CALCULUS I [MATH 150]

SPRING 2022

Course website: https://nvaidya.sdsu.edu/Math150.html

FACULTY/INSTRUCTOR INFORMATION

Instructors (Lecture):

- Sikder, Shahir (Email: ssikder@sdsu.edu)
  Classes: 1 (Sections: 1-4, MW 1530-1645)
  Office Hours: 11:00-11:40 TTH via zoom: https://SDSU.zoom.us/j/4407748292
- Vaidya, Naveen (Email: nvaidya@sdsu.edu)
  Classes: 2 (Sections: 5,7,8, MW 1530-1645)
  Office Hours: 14:00-15:00 MW via zoom: https://SDSU.zoom.us/j/84539644793
- Scott, Robert (Email: roscott@sdsu.edu)
  Classes: 3 (Sections: 9-12, MWF 1000-1050)
  Office Hours: TTH 09:30-10:30 via zoom: https://cccconfer.zoom.us/j/5813114178

Instructors (Activity) / TAs:

- Decena, Almira (Section: 10), Email: adecena@sdsu.edu
- Gao, Ling (Section: 2,4), Email: lgao8712@sdsu.edu
- Rodriguez, Thomas (Sections: 7,8), Email: trodriguez3405@sdsu.edu
- Reynolds, Nate (Sections: 1,12), Email: nreynolds4733@sdsu.edu
- Park, Anthony (Sections: 9,11), Email: apark8742@sdsu.edu
- Nguyen, Anh (Sections: 3,5), Email: anguyen23@sdsu.edu

TAs' Office Hours: TA's office hours are through MSLC (https://mlc.sdsu.edu). Here is this schedule: https://nvaidya.sdsu.edu/OH%20Matrix-Sp22.pdf

COURSE FORMAT AND SCHEDULE

- The course materials will be delivered via lectures and activity sessions (labs).
  For the first two weeks (Jan 19 – Feb 04), the lectures and activities will be conducted remotely via zoom. Zoom lectures might be recorded; if so you will be informed and you should contact your instructor to make provisions in case you do not want to be recorded.
- See SDSU Class Schedule page for lecture and activity times.

COURSE OVERVIEW

- Course Description: (From the Official Course Catalog) Algebraic and transcendental functions. Continuity and limits. The derivative and its applications. The integral and the fundamental theorem of calculus.
- Student Learning Outcomes:
  - Students will be able to identify different types of functions by their graphical and algebraic representations, and make inferences about properties such as limits at infinity, asymptotes, discontinuities, and inverses.

- Students will develop conceptual understanding and procedural proficiency regarding the introductory ideas of measuring rates of change, computing derivatives, and computing integrals.
- Students will develop the ability to describe their thinking using appropriate and precise mathematical language.
- Students will be able to use the ideas, concepts, formulas, and techniques learned in this course to skillfully solve a large variety of problems. Some of these will be position-velocity-acceleration problems, related rates problems, optimization problems, integration problems, and graphing problems which make use of the first and second derivatives.
- Students will by the end of the course be able to explain geometric, algebraic, graphical, and real-life interpretations of the derivative and integral.
- Students will develop knowledge on how mathematical functions and their analysis using Calculus I techniques can be used to study diversity, equity, and inclusions in various real-life situations.

- Real Life Relevance: *Mathematical techniques learnt in this class have applications to many real-life problems in the social and natural sciences.*

ENROLLMENT INFORMATION

- Prerequisites: *Knowledge of algebra, geometry, and trigonometry as demonstrated by either (1) satisfactory completion of Mathematics 141 with a grade of C (2.0) or better; or (2) qualification on the Mathematics Placement Assessment. Proof of completion of prerequisites required.*

