Math 036: Calculus II
Fall 2021
TTh 330–445 (Reiss 559), F 3-350 (Reiss 264)

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Course Website: Canvas

Format. In person (for now).

Textbook. *Calculus: Early Transcendentals, 3rd Edition* by William Briggs, Lyle Cochran, Bernard Gillett, and Eric Schulz. If you do not already have access from last semester, I would recommend that you purchase access to the second book electronically through MyLab Math, which will be needed for the online homework. Please let me know if you have questions.

Course Description. Math 036 is the second semester of a two semester sequence in single variable calculus. Like Math 035, it focuses on developing tools to understand functions of a single variable, and applying these tools to different scenarios. The main concepts are integration and its applications, as well as differential equations and sequences and series. Although the focus is no longer on differentiation, all the material about functions from the first semester, including differentiation, will be used throughout the course.

The subject will be approached from both a conceptual and a computational viewpoint. Rather than just learning a set of formulas, techniques, and algorithms, the theory and applications of calculus will be central to our study. Additionally, the course will also require you to effectively communicate your solutions.

By the end of the semester, you will be able to:

- compute integrals analytically using advanced techniques
- approximate definite integrals numerically and understand the limitations of these methods
- determine the convergence or divergence of an improper integral, infinite sequence, or infinite series
- find series for the elementary functions and estimate numerical values of series
- recognize when a physical or geometric quantity can be computed using integral calculus
- use integrals to compute arc length, surface area, and volume
- analyze mathematical models involving first-order differential equations

as well as

- set up and solve word problems
- explain the results and context of your computations
- interpret formulas and processes
- clearly communicate your solution process.
- collaborate and produce work with others
- investigate new definitions and theorems with examples and counterexamples.

Class Structure. Mathematics, like many skills, cannot be learned simply by observing. Listening to Chopin will not help you learn to play the piano, and watching Wimbleton doesn't help you learn to hit a strong forehand, To encourage the growth of these skills and learning outcomes, we will incorporate methods from an education philosophy called "active learning", and use aspects of a "flipped classroom" style of instruction. The majority of our class time together will consist of

working on guided worksheets or projects in small groups. There will be less traditional lecturing so that student engagement with the material is the primary focus.

While working in groups:

- *Share responsibility for making sure all voices are heard:* If you tend to have a lot to say, make sure you leave sufficient space to hear from others. If you tend to stay quiet in group discussions, challenge yourself to contribute so others can learn from you.
- *Understand that we are bound to make mistakes in this space:* Everybody (myself included!) does so when approaching complex tasks or learning new skills. In particular, you are invited to step outside your comfort zone!

Homework and Assessments. This classroom approach will be scaffolded and complemented by the out-of-class assignments.

There will be two types of homework:

(1) **Daily Homework, due at the start of every class.**
In order to prepare for active in-class learning, there will be short daily assignments, taking the form of *Modules* in Canvas. Typically, these will include an introduction to the topic of the day, usually by either a short video lecture or a link to an online visualization, and a short Canvas quiz on the introduced material.

(2) **MyMath Lab Online Weekly Homework, due Mondays at 11:59pm.**
There will be weekly assignments on Pearson's MyLab Math, covering material from the previous week. Use the Course ID **bonventre58234** to access the system for this class.
You receive free access for two weeks, though after that, you will need to purchase access. Access can come bundled with the textbook, but also can be purchaseed on the MyLab website. You can also purchase access to an e-book version of the text.

Additionally, there will be the following assessments:

(4) **Quizzes, every Tuesday at the start of class.**
Each Tuesday will begin with a short, in-class, closed-note quiz, covering the material on Monday's online homework.

(5) ~~**Midterms.**~~ **Projects**
There will not be timed midterms. Instead, you will complete several **take-home group projects** during the semester,. These will be week-long assignments, completed with two other students. During the weeks these are due, there will be no quizzes.

(6) **Final exam.**
There will be a cumulative, 2-hour final exam during finals week at the registrar's scheduled time, **Friday December 10 from 4-6pm**.

Tokens. Each student will have two **tokens**. These can be used to grant a 2-day extension on any Online Homework and quiz. Otherwise, late assignments will **not** be accepted. However, only the ten best Online Homework and Quiz grades will count towards your final grade.

Grading. Grades will be assigned based on the following scheme:

Participation — 20%	Projects — 25%
Online Homework — 10%	Final Exam — 20%
Quizzes — 25%	

Course expectations. This is a weird and difficult time for us all. I expect myself to work hard to make this class effective and flexible, and I expect you to do the same.

