

Math-151 , Calculus II , Spring 2021

Chris Curtis, Office Hrs: Tu+Th 11-12:15 [[Zoom link](#)], **Email:** ccurtis@sdsu.edu

Shahir Sikder, Office Hrs: Mo+We 10:00-11:00 [[Zoom link](#)], **Email:** ssikder@sdsu.edu

Prof Carretero, Office Hrs: Tu+Th 11:00-12:00 [[Zoom link](#)], **Email:** rcarretero@sdsu.edu

Class format: All lectures (instructors and TAs) are conducted remotely using Zoom at the times indicated in the class schedule. Attendance is mandatory! Make sure to access Zoom using YOUR SDSU account. If you use you a Zoom account not through SDSU, your attendance will NOT be recorded and you will get an absence (6 or more absences incur a lower grade reduction; see below). Some Zoom lectures might be recorded; you should contact your instructor to make provisions in case you do not want to be recorded.

Text: Calculus-Single Variable Calculus Early Transcendentals, **8E**, by James Stewart. If you opt-out for **Immediate Access** (see next point), you can buy hardcopy, paperback or electronic copy but it has to have a code for WebASsign homework. If you bought the life-time edition (when you took calc-I or if you are repeating calc-II) you will not need to pay again.

eBook and WebAssign homework: If you took Math-150 and participated in Immediate Access in Fa'20, you do not have to purchase anything. Your access to the eBook and WebAssign will continue in Math-151 and Math-252. **Immediate Access Course:** Some or all of the required course materials for this class are provided in a digital format by the first day of classes and are free through the add/drop date of Feb/02/21. Your SDSU student account will then be charged a special reduced price for use of the materials for the remainder of the semester unless you opt-out of the content by 11:59 PM on the add/drop date February 2nd, 2021. Please visit www.shopaztecs.com/immediateaccess for additional information about Immediate Access pricing, digital subscription duration, print add-ons, opting out and other frequently asked questions.

Online Homework: All book versions [hardcopy, paperback, electronic] (California Ed.) include a WebAssign access code. To register into your WebAssign course just click the "WebAssign" tab in your Math-151 in **BlackBoard**. WebAssign will let you know when an answer is correct or incorrect, so read the online WebAssign information that comes with your textbook.

Website: The homework ('Assignments' tab) and other materials will be posted in the course webpage: <http://carretero.sdsu.edu/teaching/M-151/>

Math&Stats Learning Center (MSLC) [online]: The goal of this center is to provide a central location for students from all lower division mathematics and statistics courses to find **free**, on-demand, tutoring. We encourage students who have any questions about their work to drop in via Zoom for one-on-one, group, or class-based workshop instruction with TAs/tutors who are very familiar with the material. Consult the full MSLC schedule at <http://mlc.sdsu.edu/>. Use the MSLC website to find out when your TA (or any particular TA) is working if you want to get specific help. The best time to get the most relaxed personal help is the morning, any time before noon. I encourage very strongly that you make regular visits to the MSLC. Data from previous semester indicates a high correlation between better grades and constant MSLC visits:

- * 79% of students that did not pass did not go to MSLC.
- * 95% of students that did not pass did not go or went only once during the semester to MSLC.
- * larger percentage (43%) of high passers [B+ or better] attended MSLC at least once than low passers (34%) or non-passers (21%)
- * larger percentage of high passers (12%) attended 5+ times than did low (7%) or non-passers (2%)

Supplemental Instruction (SI) [online]: These free study sessions designed to keep you up-to-date with the course. SI Sessions are open to all students and you can attend as many sessions as you want throughout the semester. Participation is completely voluntary and the instructor does not know who participates. SI Sessions are led by an SI Leader, a current student who has recently successfully completed the course. Students who participate in SI Sessions typically earn higher final course and exam grades than students who do not participate, sometimes by a half to a full letter grade. Why Attend SI? → Keep up with the class material + Study with other students in live time (don't study alone!) + Meet other students from the class + Improve your grade. SI CALENDAR: <http://bit.ly/math151sicalendar>, SI Program: bit.ly/SiatSDSU, Meet the SI Leaders: <https://caa.sdsu.edu/supplemental-instruction/leaders>.

