/01, 02/03	**6.2** Volumes Using Cylindrical Shells **6.3** Arc Length
	02/03	**Quiz 1:** Covers material from Section 6.1
3.	02/08, 02/10	**6.4** Areas of Surfaces of Revolution **6.5** Work and Fluid Forces **6.6** Moments and Centers of Mass
	02/10	**Quiz 2:** Covers material from Sections 6.2 and 6.3
4.	02/15, 02/17	**7.1** The Logarithm Defined as an Integral **7.2** Exponential Change and Separable Differential Equations **7.3** Hyperbolic Functions
	02/17	**Quiz 3:** Covers material from Sections 6.4–6.6
5.	02/22	**7.4** Relative Rates of Growth
	02/24	**Midterm 1:** covers material from Sections 6.1–6.6 and 7.1–7.3
6.	03/01, 03/03	**8.1** Using Basic Integration Formulas **8.2** Integration by Parts **8.3** Trigonometric Integrals
	03/03	**Quiz 4:** Covers material from Section 7.4
7.	03/08, 03/10	**8.4** Trigonometric Substitutions **8.5** Integration of Rational Functions by Partial Fractions **8.7** Numerical Integration
	03/10	**Quiz 5:** Covers material from Sections 8.1–8.3
8.	03/15, 03/17	**8.8** Improper Integrals **9.1** Solutions, Slope Fields, and Euler's Method **9.2** First-Order Linear Equations
	03/17	**Quiz 6:** Covers material from Sections 8.4, 8.5, and 8.6

Week	Dates	Content
9.	03/22, 03/24	**10.1** Sequences **10.2** Infinite Series
	03/24	**Quiz 7:** Covers material from Sections 8.8, 9.1, and 9.2
10.	03/29, 03/31	**10.3** The Integral Test **10.4** Comparison Tests **10.5** Absolute Convergence; The Ratio and Root Tests
	03/31	**Quiz 8:** Covers material from Sections 10.1 and 10.2
11.	04/05	**10.6** Alternating Series and Conditional Convergence
	04/07	**Midterm 2:** covers material from Sections 8.1–8.5, 8.7, 8.8, 9.1, 9.2, and 10.1–10.5
12.	04/12, 04/14	**10.7** Power Series **10.8** Taylor and Maclaurin Series
	04/14	**Quiz 9:** Covers material from Section 10.6
13.	04/19, 04/21	**10.9** Convergence of Taylor Series **10.10** Applications of Taylor Series
	04/19	**Quiz 10:** Covers material from Sections 10.7 and 10.8
14.	04/26, 04/28	**11.1** Parametrizations of Plane Curves **11.2** Calculus with Parametric Curves **11.3** Polar Coordinates
	04/28	**Quiz 11:** Covers material from Sections 10.9 and 10.10
	05/03	**Final Exam:** comprehensive and cumulative