MAT 295: Calculus I
M007 — Spring 2021

Instructor Information

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Office Hours: M 5:00 – 6:00; T 5:00 – 6:00
Course Supervisor: Dr. Moira McDermott

Class Information

Dates: February 8 – May 14
Time: MWF 11:40 – 12:35; T 9:30 – 10:50
Classroom: Carnegie 120; Lyman 126

Course Description

Analytic geometry, limits, derivatives, maxima-minima, related rates, graphs, differentials, exponential and logarithmic functions, mean-value theorem, L'Hôpital's rule, integration. For science majors. MAT 295 may not be taken for credit after successful completion of MAT 286.

Course Objectives

After this course, you should be able to. . .

- Explain and define the limit of a function at a point, continuity at a point, and differentiability at a point as well as interpret the meaning of these concepts, especially in applications.

- Explain the use of L'Hôpital's Rule and apply it to appropriate limit problems.

- State and show uses of the Mean Value Theorem.

- Compute the derivatives of polynomials, rational functions, composite algebraic functions, & trigonometric functions, natural logarithmic and exponential functions.

- Differentiate implicitly and use this in applied contexts.

- Apply the techniques of differential calculus to the problem of curve sketching.

- Apply differentiating techniques to find velocity & acceleration to solve related rate & max/min problems.

- Define the anti-derivative of a function & define the Riemann integral.

- Interpret the relationship between antidifferentiation & differentiation.

- State and apply the Fundamental Theorem of Calculus.

- State the important properties of the integral.

- Solve problems involving antiderivatives and areas.

- State and use the Mean Value Theorem for Integrals.

Furthermore, you should

- Improve your ability to engage in mathematical thinking, reasoning, communication, and problem solving.

- Develop a matured perspective on how to approach mathematical problems and concepts.

- Be able to state ways Calculus applies in Mathematics and in real world problems.

- Learn how interpret formulas in special cases.

- Learn to properly utilize technology to explore, supplement, or answer mathematical questions.

Textbook & WebAssign

The textbook is Stewart, James, *Essential Calculus: Early Transcendentals*, 2nd Edition; Cengage Learning. All students are required to have a WebAssign access code. This code includes access to the electronic textbook. There are several ways to buy it (see the table below). Which you choose depends on a number factors: financial ability, what other WebAssign-based courses you might be taking and when, etc.

Option	ISBN	Cost	Access Duration
SU Bookstore "Redshelf eBook"	9781337772228	$147.06	730 days
SU Bookstore package: physical textbook and WebAssign access code	9781133425946	$325.00	730 days
Cengage 10-month code ("multi-term access")	9781337772235	$125.00	10 months
Cengage 5-month code ("single-term access")	9781337772198	$100.00	5 months
Cengage Unlimited: access to all Cengage eBooks and online homework	None	$119.99	4 months

To purchase access through Cengage, go to https://cengage.com and enter an ISBN in the search box. The site will offer both the Cengage Unlimited option and the Digital Platform option described above.

The Access Code is different from Class Key (also called "course key"). You will get a Class Key from your instructor. Entering the Class Key on https://webassign.net will let you enroll in the class and do the homework. There is a 14-day grace period before an Access Code is required. After you enroll in a WebAssign section, it will automatically offer the three Cengage options listed above: Cengage Unlimited, multi-term, and single-term access. The WebAssign access code for this course is **syr 4123 6543**.

Phone, Calculator, and Device Policies

MAT 295 students are expected to complete the calculus sequence without the use of a calculator. Calculators will not be permitted on quizzes or exams, unless explicitly instructed. Any unauthorized use of such devices are considered a violation of the Academic Integrity Code. During the course, http://www.wolframalpha.com/, https://www.symbolab.com/, and Mathematica will be used to demonstrate concepts give students an opportunity to be able to check work. However, these should only be used as instructed, and never during an exam. Following the Mathematics Department guidelines, all electronic devices should be turned off and put away during class unless otherwise instructed. Use of such devices can result in dismissal from class.

Course Format

The course format is 3 lectures per week and one recitation per week. Typically, new material is introduced in lecture, while recitation is used as a problem session. Recitations will usually be on Tuesdays. However, some weeks lecture will occur on Tuesdays, and the other class meeting that week will be used for recitation instead. There will be a quiz every class, and are *required* to attend every class. The approximate exam schedule can be found at the end of the syllabus. These dates are subject to change and the exact day/time for exams will be announced in class. Exams will be taken online. You may be required to take the exam with an active webcam.

