

MAT 191 Calculus I, Section 03, CN 23317 Spring 2024

Class meets MWF 8:30 AM - 9:55 AM in SBS B203.

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Course Description: MAT 191, Calculus I, covers from the textbooks: differential and integral calculus of one variable: limits, continuity, derivatives and application of derivatives, integrals, Fundamental Theorem of Calculus, inverse functions.

Text: **CLP-1 Differential Calculus and CLP-2 Integral Calculus**, by Joel Feldman, Andrew Rechnitzer, Elyse Yeager, available online at <http://www.math.ubc.ca/~CLP/>

Objectives: After completing MAT 191 the student should be able to:

- Understand the four basic concepts of one-variable calculus; the limit, the concept of continuity, the derivative and the integral of a function of one variable
- Use the rules of differentiation to compute derivatives of algebraic and trigonometric functions
- Use derivatives to solve problems involving rates of change, tangent lines, velocity (speed), acceleration, optimization, and related rates.
- Investigate the graph of a function with the aid of its first and second derivatives: asymptotes, continuity, tangency, monotonicity, concavity, extrema, inflection points, etc.
- Understand the meanings of indefinite integral and the definite integral of a function of one variable, and their relationship to the derivative of a function via the Fundamental Theorem of Calculus
- Use rules of integration including the Substitution Rule to evaluate indefinite and definite integrals
- Differentiate Exponential, Logarithmic, and Inverse Trigonometric Functions

Prerequisites: MAT 151 or MAT 153 or equivalent with a grade of C or better.

Grades: Grades will be based on **three full period written examinations** (60% total), a comprehensive **final examination** (25%), and **quizzes, homework** and (possibly) other assignments (15%) for the remainder. The exact grading system for your section is the following:

No makeup examinations will be given. The exams are taken in class and graded on Gradescope. If you must miss an examination for a legitimate reason, discuss this, in advance, with me, and I may then substitute the relevant score from your final examination for the missing grade. Each of the **three exams** will be graded on a 0-20 scale, then the sum of the scores is denoted by E.

Homework will be due in principle every week, the day before quiz days, and each homework is worth 10 points. Each week one of the problems from the homework due for that week will be selected and graded on a scale from 0 to 4. The remaining 6 points will be awarded for completeness of the homework assignment. Submitting solutions copied from the back of the book will bring little or no credit, since copying solutions will not prepare you for answering questions on exams. The average of all homework scores is denoted by H. Homework will be submitted as a pdf on Gradescope. There is no need to match the pages with the problems when submitting the homework, see <https://www.youtube.com/watch?v=u-pK4Gzpld0>

Gradescope can be accessed from the link your Canvas course, and you can practice submitting your work on Gradescope using the assignment called Submission practice, which will remain open throughout the semester. No late homework will be accepted.

15 minutes quizzes will be given in principle every week, and will be graded on a scale from 1 to 5. The average of the quizzes scores is denoted by Q. Each quiz will consist of one problem, similar but not necessarily identical to one of the homework problems assigned for that week. The quiz will be taken in class and graded in class and on Gradescope. No makeup quizzes will be offered.

The problems on the final exam will be similar to problems assigned as homework throughout the semester, the exam will be graded out of a maximum possible 25 points; the score is denoted by F. The final exam will be taken in class and graded on Gradescope.

Extra credit opportunities will be announced in class.

To determine your **final grade**, compute $E+H+Q+F$. The maximum is 100, and the grade will be given by the rule:

A: 93-100; A-: 90-92; B+: 87-89; B: 83-86; B-: 80-82
C+: 77-79; C: 73-76; C-: 70-72; D+: 67-69; D: 60-66; F: Less than 60.

You will be able to follow your progress in the class in Canvas under Grades throughout the semester.

Accommodations for Students with Disabilities: California State University, Dominguez Hills adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with temporary and permanent disabilities. If you have a disability that may adversely affect your work in this class, I encourage you to register with Student disAbility Resource Center (SdRC) and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. Please note: no accommodation may be made until you register with the SdRC in WH D-180. For information call (310) 243-3660 or to use telecommunications Device for the Deaf, call (310) 243-2028.

Academic Integrity: The mathematics department does not tolerate cheating. Students who have questions or concerns about academic integrity should ask their professors or the counselors in the Student Development Office, or refer to the University Catalog for more information. (Look in the index under "academic integrity".)