COURSE MATERIALS

- **Textbook**: Single Variable Calculus Early Transcendentals, 9th Edition**,** by James Stewart You may take advantage of the "**Immediate Access Course**" deal (see below) that the Bookstore has.
- **Immediate Access Course**: 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 **February 01, 2022**. Your SDSU student account will then be charged a special reduced price of **$48.00** 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 01, 2022**). 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. See the **Cengage Unlimited Note**. Cengage is an educational content, technology, and services company and is the parent company of WebAssign. WebAssign is the online homework company associated with James Stewart's calculus text.
- **Required:** WebAssign with the online text and homework.
  It's $48.00 for the electronic text with WebAssign for the semester. For an additional $48.00, you can buy a printed version of the text which covers the entire calculus sequence Math 150, 151, and 252.
- **WebAssign Course Registration:** WebAssign will be integrated with Canvas. This means that if the text comes with a WebAssign **access code**, you will **Not** need to use the **access code.** All you need to do is login to Canvas and click once on the link WebAssign.
- **Resources:**
  - https://sdsu.instructure.com (Handouts, Announcements, HomeWorks, Practice Exams, updated syllabi, etc., can be found here.)

- WebAssign on Canvas – Student Quick Start Guide https://embed.widencdn.net/pdf/plus/cengage/cewmhsuijk/gui_webassign-bb-stu-quick-guide_coursefee.pdf?u=c8lcjz
- Student Support – http://www.webassign.net Click on "Students" then click "Getting Started."

AVAILABLE SUPPORT FOR SUCCESS

- **Math Learning Center (MLC):** Students are encouraged to make use of The Mathematics and Statistics Learning Center (MSLC) for free STEM tutoring, located in the Love Library, Room 328. For a full list of courses tutored, please visit the MSLC website: https://mlc.sdsu.edu/.

  The MSLC is supported by your student success fee. We strongly encourage you to use this wonderful, free resource. Some students believe that they shouldn't need to ask for help, but research has shown that **the average grade for students who attend the MLC is almost one full grade higher** than those who don't seek such support.

  TA Office Hours for select courses will also be held in the MSLC. Please check https://mlc.sdsu.edu/ta-office-hours/ for details.

  The Math & Stats Learning Center (MSLC) offers drop-in tutoring services at the following times:

  January 19th - February 6th Virtual Hours
  Go to https://mlc.sdsu.edu/ → Click on "Enter Virtual MSLC here!" → Fill out and submit the form. You will then be automatically entered into the MSLC zoom room.
  M-W 9:30am - 9pm
  Th 10am - 9pm
  Fri 10am - 2pm
  Sun 1pm - 8pm

  Normal Hybrid Schedule (starting Monday, February 7th):
  On Campus in Love Library 328: M-W 9:30am - 6pm, Th 10am - 5pm, F 10am - 2pm, Sun 1pm - 5pm
  Virtual hours (through https://mlc.sdsu.edu/): M-Th 5pm - 9pm, Sun 5 - 8pm

- **Supplemental Instruction (SI):** Supplemental Instruction (SI) sessions are offered for this course and are offered throughout the semester. Sessions are led by a SI Leader who has already mastered the course material and has been trained to facilitate group sessions where students can meet to improve their understanding of course material, review and discuss important concepts, develop study strategies and prepare for exams. SI is for everyone, and open to all students enrolled in this class; not just those students who are struggling. Attendance is not reported to your faculty member, and only tracked to measure how the program impacts student performance in the class. Attendance at SI Sessions is free and voluntary. Students who attend SI Sessions weekly typically earn higher final course and exam grades than students who do not participate in SI. Check out the SI button on Blackboard for dates/times SI sessions.

COURSE ASSESSMENT AND GRADING

WebAssign Homework –	15%
Quizzes –	10%
Written HW –	12%
Activity Report –	10%
3 Mid-term Exams –	33%
Final Exam –	20%
Total:	**100%**

The grading scale will be **no worse** than: A:90-100; A-: 88-90; B+: 86-88; B:80-86; B-: 78-80; C+: 76-78; C:70-76; C-: 68-70; D+:66-68; D: 60-66; D-: 58-60; F<58.

Attendance: Students are expected to attend class regularly. The attendance will be recorded randomly. There may be penalty of missing classes/activities.

WebAssign Homework: These HomeWorks are submitted in the WebAssign page and are instantly graded by WebAssign. You will often have 2 or 3 attempts to submit an answer. WebAssign will give hints and provide solutions after the due date. The WebAssign problems correspond to problems in the textbook but the "numbers" may be changed.