Class Attendance and Participation

It is essential to your success in this course that you attend each lecture and participate in the discussions. Therefore, you are expected to attend each lecture and to show up on time. However, due to the ongoing pandemic, if you are an "in-person" or "hybrid" student, you are only to attend class physically on the days to which you have been assigned. All other students will participate in classes virtually. Should you need to miss a class (online or in-person) for any reason, you are to contact the instructor in a timely manner. Reasons for missing lecture must be documentable and presented, if requested. Physical absences due to mandated quarantine will be excused; however, you should attend the class virtually—being sure to inform the instructor. You are responsible for any material covered during the lecture as well as any work assigned during the lecture. *Do not* expect the instructor to provide notes from any class that you might miss. More than five unexcused absences from lectures could result in receiving an F in the course. Furthermore, excessive lateness will also count as an absence. Your virtual participation in lectures will be tracked for attendance. If you are dismissed from lecture due to problems during the lecture, e.g. disruptive behavior or unauthorized cell phone use, inappropriate use of Zoom (chat), etc., then this dismissal will be recorded as an absence.

Syracuse University's Attendance Policy: Attendance in classes is expected in all courses at Syracuse University. It is a federal requirement that students who do not attend or cease to attend a class be reported at the time of determination by the faculty that the student never attended or stopped attending the class. Faculty will use Early-Semester Progress Reports and Mid-Semester Progress Reports in Orange SUccess to alert the Registrar and Financial Aid Office of non- attendance. For online students, attendance is determined by active participation in online sessions and by the completion of homework, quizzes, and exams. For more information visit: https://registrar.syr.edu/students/non-attendance/.

Students may contact their home school/college Dean's Office or the Case Management staff in the Dean of Students Office when they are absent from class for an extended period of time (48 hours or more). The Case Management staff will require documentation for the absence and will utilize Orange SUccess to send notifications to faculty to verify that documentation has been received for the stated absence. For absences lasting less than 48 hours, students are encouraged to discuss academic arrangements directly with their faculty. Additional information may be found at https://ese.syr.edu/dean-of-students/services/#s:absence-notifications.

Grading

The course grade is determined by the following components:

Exam 1	18%
Exam 2	18%
Exam 3	18%
Final Exam	18%
Quizzes	5%
Homework	18%
Participation	5%

Grade Scale

The grade scale is the standard Mathematics Department grading scale and is as follows:

A	93 – 100	C+	77 – 79
A–	90 – 92	C	73 – 76
B+	87 – 89	C–	70 – 72
B	83 – 86	D	65 – 69
B–	80 – 82	F	0 – 64

Exams

You are expected to be present and ready to take the exam before the exam is given. There are three exams and a final exam. The exams will be given virtually. You will need to be able to scan and upload your solutions to take exams. If you are confused on how to do this, or there are other issues with this, discuss this with your instructor. The exams are *tentatively* scheduled for the week of March 1st, April 5th, and May 3rd. If there is a change to this schedule, it will be announced in class. You are not permitted to use any outside assistance (including people), materials, resources, or electronic devices (including but not limited to calculators, computational devices, mobile phones, smartwatches, etc.) on the exams. Any violation of this policy is a violation of the university's Academic Integrity Policy.

There will be no make-up exams, even in the case of an emergency. A missed exam counts as a zero unless a valid excuse from a physician or the Dean's Office is presented to your instructor an accepted. With an acceptable written excuse, a missed exam score will be replaced with the percentage earned on the corresponding subsection of the final exam.

The final exam is comprehensive and will be given during a two-hour block on Thursday May 20th between 8:00am – 2:30pm. The exact time will be announced by your instructor later in the semester. The final exam is worth 18% of your grade. The date is already set by the university, so please do not make other plans on the date of the final exam such as appointments, early vacation departures, family outings, etc. If a student has a conflict with another final exam, the student must contact their instructor at least two weeks in advance in order to have it resolved.