Prerequisite: Math-150 with a minimum of C [a C- is NOT enough!]. AP (Advance Placement) students are required to turn in transcripts. To be accepted in Math-151 with AP credit you need one of these: (i) score 4 or 5 in AP calc AB OR (ii) score 3, 4 or 5 in AP calc BC OR (iii) score 4 or 5 in AP calc AB subscore.

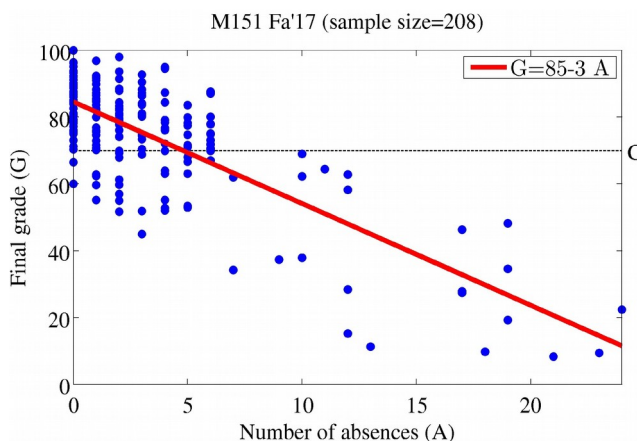
Grading:	Weekly worksheets	10%
	Weekly Lab reports	10%
	Homework	10%
	Four mini-tests (worst is dropped)	14% each [No make-ups! See below]
	Final	28%

Homeworks: You need to solve the HW posted in WebAssign (WA) using **pen and paper**. We strongly urge you to download/print/write the problem in a piece of paper and turn off your computer/device and fully concentrate on your HW problems on pen and paper. Research has shown that pen and paper is the best practice for you to understand/learn the material. After you solve your HW you can go back to input answers in WA and get feedback for correctness of your results (you can then go back to your handwritten HW notes and amend any issues). When you are done with the WA HW you must upload the handwritten HW in Gradescope (GS). If you do not upload in GS your handwritten notes then you will not earn the WA credit.

Worksheets: You will work on your worksheets with your TAs in their Monday recitation and you will submit (GradeScope) the completed worksheet that same Monday before midnight.

Labs: You will work on your Labs with your TAs in their Wednesday recitation and you will submit (GradeScope) the completed Lab on Fridays before midnight.

Attendance: Attendance to **all** lectures is **required**. Attendance will be recorded. If you miss 6 (or more) lectures, your grade will be reduced by **one full letter grade**. Attendance is crucial! In fact, statistics from last semesters (see plot to the right) suggest a very strong correlation performance and attendance. In fact, all failing students missed more than 6 lectures and all but a couple of students attending all lectures passed the class (often with the highest scores). We will often expand upon the ideas discussed in the book and material covered in lectures may appear on the tests/quizzes. Lateness or leaving class early is unacceptable. If lateness becomes a common problem, the instructor reserves the right to lock the Zoom session.



Course Grade: Your final letter grade will be assigned by your overall percentage score (HW, Labs, mini-tests, and final exam) as follows: (A-,A): 90-100, (B-,B,B+): 80-90, (C-,C,C+): 70-80, (D-,D,D+): 60-70.

Tests: There are NO make-up exams. Test dates for ALL mini-tests are set from the beginning of the semester on the following FRIDAYS from 5:00-6:10pm: Feb. 26th + Mar. 19th + Apr. 9th + Apr. 30th. The final will take place at on Sun, May. 9th @ 14:30-16:30. It is your responsibility to be present during tests, so please do not make any doctor's appointments, travel plans, etc, on these dates. You will only be able to make-up if you miss an exam due to a severe medical *emergency* (not a routine doctor appointment), and you present verifiable documentation (i.e., within THREE days of incident: letter from your doctor with address and phone numbers). The worst mini-test score will be dropped from the overall grade.