Written Homework: There will be written HomeWorks that students need to submit in physical paper. In written homework, the solutions should be presented thoroughly with clear steps.

Quizzes: Students will take weekly quizzes (except some weeks) during Activity class. Quizzes are submitted via GradeScope.

Midterms: There will be three midterms on the following WEDNESDAYS from 7:00-9:00pm: Feb 16th, Mar 16th, Apr 20th.

Activity Report: You will work on the activity-worksheets during weekly Activity Sessions on Tuesdays (except some weeks). You will submit the completed worksheet.

Missed Mini-Exams: No make-up Mini-Exams will be given. It is your responsibility to be present during Mini-Exams, so please do not make any doctor's appointments, travel plans, etc., on these dates (Feb 16th, Mar 16th, Apr 20th, 7:00-9:00pm). You will only be able to make-up if you miss an exam due to SDSU schedule conflict or 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).

Important Dates:

- Midterms: Feb 16th, Mar 16th, Apr 20th **(7:00pm - 9:00pm)**
- Final exam: **Sunday, May 08, 12:00pm - 2:00pm**

TECHNICAL SUPPORT FOR CANVAS

Student support for Canvas is provided by the Library Computing Hub, located on the 2nd floor of Love Library. They can be reached at 619-594-3189 or hub@sdsu.edu or via online chat at https://library.sdsu.edu/computers-technology#libchat_hub

We will use the Canvas Inbox and Announcements throughout the semester. Please be sure to check these at least a few times per week and consider leaving Canvas email notifications "on" for these tools.

COURSE SCHEDULE

TABLE 1 – TENTATIVE COURSE SCHEDULE

Chapter	Potential Topics	Discussion Week
Appendix (REVIEW)	A. Numbers, Inequalities and Absolute Values, Coordinate Geometry and Lines, Trigonometry	Week 1
CHAPTER 1 (FUNCTIONS AND MODELS)	Four Ways to Represent a Function, Mathematical models: A Catalog of Essential Functions, New Functions from Old Functions, Exponential Functions, Inverse Functions and Logarithms	Week 1-2
CHAPTER 2 (LIMITS AND DERIVATIVES)	The Tangent and Velocity Problems, The Limit of a Function, Calculating Limits Using the Limit Laws, Continuity, Limits at Infinity: Horizontal Asymptotes [No precise definitions], Derivatives and Rates of Changes, The Derivative as a Function	Week 3-5
CHAPTER 3 (DIFFERENTIATION RULES)	Derivatives of Polynomials and Exponential Functions, The product and Quotient Rules, Derivatives of Trigonometric Functions, The Chain Rule, Implicit Differentiation, Derivatives of Logarithmic Functions, Rates of Change of the Natural and Social Sciences, Exponential Growth and Decay, Related Rates, Linear Approximations and Differentials	Week 5-8
CHAPTER 4 (APPLICATIONS OF DIFFERENTIATION)	Maximum and Minimum Values, The Mean Value Theorem, How Derivatives Affect the Shape of a Graph, Indeterminate Forms and L'Hospital Rule, Summary of Curve Sketching, Optimization Problems, Newton's Method (optional), Antiderivatives	Week 9-12
CHAPTER 5 (INTEGRALS)	Areas and Distances, The Definite Integral, Fundamental Theorem of Calculus, Indefinite Integrals and the Net Change Theorem, The Substitution Rule	Week 13-15

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. Be patient and respectful of others who ask questions in an effort to do well.

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).

UNIVERSITY POLICIES

Accommodations: If you are a student with a disability and are in need of accommodations for this class, please contact Student Ability Success Center at (619) 594-6473 as soon as possible. Please know accommodations are not retroactive, and I cannot provide accommodations based upon disability until I have received an accommodation letter from Student Ability Success Center.

Student Privacy and Intellectual Property: The Family Educational Rights and Privacy Act (FERPA) mandates the protection of student information, including contact information, grades, and graded assignments. I will not post grades or leave graded assignments in public places. Students will be notified at the time of an assignment if copies of student work will be retained beyond the end of the semester or used as examples for future students or the wider public. Students maintain intellectual property rights to work products they create as part of this course unless they are formally notified otherwise.