Homework

The only way to learn Mathematics is to do Mathematics! It is essential for students to complete all of the homework assignments. The vast majority of homework assignments will be completed using WebAssign. However, there may be some problems that will be written and submitted virtually (often assigned from the textbook or from instructor prepared materials). Completing all the homework problems is the best way to practice and prepare for quizzes and exams. Therefore, *it is absolutely essential to do the homework*! Be careful to keep up with the homework, especially the WebAssign. It is easier to keep up than it is to catch up. As per the University guidelines, you should expect to spend approximately 12 hours per week doing homework or studying in this course. This could be less or more depending on the week and your understanding of the material. If you need more time on a WebAssign assignment, you must submit the request on WebAssign—with an explanation—in a timely fashion. Typically, you will receive any requested extension. However, do not simply assume that you be able to receive extra time on an assignment so plan your schedule carefully. Except in exceptional circumstances, WebAssign extensions on topics included in an exam will not be granted after that exam. You are encouraged to work with others on homeworks. Mathematics is a social activity! However, do not simply use others to do your work but rather use others to help work through and engage in the concepts. Of course, using online solutions or others to complete your WebAssign is a violation of the Syracuse University Academic Integrity Policy. You may coordinate with others or ask/answer questions with your fellow students, see the 'Mathematics Help' section below.

Quizzes

Often, there will be a quiz every class. These quizzes will be very short, and are a test of whether you are keeping up with the material. If you are late, be sure you take the quiz before leaving the class. *No make-up quizzes will be given.* There is no calculator, computational device, or outside assistance of any type allowed on quizzes unless otherwise instructed.

Mathematics Help

Be proactive about your success in the course! If you need help, there are many resources available to help you. Your first primary contact for help is the instructor. If you are struggling, attend virtual office hours or send an email. Do not wait to bring issues, course related or otherwise, to the attention of the instructor. If you cannot attend office hours, send an email to the instructor to try to make other arrangements. You may also ask/answer questions about course materials or WebAssign on the corresponding Blackboard discussion section. Bonus points may be given for particularly good questions or answers! If you are asking homework questions, *do not simply ask for solutions*! If you are answering homework questions, *do not simply solve the problem*—give hints or (motivated) outlines. Either are violations of the integrity policy. You may also find additional resources either on the Blackboard or course webpage http://coffeeintotheorems.com/. There are often extra resources available to you on WebAssign assignments after a certain number of answers.

However, these features are not available for all problems. You may also find help at the Calculus Help Center: http://math.syr.edu/undergraduate/math-help.html. Furthermore, the Center for Learning and Student Success (CLASS) also offers *free* group tutoring sessions for MAT295. They are located on the Lower Level of Bird Library, see http://class.syr.edu/ or call 315.443.2005.

Email Policy

Syracuse University has established email as a primary vehicle for official communication with students, faculty, and staff. All email communication in this course should be done using your @syr.edu email account. Due to federal laws, such as FERPA, emails coming from a non-SU email may not receive a response. Please, title emails with MAT 295: [Email Issue], where "email issue" is a summary title of the content of the email. This is to help ensure that your email is noticed and responded to.

Stay Safe Pledge

Syracuse University's Stay Safe Pledge reflects the high value that we, as a university community, place on the well-being of our community members. This pledge defines norms for behavior that will promote community health and well-being. Classroom expectations include the following: **wearing a mask that covers the nose and mouth at all times, maintaining a distance of six feet from others, and staying away from class if you feel unwell**. Students who do not follow these norms will not be allowed to continue in face-to-face classes; repeated violations will be treated as violations of the Code of Student Conduct and may result in disciplinary action. As masks are required at all times, students are not allowed to eat or drink in class.

Students with Disabilities

Syracuse University values diversity and inclusion; we are committed to a climate of mutual respect and full participation. There may be aspects of the instruction or design of this course that result in barriers to your inclusion and full participation in this course. I invite any student to meet with me to discuss strategies and/or accommodations (academic adjustments) that may be essential to your success and to collaborate with the Center for Disability Resources (CDR) in this process. If you would like to discuss disability-accommodations or register with CDR, please visit their website at https://disabilityservices.syr.edu. Please call 315.443.4498 or email disabilityresources@syr.edu for more detailed information. CDR is responsible for coordinating disability-related academic accommodations and will work with the student to develop an access plan. Since academic accommodations may require early planning and generally are not provided retroactively, please contact CDR as soon as possible to begin this process.

Faith/Tradition Observances Policy

Syracuse University's religious observances policy, found at https://policies.syr.edu/policies/university-governance-ethics-integrity-and-legal-compliance/religious-observances-policy/, recognizes the diversity of faiths represented in the campus community and protects the rights of students, faculty, and staff to observe religious holy days according to their tradition. Under the policy, students should have an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors no later than the end of the second week of classes for regular session classes and by the submission deadline for flexibility formatted classes. Please inform your instructor if you will need to miss one of the "Additional Class Meetings" due to religious observance.