Rest and Recovery Days: Fri, Feb. 12 + Mon, Mar, 08 + Tue, Mar, 30 +Thu, Apr. 15.

Chapters/topics: We will cover Chapters 3.11, 6, 7, 8, 9, 11, and 10. Specifically:

1. **Applications of the Integral:** Areas between curves, Volumes by slices and cylindrical shells, arc length, area of a surface of revolution, hyperbolic and inverse hyperbolic functions
2. **Techniques of Integration:** Integration by parts, trigonometric integrals and trig substitutions, integration of rational functions, improper integrals

3. **Differential Equations:** Exponential growth/decay, models of population growth, and other applications, separable equations, linear equations.
4. **Infinite Series:** Sequences, series, tests for convergence, power series, Taylor polynomials
5. **Polar and Parametric Coordinates:** Curves and calculus for parametric and polar equations. Conic sections in polar coordinates.

Student Learning Outcomes: Calculus provides the mathematical basis for many courses in sciences and engineering. Understanding of integration is critical for learning how to solve mathematical differential equations that arise in climate models, seismology, astronomy, bridge and dam construction, etc. Understanding of power series is critical for understanding the behavior of many functions. By the end of the course with the topics given above, students should be able to:

1. solve integrals analytically using a variety of techniques including integration by parts, function substitutions, partial fractions, etc.
2. calculate arc length, areas and volumes in different coordinate systems (e.g., Cartesian and/or Polar coordinate systems) using the integration methods;
3. solve simple differential equations using integration methods and understand the characteristics of the solutions (e.g., exponential growth or decay; linear and nonlinear responses);
4. understand the definition of Taylor and Maclaurin power series and their convergence and divergence; perform different tests (e.g., the Integral Test, the Limit Comparison Test, the Ratio Test) to examine the absolute or conditional convergence (or divergence) of the power series; and represent functions using Taylor and Maclaurin power series.

Personal Conflicts: No special arrangements will be made for personal conflicts such as: (a) Family related issues (weddings, visiting relatives, etc.), (b) Work conflicts: schedule, traveling, traffic, etc., (c) Vacations planned during regular class meetings, etc... Special arrangements can be made, however, only in the most compelling and verifiable circumstances such as disabilities/illness. Midterm and final dates and times are posted from the beginning of the semester so please plan accordingly.

Students with Disabilities: If you are a student with a disability and believe you will need accommodations for this class it is your responsibility to contact in a timely manner the **Student Disability Services** [(619) 594-6473] and notify your instructor with, at least, **one week in advance** of any test. Please note that accommodations are **not** retroactive and cannot be provided until you have presented your instructor with an accommodation letter from Student Disability Services.

Extra Credit and final grades: Do not ask for extra credit work. Study diligently **throughout** the semester so that you will get a good grade in the course. Study diligently and do not “cram” for tests. Do not contact instructor/coordinator to negotiate a grade change. **Grades are not negotiable** under any circumstances.

Curving: There is NO curving of grades. Students need to know a minimum of material to pass a fundamental course that is the building block of many other courses. Thus, passing or not depends on intrinsic merits/knowledge and not on relative comparison to other students.

Cheating, Academic Integrity/honesty: There will be **absolute zero tolerance** towards cheating. All test work that you complete in this class **should be your own and only your own** (See below about working in groups.) Any (yes any) form of cheating will automatically result in an “F” for the **whole** course and direct disciplinary action with the Center for Students Rights and Responsibilities (which may include punitive sanctions such as probation, suspension, or even, expulsion). Note that helping a fellow student during a test is cheating (both students involved will get an “F”). Using ANY electronic device/software/website/etc during test is cheating. For instance, we are partnering with Chegg in tracking all students that use Chegg during tests. Namely, any student using Chegg during test will be reported to us and severe punitive action (see above) will be taken.