Tentative schedule and homework assignments

M 1/22:	Precalculus review
W 1/24:	From CLP-1: 1.1 Drawing Tangents and a First Limit: 1-3; 1.2 Another Limit and Computing Velocity: 3-7; 1.3 The Limit of a Function: (odd) 1-17
F 1/26:	1.4 Calculating Limits with Limit Laws: (odd) 1-23
M 1/29:	1.4 Calculating Limits with Limit Laws: (even) 2-24
W 1/31:	1.5 Limits at Infinity: (odd) 1-25
F 2/2:	1.6 Continuity: (odd) 1-19
M 2/5:	2.1 Revisiting tangent lines: 1-3; 2.2 Definition of the derivative: (odd) 1-17
W 2/7:	2.3 Interpretations of the derivative: 1-7; 2.4 Arithmetic of derivatives: 1-12
F 2/9:	2.6 Using the arithmetic of derivatives: 1-15
M 2/12:	2.7 Derivatives of exponential functions: 1-11
W 2/14:	2.8 Derivatives of trigonometric functions: 1-15
F 2/16:	2.8 Derivatives of trigonometric functions: 16-25
M 2/19:	Presidents Day Holiday
W 2/21:	Review
F 2/23:	Exam I
M 2/26:	2.9 One more tool - the chain rule: (even) 2-26
W 2/28:	2.9 One more tool - the chain rule: (odd) 3-25
F 3/1:	2.10 The natural logarithm: (odd) 1-29
M 3/4:	2.10 The natural logarithm: (even) 2-28
W 3/6:	2.11 Implicit differentiation: 1-13
F 3/8:	2.12 Inverse trigonometric functions: (odd) 1-19
M 3/11:	2.13 The Mean Value Theorem: 7-11,16,18,22
W 3/13:	2.14 Higher order derivatives: 5-13
F 3/15:	3.2 Related rates: 1-9
M 3/18:	3.3 Exponential growth and decay: 3.3.1: 6,8,10; 3.3.2: 2,4,6; 3.3.3: 2-5
W 3/20:	Review
F 3/22:	Exam II
M 3/25:	3.5.1 Local and global maxima and minima: 1-7; 3.5.2: 1-5; 3.5.3: 1-5
W 3/27:	3.6 Sketching graphs; 3.6.1: 4,5; 3.6.2: 2-4; 3.6.3: 4; 3.6.4: 1,2,5,7,8
F 3/29:	3.6.6 Sketching examples: 1-5
M 4/1:	Spring Recess
W 4/3:	Spring Recess
F 4/5:	Spring Recess
M 4/8:	3.6.6 Sketching examples: 6-10
W 4/10:	4.1 Introduction to antiderivatives: (odd) 1-15
F 4/12:	From CLP-2: 1.1 Definition of the integral: (odd) 1-15
M 4/15:	1.1 Definition of the integral: (even) 2-14
W 4/17:	1.2 Basic properties of integrals: (odd) 1-19
F 4/19:	1.2 Basic properties of integrals: (even) 2-20
M 4/22:	1.3 The Fundamental Theorem of Calculus: 1-13
W 4/24:	1.3 The Fundamental Theorem of Calculus: 14-27
F 4/26:	1.3 The Fundamental Theorem of Calculus: 28-40
M 4/29:	1.4 Substitution: 1-8
W 5/1:	1.4 Substitution: 9-17
F 5/3:	1.4 Substitution: 18-25
M 5/6:	Review
W 5/8:	Exam III
F 5/10:	Final review

Final examination: Wednesday, May 15, 8:30 AM – 10:30 AM.

Important Dates:

January 17 Wednesday Spring Semester Begins

January 19 Friday Instructional Preparation Day

January 21 Sunday Last day for students on Waitlist to be added to classes; all waitlists will be cancelled at midnight.

January 22-February 9 Monday-Friday Late Registration and Add/Drop via MyCSUDH – fees due 48 hours after registration

January 22 Monday Classes Begin

February 1 Thursday Summer 2024 Graduation Application Deadline – without late fee

February 8 Thursday Instructor Drop Deadline

February 8 Thursday Credit/No Credit and Audit Grading Deadline

February 10-15 Saturday-Thursday Late Registration and Add/Drop via MyCSUDH – fees due at time of registration

February 16 Friday Last Day to Drop from FT to PT Status with Refund

February 16 Friday Drop without Record of Enrollment Deadline via Change of Program Form

February 16 Friday Student Census

February 19 Monday President's Day Holiday – NO CLASSES, CAMPUS OPEN

February 19-April 19 Monday-Friday Serious and Compelling Reason Required to Withdraw

February 20-May 16 Tuesday-Thursday May Intersession Registration – fees due at time of registration

March 18-July 5 Monday-Friday Summer 2024 Registration – fees due at time of registration

March 23 Saturday Last Day for Pro-rata Refund of Non-Resident Tuition and Tuition Fees

March 31-April 6 Sunday-Saturday Spring Recess

March 31 Sunday Cesar Chavez Day Holiday – NO CLASSES, CAMPUS CLOSED

April 1 Monday Cesar Chavez Day – Observed – NO CLASSES, CAMPUS CLOSED

April 15 Monday First Day to file for Spring 2025 Graduation

April 15 Monday Summer 2024 Graduation Application – Late Deadline – with late fee

April 15-August 18 Monday-Sunday Fall 2024 Registration begins via MyCSUDH

April 22-May 10 Monday-Friday Serious Accident/Illness Required to Withdraw

May 10 Friday Last Day of Scheduled Classes

May 11-17 Saturday-Friday Final Examinations

May 11 Saturday Grade Submission Begins

May 17-18 Friday-Saturday Commencement (for more information see ceremony schedule)

May 20 Monday Evaluation Day

May 21, 3 p.m. Tuesday Final Grades Due – College of Continuing and Professional Education grades always due 72 hours after course end date