Religious observances: According to the University Policy File, students should notify the instructors of affected courses of planned absences for religious observances by the end of the second week of classes.

Medical-related absences: Students are instructed to contact their professor/instructor/coach in the event they need to miss class, etc. due to an illness, injury or emergency. All decisions about the impact of an absence, as well as any arrangements for making up work, rest with the instructors. Student Health Services (SHS) does not provide medical excuses for short-term absences due to illness or injury. When a medical-related absence persists beyond five days, SHS will work with students to provide appropriate documentation. When a student is hospitalized or has a serious, ongoing illness or injury, SHS will, at the student's request and with the student's consent, communicate with the student's instructors via the Vice President for Student Affairs and may communicate with the student's Assistant Dean and/or the Student Ability Success Center.

SDSU Economic Crisis Response Team: If you or a friend are experiencing food or housing insecurity, or any unforeseen financial crisis, visit sdsu.edu/ecrt, email ecrt@sdsu.edu, or walk-in to Well-being & Health Promotion on the 3rd floor of Calpulli Center.

Resources for students: A complete list of all academic support services--including the Writing Center and Math Learning Center--is available on the Student Affairs' Academic Success website. Counseling and Psychological Services (619-594-5220) offers confidential counseling services by licensed therapists; you can Live Chat with a counselor at http://go.sdsu.edu/student_affairs/cps/therapist-consultation.aspx between 4:00pm and 10:00pm, or call San Diego Access and Crisis 24-hour Hotline at (888) 724-7240.

Academic Honesty: The University adheres to a strict policy prohibiting cheating and plagiarism. Examples of academic dishonesty include but are not limited to:

- copying, in part or in whole, from another's test or other examination;

- obtaining copies of a test, an examination, or other course material without the permission of the instructor;
- collaborating with another or others in work to be presented without the permission of the instructor;
- falsifying records, laboratory work, or other course data;
- submitting work previously presented in another course, if contrary to the rules of the course;
- altering or interfering with grading procedures;
- assisting another student in any of the above;
- using sources verbatim or paraphrasing without giving proper attribution (this can include phrases, sentences, paragraphs and/or pages of work);
- copying and pasting work from an online or offline source directly and calling it your own;
- using information you find from an online or offline source without giving the author credit;
- replacing words or phrases from another source and inserting your own words or phrases.

The California State University system requires instructors to report all instances of academic misconduct to the Center for Student Rights and Responsibilities. Academic dishonesty will result in disciplinary review by the University and may lead to probation, suspension, or expulsion. Instructors may also, at their discretion, penalize student grades on any assignment or assessment discovered to have been produced in an academically dishonest manner.

Further on Cheating: There will be **absolute zero tolerance** towards cheating. All work that you complete in this class **should be your own and only your own**. This applies to ALL assignment types: homeworks, quizzes, lab reports, Mini-Exams, Final, etc. 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 be given an "F"). Using any electronic device/software/website/etc during tests/exams is cheating. For instance, we are partnering with Chegg in tracking all students that use Chegg during tests. Namely, any student using Chegg during a test will be reported to us and severe punitive action (see above) will be taken. This statement is a reminder to uphold your obligation as a student at SDSU and to be honest in all work submitted for all your courses.

Posting course materials: Do **NOT** send or post online any course material (homeworks, quizzes, worksheets, tests, etc) without the prior consent of the instructor. 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).

Classroom Conduct Standards: SDSU students are expected to abide by the terms of the Student Conduct Code in classrooms and other instructional settings. Prohibited conduct includes:

- Willful, material and substantial disruption or obstruction of a University-related activity, or any on-campus activity.
- Participating in an activity that substantially and materially disrupts the normal operations of the University, or infringes on the rights of members of the University community.
- Unauthorized recording, dissemination, or publication (including on websites or social media) of lectures or other course materials.
- Conduct that threatens or endangers the health or safety of any person within or related to the University community, including
    1. physical abuse, threats, intimidation, or harassment.

2. sexual misconduct.

Violation of these standards will result in referral to appropriate campus authorities.