Working in groups: You are allowed (and encouraged) to work in groups on the homework, worksheets, and labs, however your answers have to be developed by **YOU** and **NOT** copied from anyone else. If you work on an assignment with a partner make sure that you write your OWN independent solutions. Working with others means working on **understanding** how to solve a problem and not giving the solutions to another person! If we see any form of copying it will be treated as **cheating (see previous point)**.

Posting course materials: Do **NOT** send or post online any course material (homeworks, quizzes, worksheets, tests, etc). Doing so will be treated as cheating and strict disciplinary action will be taken. This applies to uploading questions into Chegg (see point above about cheating and our partnership with Chegg).

Material included on tests: Tests will include applications and extensions of material covered in class (lectures/homeworks/labs/worksheets) and most often will include problems that are the same nor very similar to the ones covered in class. It is important that you understand that we strive to forge young independent and creative minds that will be able to eventually tackle and spearhead state-of-the-art problems that push the envelope of knowledge. It would be impossible for scientists/engineers to continue developing scientific/technological advancements if they were only repeating the same steps (or doing "just" similar problems that the ones given in the course/textbook). Furthermore, with the current developments of AI technologies, computer programs are now able to solve some (not-so-simple) math problems (see for instance WolframAlpha, etc...). Therefore, we must require students to do "outside-of-the-box" problems. Think about this: why will a tech company hire a recent graduate if he/she is mainly trained to do similar problems that everybody knows how to solve and when a computer can solve them (much faster, more efficiently, much cheaply, without errors)? Thus, you might want to not only think about the stagnation of technological advance in general, but at a personal level, you need to think about a "survival" mechanism: students that learn how to tackle outside-of-the-box problems will be the ones that will thrive and flourish. We need YOU to spearhead the future frontiers of knowledge...

Addenda: The instructor reserves the right to make modifications to the syllabus. Any addendum will be announced in class (you are responsible for attending class during such announcements).

Final Notes/Recommendations:

Student effort. Research has shown that studying 2-3 hrs per week per unit (ie 8-12 hrs per week for this course) is key for success. Just doing homework does not mean you are "done".

Rapid Pace Note: This is a very fast paced course. Do not get behind! Learn the ideas presented in class before the next lecture where you will surely deal with even more ideas! This course will likely run much more rapidly than your High School Calculus Course !!!

Participation: Participation in class is encouraged. If you have a question, ask it! If you do not understand something, say so! Any question that will help you to better understand the material is welcome! Because of this, I expect you to be patient and respectful of others who ask questions in an effort to do well.

Strive to understand ideas and concepts, and not just memorize formulas. Ideas and concepts are definitions, strategies in solving problems, strategies in proving theorems, etc. For example, memorizing a formula and using it correctly in problems does not mean you understand where the formula comes from.

How do you know you understand? Ask yourself questions! Can you write down a definition and explain it to a friend? Can you explain to a friend the ideas behind a result without just memorizing its individual steps? Can you apply algebra and trig tricks in simplifying expressions without having to continually look up sample problems and copy ideas? You will understand the solution to a problem when you get the feeling that all the "steps" are integrated in your mind into the "whole picture." If you feel flustered with several "steps" in the solution of a problem, then it will be difficult to solve a similar problem on an exam. You should not feel like you are memorizing steps or going through isolated steps when you understand a problem!

Final words: It is YOUR RESPONSIBILITY to get the grade you desire. There is no point in sending emails at the end of the semester pleading your case or asking what you can do to raise your grade. In your college career, you will have some bad instructors, some bad textbooks, some policies you don't agree with, some exam questions you don't like, etc. Do not use these obstacles as a crutch or an excuse to be a victim. Your future is in YOUR hands. You belong here, we want you here, and we want you to succeed! We'll meet you where you are, but from there, it's up to BOTH of us to get you where you need to be.