Mental Health & Counseling Services (Barnes Center at The Arch)

If at any point during the semester, you feel overwhelmed with your class work, feel thoughts of depression/suicide, experience sexual assault/rape, experience problems with substance abuse or relationship abuse, or have any other struggles with physical/mental health, ***please seek help***! The Counseling Center Services at Syracuse University is a resource offering assistance with any issue you might have—both individually and through group sessions. There is ***never*** any shame in seeking help. If you or someone you know is struggling with any of these issues, speak out! The Counseling Center Services website can be found at https://ese.syr.edu/bewell/, is located at 150 Sims Drive, Syracuse NY 13244, and can be contacted at 315.443.8000.

If you or someone you know is having issues with gender or sexual identity issues, the LGBT[QIA]+ Center is there to create a safe space for those with marginalized genders and sexualities or those who might be struggling with these issues. The LGBT[QIA]+ Center website can be found at http://lgbt.syr.edu/, is located on the fifth floor of Bird Library at 548 Bird Library, Syracuse, NY 13244, and can be contacted at 315.443.3983. Know that my office is a safe space and should you prefer any gender specific pronoun/name, please be sure to make me aware!

Academic Integrity

Syracuse University's Academic Integrity Policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The university policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same written work in more than one class without receiving written authorization in advance from both instructors.

Under the policy, students found in violation are subject to grade sanctions determined by the course instructor and non- grade sanctions determined by the School or College where the course is offered as described in the Violation and Sanction Classification Rubric. SU students are required to read an online summary of the university's academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice. The Violation and Sanction Classification Rubric establishes recommended guidelines for the determination of grade penalties by faculty and instructors, while also giving them discretion to select the grade penalty they believe most suitable, including course failure, regardless of violation level. Any established violation in this course may result in course failure regardless of violation level. For more information and the complete policy, see http://class.syr.edu/academic-integrity/policy/.

All academic integrity expectations that apply to in-person quizzes and exams also apply to online quizzes and exams. In this course, all work submitted for quizzes and exams must be yours alone. Discussing quiz or exam questions with anyone during the quiz or exam period violates academic integrity expectations for this course.

Using websites that charge fees or require uploading of course material (e.g. Chegg, Course Hero) to obtain exam solutions or assignments completed by others and present the work as your own violates academic integrity expectations in this course.

Orange Alert

Orange Alert, Syracuse University's crisis notification system, uses text messages, phone, and email alerts to provide rapid notification and instructions to members of the University community in the event of a critical incident in progress. Critical incidents could include an individual who is considered armed and dangerous, a hazardous materials incident, an explosion, or any other event in which there is an immediate threat of physical harm or death to campus community members. We recognize that faculty may consider activated cell phones as an interruption to their class. However, the public safety department recommends that faculty members leave their own cell phones on vibrate in order to receive text messages about a potential emergency situation. It is also recommended that faculty designate several class members to leave their cell phones on vibrate in order to receive notifications in the event of a critical incident. Orange Alert contact information for students, faculty, and staff is drawn from the MySlice online information system; please keep your contact information current. *In the event of an emergency*, the phone emergency line from on-campus is 711; the phone emergency line from off-campus is 315.443.2224; the phone emergency line from cell phone providers ATT/Verizon/Nextel is #78. For complete details on emergency procedures, visit: http://emergencyguide.syr.edu/.

Use of Student Work

In compliance with the federal Family Educational Rights and Privacy Act, registration in this class is understood as permission for assignments prepared for this class to be used anonymously in the future for educational purposes.

Course Materials Policy

Unless the copyright is explicitly held by some other individual, group, or other entity, other than the instructor, all course materials (defined to include, but not limited to, course handouts, video/audio lectures, assignments, quizzes, exams, etc.) are assumed to be the intellectual property of or copyrighted by the instructor, protected by United States copyright law [Title 17, U.S. Code]. While you are allowed to download any course materials for personal use, you are not allowed to (in print, digitally, or otherwise) share, distribute, sell, publish in any form, in part or in whole, to any individual, group, or other entity. Doing so is a violation of intellectual property law, and is also a violation of the student code of conduct. The instructor, or agent acting on behalf of the instructor, also reserves the right to delete or disable any link to any course materials. In enrolling in the course, the student agrees to abide by this course materials policy.

