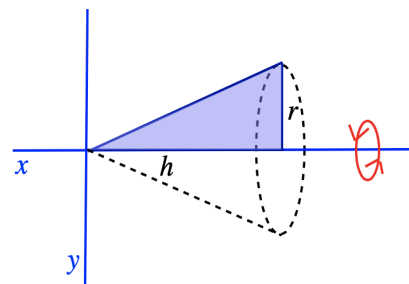# MATH 114: Analytic Geometry and Calculus II (Fall 2021)

Instructor:	Jason Bramburger, jbrambur@gmu.edu
Office Hours:	MW 9:00 - 11:00 am or by appointment
Course Website:	Blackboard
Teaching Assistant:	Matthew South, msouth2@gmu.edu
Recitation Sessions:	W 7:20 - 9:10 pm

Course Topics and Goals

At the end of the semester, students should be able to solve various geometry and physics problems that are modelled with definite integrals, use techniques to evaluate integrals, understand infinite series and power series, and be able to identify and graph conic sections and basic parameter and polar curves.

Prerequisites

A grade of C or better in MATH 113 (Calculus I)

Textbook

Thomas' Calculus (Early Transcendentals) by Hass, Heil, and Weir (fourteenth edition, Pearson publisher).
ISBN: 9780134764528
*We will cover most of chapters 6 through 11 of the textbook.

Instruction

This course will be entirely online and lectures will be asynchronous. That means that students will be introduced to course content via reading the textbook and recorded lecture videos which will be posted on Blackboard. Students will have additional support at scheduled Recitation Sessions. These are opportunities for students to deepen understanding and receive support from the teaching assistant.

Assessment

Your grade in this course will be assigned according to the percent system given below:

15% Test 1
15% Test 2
15% Test 3
25% Final Exam
20% Homework
10% Recitation Grade

Homework

There will be online homework problems assigned through http://www.mymathlab.com. You can access MyMathLab directly through Blackboard as well, where you will also find instructions to register for this service. Homework will be distributed weekly, become available Monday at midnight, and due at 11:59 pm EST the following Monday. Late assignments will **not** be accepted without a legitimate excuse and prior approval. Students are encouraged to collaborate, but homework must be submitted separately and individually.

Tests

There is a tentative schedule for tests below. You are responsible for keeping up with all information announced in lecture and on Blackboard. **There will be no make-up tests.** The final exam will be held on **Saturday, December 11, 2021**.

University Catalog
The University Catalog is the central resource for all university policies affecting student, faculty, and staff conduct in university administration affairs. Other policies are available at universitypolicy.gmu.edu/. All members of the university community are responsible for knowing and following established policies.

Accommodations for Students with Disabilities
If you need accommodations for classes, assignments, or exams, please contact me and Disability Services. Website: https://ds.gmu.edu/.

Counselling and Psychological Services
CAPS at Mason provides a wide range of free services to students and has resources for distance learners. Website: https://caps.gmu.edu/.

Honor Code
It is expected that each student in this class will conduct themselves within the guidelines of the Honor Code. All academic work should be done with the level of honesty and integrity that this university demands. Anyone caught cheating during a quiz, exam or on any other material submitted for a grade will be sent to the University Honor Committee for formal resolution to the situation. The use of cell phones and other electronic communication devices for any purpose during a quiz or an exam will be considered an honor code violation. The most likely recommendation given by the professor to the Honor Committee is failure of the class (not just the specific quiz, exam, etc.) if the student is found guilty of violating the Honor Code.

Diversity and Inclusion Statement
George Mason University is an intentionally inclusive community that promotes and maintains an equitable and just work and learning environment. We welcome and value individuals and their differences including race, economic status, gender expression and identity, sex, sexual orientation, ethnicity, national origin, first language, religion, age, and disability. I invite and respect any concerns about inequitable access or treatment in this course.

I strive to create a learning environment for you that supports a diversity of thoughts, perspectives, and experiences, and honours your identities. To help accomplish this:

- If you have a name and/or set of pronouns that differ from those that appear in your official GMU records, you are encouraged to let me know.
- If you feel your performance in the course is being impacted by your experiences outside of class, please come talk with me.
- I am still in the process of learning about inclusion, diverse perspectives, and identities. If something was said in class (by anyone, including me) that made you feel uncomfortable, please talk to me about it.
- As a participant in course discussion and problem-based sessions, you should strive to honour the diversity of your classmates.

Additional Course Policies

- All announcements will be posted on Blackboard. Be sure your Blackboard notifications are turned on, and you check it periodically.
- I am here to facilitate your learning; let me know if you have questions! I can always be reached by e-mail, and can schedule additional office hours.

Schedule:

Week of	Sections Covered	Topic
August 23	Review Chapter 5, 6.1	Volume by slicing
August 30	6.2, 6.3	Volume by shells, length of curves
September 6	6.4, 6.5, 6.6	Surface area, physical applications
September 13	7.1, 7.2, **Test 1**	Logarithmic and exponential functions
September 20	7.3, 7.4, 8.2	Hyperbolic functions, Integration by parts
September 27	8.3, 8.4	Trigonometric integrals, trigonometric substitution
October 4	8.5, 8.6, 8.7	Partial fractions, other integration strategies, numerical integration
October 11	8.8, **Test 2**	Improper integrals
October 18	9.1, 9.2, 10.1, 10.2	Introduction to differential equations, sequences
October 25	10.2, 10.3, 10.4	Infinite series, convergence tests
November 1	10.5, 10.6, 10.7	Convergence tests, power series
November 8	10.7, **Test 3**	Power series
November 15	10.8, 10.9, 10.10	Taylor series
November 22		**Thanksgiving Break**
November 29	11.1, 11.2, 11.3, 11.4	Parametric equations, Polar coordinates
December 6	11.5, 11.6, 11.7	Polar coordinates, conic sections
December 11		**FINAL EXAM** (All Sections)