



GEORGETOWN UNIVERSITY  
Georgetown College

SUMMER, 2022 – MATH 035-20 – Calculus I

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Main Second Summer Session July 11 – August 12, 2022

Car Barn 301; MTWR 10:50 AM – 1:20 PM

Office: St. Mary's Hall, 317

**Office Hours:** Monday through Thursday, 9:30-10:30 AM, EDT. I'm available to help you learn. Whenever you have a question that doesn't get answered in a lecture (or by the textbook), please contact me during office hours in person or through CANVAS using "Zoom Conferencing.". Additional ZOOM office hours are available by request.

**Course description:** An introduction to differential calculus. This is the first part of the three-semester calculus sequence (MATH-035-036-137) for mathematics and science majors. Students do not need to have previous familiarity with calculus, but do need good algebra/precalculus preparation. Topics include limits, derivatives, techniques of differentiation, applications of the derivative, the Riemann approximation, evaluation of definite and indefinite integrals, and techniques of integration including substitution.

**Registration Concerns:** Need to take the Calculus Readiness Assessment and earn a minimum score of 75.

**Required text:** Briggs, Cochran and Gillett, *Calculus: Early Transcendentals, Single Variable*, 3rd edition, Pearson. ISBN-978-0-13-596034-9. This is the eBook with MyLab Math access (MyLab will be used for homework assignments). As an option, available through the GU Bookstore, is the "À La Carte Edition" ISBN-978-0-13-499610-3. This is the loose-leaf, 3-hole punch version. It comes bundled with eText and the MyLab Access Kit that's good for 24-months. It is recommended for those who will be taking Calculus 2 and 3. (This course will cover chap/sec 1.1 through 5.5.)

**Computer Requirements:** You will need a laptop or desktop computer (Windows or Mac) and adequate Internet service to complete this course. Although you can use other devices – smartphones and tablets – some features do not function on these devices. You will also need a mic and camera to complete the course. While you can use any browser to access CANVAS (the Georgetown Learning Management System) please note that Google Chrome and Mozilla Firefox tend to work best.

**Technical Support:** All students have 24/7 access to CANVAS technical support 24 hours a day, 7 days a week, including live chat and a support hotline at 855-338-2770. Use the 'Help' icon in the lower left of your CANVAS window to view all available support and feedback options.

**Additional required technology:** A Graphing Calculator. (I'll be using and demonstrating the TI-84+ in class.)

### Student Learning Outcomes:

For the **General Curriculum**, at the successful completion of this course the student will demonstrate the following Student Learning Outcomes: critical thinking and problem-solving skills; competence in technology, and written communication; quantitative reasoning through an understanding of mathematical concepts and their application to the natural world and society; and knowledge of human culture as manifested in the liberal arts (partially satisfied).

At the successful completion of this course, a student will also demonstrate the following Student Learning Outcomes:

- ✓ Analyze, model, and apply polynomial, rational, algebraic, trig, exponential, log and power functions.
- ✓ Evaluate the limit of a function, if it exists, algebraically, numerically, and graphically or recognize the non-existence of a limit.
- ✓ Determine the continuity of a function at a point or over an interval.
- ✓ Understand the different interpretations of the derivative of a function including slope of a tangent line and instantaneous rate of change.
- ✓ Evaluate the derivative of a function using the definition of a limit.
- ✓ Compute the derivative of a function using basic properties and rules including product, quotient, and chain rules.
- ✓ Compute the derivative of implicit functions as well as higher order derivatives of functions.
- ✓ Use the first and second derivatives of a function to determine its maximum/minimum values, concavity, and inflection points.
- ✓ Solve applied problems involving displacement/velocity/acceleration, related rates, and optimization.
- ✓ Use Newton's Method to approximate the roots of a function.
- ✓ Apply L'Hôpital's rule to evaluate certain limits.
- ✓ Identify the antiderivative of a given function;

- ✓ Use Riemann Sums to approximate the areas under and between curves;
- ✓ Evaluate both definite and indefinite integrals of basic single variable functions
- ✓ Understand properties of definite integrals as well as both parts of the Fundamental Theorem of Calculus (FTC);
- ✓ Evaluate both definite and indefinite integrals of basic single variable functions using substitution

**Method of Instruction:** “Interactive Lecture” ... presentation of theory, application, and sample problems by instructor with student participation.