Important Dates

- Financial Aid/Academic Drop Deadline: 03/01/2021

- Academic Withdrawal Deadline: 04/30/2021

- Final Exam: 05/20/2021

Tips for Success

- Be proactive about your success in the course.

- Do not procrastinate! Begin your assignments and studying early!

- Attend every class and recitation.

- Ask questions whether it is during class, recitation, office hours, at the math clinic or via email to your instructor.

- Form a study group! Working together will help you and others better understand the course material as you can work through different difficulties and offer each other clarifications on concepts.

- Do problems! Reading through your notes is not enough. Seek out new problems and work through them carefully. When you are done, check your answer. If you are wrong, examine carefully what misunderstanding occurred and how to avoid it in the future. If you were correct, examine if there was a faster way, check to see if your solution 'flowed' and was easy to read, and think over what concepts/computations were used and what 'type' of problem was the exercise.

Respect Policy

I respect your time:

- I will come prepared to help you understand the course material and prepare you for quizzes/exams.

- Communication is key: I cannot help you if I do not know what is going on.

- I am here to help you, this is your time, so let me know what I can do to help you succeed.

- If there is something that you would like me to do differently, please, let me know. I am happy to work with you to make class the best it can be.

Respect my time:

- Be on time to class.

- Pay attention when I am talking to you.

- Come to class prepared by doing the work and going to office hours when you need help.

Respect each other:

- Do not be disruptive. If you need to take a call or text someone, take it outside.

- Work with each other to find solutions. You learn more by helping each other.

- Allow one another to make mistakes. This is an important part of the learning process.

- Use respectful language when talking with one another.

COVID Discussion Policy

At the time of writing, there have been over 26.8 million cases of COVID-19 in the United States with over 460,000 deaths; moreover, there have been over 104 million cases with 2.2 million deaths worldwide. It is an understatement to say that these are trying times not just for students, along with their friends and family, but for our broader community. While many of us use humor to cope with difficult situations, we are often able to do so without great offense because we can choose our words and our actions to fit an audience with which we are familiar—be it friends or family.

However, this luxury may not be available to us in the classroom. You will likely not know all your classmates and their circumstances. It is not unlikely that at least one of your classmates in at least one of your classes has lost an acquaintance, friend, or family member to COVID-19. Worse yet, because of social distancing, they may not have been able to properly mourn them. Even if a classmate has not lost someone, they or someone in their life may be experiencing financial hardships or other crises due to COVID-19.

While all students are expected to respect and protect each other by signing and abiding by Syracuse University's 'Stay Safe Pledge', we need to do more as a community. Protecting the health of others it the minimum one can do in a pandemic. We need to go beyond basic physical health and support our community's mental health. By enrolling in this course, you should refrain from making jokes or other trivialization of the COVID-19 pandemic while participating in the course, both online and in-person.

Tentative Schedule

The following is a *tentative* schedule for the course.

Date	Topic(s)		Date	Topic(s)
02/08	Overview/Review		03/29	4.1, 4.3, 4.4
02/09	1.3, 1.4		03/30	4.1, 4.3, 4.4
02/10	1.4		03/31	4.1, 4.3, 4.4
02/12	1.5		04/02	4.1, 4.3, 4.4
02/15	1.6		04/05	Exam 2 Review
02/16	Review		04/06	Exam 2
02/17	Review		04/07	4.7
02/19	2.1, 2.2		04/09	4.7
02/22	2.3–2.5, 3.1–3.3, 3.5, 3.6		04/12	4.7
02/23	Review		04/13	4.7, 5.1, 5.2
02/24	Review		04/14	5.1, 5.2
02/26	Review		04/16	5.1, 5.2, 5.3
03/01	Exam 1 Review		04/19	5.3
03/02	Exam 1		04/20	5.3
03/03	2.6		04/21	Wellness Day
03/05	2.6		04/23	5.3
03/08	2.6		04/26	5.4
03/09	2.7		04/27	5.4
03/10	2.7		04/28	5.4
03/12	2.7		04/30	Topics Day
03/15	2.8		05/03	Exam 3 Review
03/16	3.5		05/04	Exam 3
03/17	3.7		05/05	5.5
03/19	3.7		05/07	5.5
03/22	3.7		05/10	5.5 Review
03/23	Wellness Day		05/11	Final Exam Review
03/24	1.5, 4.2		05/12	Final Exam Review
03/26	1.5, 4.2		05/14	Final Exam Review