Math 136 students are expected to complete their assignments, come to class on time and ready to participate and engage with the material and their fellow classmates.

Additionally, you are responsible for announcements made in class, as well as any emails sent to your UK email account or announcements on the course website.

Participation. Your participation score is based on three things: your Daily Homework (half of which is based on completion), your attendance, and your active involvement in the class and groupwork. As listed above, participation is **20 percent** of your grade this semester. Your effect and energy into our class time together is essential to this course. You get out what you put in; this grading scheme codifies that numerically.

Attendance. I will be taking attendance daily (for COVID tracing and for the course). If you miss several days, this will be noticed and will begin to affect your participation grade.

That being said, I fully expect there will be times where you are not able to make it to class, for a variety of health or personal reasons. If you must miss class, due to an illness or other pressing circumstance, please let me know as soon possible. I will not ask for medical documentation or a note from a dean. Instead, I will trust your judgement and voice in these matters, and expect that you will take ownership of this trust and act responsibly.

Electronic Devices. Use of calculators is **not permitted**.
Additionally, during class, all electronic devices which are not being used to facilitate learning should be put away. Electronic devices such as phones, laptops, and tablets are a large distraction from instruction, causing anyone viewing them to retain and understand less of what is being discussed in class (this includes the user and anyone behind them).

Academic Integrity. By taking this class, you assume responsibility towards following the policies of Georgetown University's Honor System. If you cheat in this class (e.g. using assistance of any form on exams, presenting someone else's work as your own), you risk failing the course.

Collaboration. Mathematics is an inherently collaborative and social activity. You are encouraged to work together on your online homework assignments. However, the solutions you submit for credit **must be your own work**.

You are **not** allowed to work together on exams or quizzes, nor use books, notes, the internet, etc.

Accommodations. It is my job to provide all students with an accessible and inclusive learning environment. Some aspects of this course, the assignments, the in-class activities, and the way the course is usually taught may be modified to facilitate your participation and progress. As soon as you make me aware of your needs, we can work with the Academic Resource Center to determine appropriate accomodations. Any information you provide is private and confidential, and will be treated as such.

Title IX and Sexual Misconduct. Georgetown University and its faculty are committed to supporting survivors and those impacted by sexual misconduct, which includes sexual assault, sexual harassment, relationship violence, and stalking. Georgetown requires faculty members, unless otherwise designated as confidential, to report all disclosures of sexual misconduct to the University Title IX Coordinator or a Deputy Title IX Coordinator. If you disclose an incident of sexual misconduct to a professor in or outside of the classroom (with the exception of disclosures in

papers), that faculty member must report the incident to the Title IX Coordinator, or Deputy Title IX Coordinator. The coordinator will, in turn, reach out to the student to provide support, resources, and the option to meet. [Please note that the student is not required to meet with the Title IX coordinator.]. More information about reporting options and resources can be found on the Sexual Misconduct Website: https://sexualassault.georgetown.edu/resourcecenter.

If you would prefer to speak to someone confidentially, Georgetown has a number of fully confidential professional resources that can provide support and assistance. These resources include:

Health Education Services for Sexual Assault Response and Prevention: confidential email mailto:sarp@georgetown.edu

Counseling and Psychiatric Services (CAPS): 202.687.6985 or after hours, call (833) 960-3006 to reach Fonemed, a telehealth service; individuals may ask for the on-call CAPS clinician.

More information about reporting options and resources can be found on the Sexual Misconduct Website.

Advice.

- Work with others!
- Attend class, participate, and ask questions.
- Office hours are a great place to ask questions, go over material, and work through problems.
- Drop by the Math Assistance Center for free peer tutoring.
- Learning is not fast, don't try to rush it. Be patient with yourself.
- Just because the first approach at a problem does not work, does not mean that the second or third will not. Sometimes the first thing you (or I) try doesn't work, but this does not necessarily mean that you do not understand the tools required to solve the problem.
- Start your homework early and work together! You should make major progress early in the week so that you can ask questions in class and/or office hours.
- Get help when needed! Find people you like working with!

Important Dates.

- Last day to Add/Drop: September 3
- No classes (Labor Day): September 6
- No classes (Mid-semester holiday): October 11
- Last day to withdraw with a W: November 18
- No classes (Thanksgiving/Fall Recess): November 25–26
- Last day of Classes: Decemeber 6
- Last day of Finals: December 17