**Attendance:** Policies regarding class attendance follow those published in the 2021-2022 Undergraduate Bulletin.

**Make-up quizzes and tests are at the discretion of the instructor:** Make-ups will be given only under extraordinary circumstances. <https://bulletin.georgetown.edu/regulation/standards>

**Students with Disabilities:** The University encourages any student who believes s/he may have a qualifying disability to make an appointment with an Academic Resource Center (ARC) staff person to discuss available services and the process for documenting a disability and receiving accommodation. <http://academicsupport.georgetown.edu/> Disability support web site: <http://academicsupport.georgetown.edu/disability> Phone: (202) 687-8354 Email: [arc@georgetown.edu](mailto:arc@georgetown.edu)

**Support Services:** Georgetown offers a variety of support services for students that can connect you with professionals on and off campus during this time. Below are some of the resources available to you:

- ✓ Academic Resource Center: 202-687-8354 | [arc@georgetown.edu](mailto:arc@georgetown.edu)
- ✓ Counseling and Psychiatric Services: 202-687-6985
- ✓ Institutional Diversity, Equity & Affirmative Action (IDEAA) (202) 687-4798

**Class Recording:** By registering for or attending Georgetown University courses, individuals consent to the recording of classes. Access to class recordings is restricted to the students in the recorded class who have been given permission by the instructor or for whom recording has been approved as a reasonable accommodation by the Academic Resource Center. The content of any class, including materials created by the instructor, is the intellectual property of the instructor.

**Workload:** For every hour in class, students should expect to spend up to two hours outside of class on work for this course (reading the textbook, studying notes, doing homework, viewing related videos). Summer courses are fast-paced; if you get too far behind, it will be difficult to catch-up. Set aside enough time in your schedule to keep up.

**Homework (Problems assigned on MyLab Math via Canvas):** The most important part of any Calculus course is the homework. Many of the problems assigned will not be routine drill, but instead they will push you to think about and work with the underlying concepts and applications. There will be a homework assigned for each section (we’ll be covering 35 sections). All homework will be completed on-line using MyLab Math. I *will* drop your two lowest homework scores.

**Quizzes:** On most days there will be a six (6) question multiple-choice quiz covering material from the previous day. The intention of these quiz questions is to test comprehension, reinforce key concepts, improve knowledge retention, and to encourage attendance and the viewing of video components. Five correct answers will be considered a perfect score 10/10; all six questions correct will result in a score of 11/10 (a bonus point). I *will* drop your lowest quiz score.

**Tests:** Two (2) 90-minute tests will be given during the session. These tests will last cover the material outlined on the course calendar. Unlike homework and quiz grades, I will *NOT* drop your lowest test grade. There will be no final exam.

**Grading Scheme:** When I calculate final grades, here’s how I’ll weight the components: Attendance 5%, Homework 20%, Quizzes 15%, First Test 27%, Second Test 33%. (N.B. Class participation, punctuality and improvement will be considered in borderline situations when the final grade is calculated.)

	A	93-100%	A-	90-92%
B+	B	83-86%	B-	80-82%
C+	C	73-76%	C-	70-72%
D+	D	60-66%		
	F	Below 60%		

**Incompletes:** By university policy, incomplete grades may be given only for reasons of health or serious personal issues. Academic overload, outside employment, or mismanagement of time are not sufficient reasons for receiving an incomplete.

**Last Day to Withdraw // Pass/Fail Deadline:** Tuesday, August 9, 2022

**Course Evaluation:** Toward the end of the course, each student will have the opportunity to evaluate the course/instructor (i.e., me). Students are strongly encouraged to participate in the evaluation.