

MATH 1A

FUNDAMENTALS OF DIFFERENTIAL CALCULUS

WINTER 2023

CRN: 34996

Instructor: Nadia Bensidi

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Office Hours : Wednesdays, Thursdays 9:30-10:20AM

Office: E37

Class hours: Monday, Tuesday, Wednesday, Thursday 10:30-11:20am, Room: S42

READ THROUGH THIS ENTIRE SYLLABUS SO THAT YOU ARE FAMILIAR WITH THE CLASS AND ITS MANY DETAILS.

This is a demanding, but rewarding class. If you cannot commit to a minimum of 15 hours per week of study and group work, then you should take this class in a quarter when you have more time to learn. This is also a collaborative class. You will be expected to work with your classmates both inside and outside of class.

Textbook: *James Stewart, Calculus Early Transcendentals, 9th edition* with Webassign access code. You will get access to the e-book through webassign (cengage.com). This book is used in the sequence of Calculus 1A,1B,1C,1D

Prerequisite: MATH 43 or MATH 43H (with a grade of C or better), or appropriate score on Calculus Placement Test within the past calendar year.

Advisory EWRT 211 and READ 211 (or LART 211), or ESL 272 and 273.

Course Objectives

- A. Analyze and explore aspects of the differential calculus.
- B. Compute and interpret limits of functions using analytic and other methods, including L'Hospital's Rule.
- C. Apply the definition of continuity using limits to analyze the behavior of functions.
- D. Find the derivative of a function as a limit.
- E. Derive and use the power, quotient, product, and chain rules to differentiate functions, including implicit and parametric functions, and find the equation of a tangent line to a function.
- F. Use first and second derivatives to characterize the direction and concavity of graphs of functions.
- G. Apply the derivative to situations involving rates of change.
- H. Solve problems about related rates by applying appropriate differentiation techniques.
- I. Apply the Intermediate Value Theorem when locating roots of functions.
- J. Interpret and apply the Mean Value Theorem for derivatives in relation to average and instantaneous rate of change.
- K. Formulate equations to model minimum/maximum problems and use derivatives to arrive at plausible solutions.
- L. Apply Newton's Method to find values of functions.
- M. Define the antiderivative and determine antiderivatives of simple functions.

Materials: Graphing calculator recommended: TI84+, TI89 or TI92. Other calculator that do algebraic manipulation **are NOT allowed.**

Homework: The Homework is mandatory. The Homework will be available and graded online on Webassign(cengage.com). You will need to purchase a code to access the Webassign homework. The lowest score will be dropped.

Quizzes: Many quizzes will be given through the quarter. The lowest quiz grade will be dropped. No make-ups are given. Some quizzes will be on Webassign and some will be in class.

Exams: There are three exams each worth 50 points, and a FINAL exam worth 100 points. The final exam counts as 2 exams and the lowest score will be dropped.

Labs: Labs are in-class activities. Some of them will be collected and graded and worth each 10 points. You may need to finish the activity outside the class. No late paper will be accepted.

Attendance: You are expected to attend all classes (Please email me if you are going to be absent. If you accumulate five absences you will be dropped from the class. Please inform me by email if you are going to be absent and the reason for it. **YOU MUST BE IN CLASS EVERY DAY FOR THE FIRST TWO WEEKS OF CLASS OR YOU MAY BE DROPPED. ANYONE WHO DOES NOT COMPLETE THE FIRST ASSIGNMENTS WILL BE DROPPED**

Grade:	Homework	50pts		
	Quizzes	60 pts.	A+: 96% or above	A: 89-95%
	Labs	20pts.	B+: 86-88%	B: 79-85%
	Exams (3@ 50)	100 pts	C+: 74-78%	C: 68-73%
	Final Exam	100 pts.	D : 60-67%	
	TOTAL	330pts.	F: below 60%	

Lowest exam score or half the final will be dropped.

Free Tutoring:

I strongly encourage you to utilize this resource. More information can be found here:

<http://www.deanza.edu/studentsuccess/mstrc/>

Student Services:

De Anza College has many support services to help you succeed in college. This web site leads you to information about financial aid, child care, counseling, academic support, disability support, student activities, and other services found here

<http://www.deanza.edu/student-services/>

Disability Support Services:

If you need to contact the Disability Support Services, then please contact them as soon as possible. More information can be found here:

<https://www.deanza.edu/dsps/>

Supplemental Resources:

I encourage you to poke around the library and web to see what other supplemental resources exist. One great resource is the following link

<https://tutorial.math.lamar.edu/Classes/Calcl/Calcl.aspx>

Academic Integrity:

This is pretty straightforward: Do not cheat on quizzes, exams, or directly copy other student's work. It is not worth getting caught and suffering the consequences. For more information about De Anza College's policy on academic integrity:

https://www.deanza.edu/policies/academic_integrity.html

Your grade is based on points and not a "curve."

The last day to add is **January 21st 2023**

The last day to drop with no record is **January 22nd 2023**

The last day to drop with a W is **March 3rd 2023**

Below is a tentative schedule for the course. I may need to make some changes if needed by removing assignments or adding assignments depending on the progress we will make through the quarter.

	Monday	Tuesday	Wednesday	Thursday	Friday
JAN	9 2.1	10 2.1	11 2.2	12 2.2	13 Quiz 2.1/2.2
JAN	16 MLK NO Class	17 2.3	18 2.4	19 2.4	20 Quiz 2.3/2.4
JAN	23 2.5	24 2.5	25 2.6	26 2.6/2.7	27 Quiz 2.5/2.6
JAN / FEB	30 2.7	31 Lab1	1 2.8	2 2.8	3 Lab1 continued
FEB	6 Exam1	7 3.1	8 3.2	9 3.3	10 Quiz 3.1/3.2
FEB	13 3.4	14 3.4/3.5	15 3.5	16 3.6 Quiz3.3-3.6	17 President Day No Class
FEB	20 President Day No Class	21 3.7	22 3.8	23 Lab2	24 Lab2 continued
FEB / MAR	27 3.9	28 3.10	1 3.10	2 Exam2	3
MAR	6 4.1	7 4.2	8 4.3	9 4.3	10 Quiz4.1,4.2,4.3
MAR	13 4.4	14 4.4	15 4.5	16 4.7	17 Quiz4.4/4.5
MAR	20 4.8	21 Exam3	22 4.9	23 4.9	24 Quiz4.9
MAR	27	28 Final Exam 9:15-11:15am	29	30	31

Student Learning Outcome(s):

*Analyze and synthesize the concepts of limits, continuity, and differentiation from a graphical, numerical, analytical and verbal approach, using correct notation and mathematical precision.

*Evaluate the behavior of graphs in the context of limits, continuity and differentiability.

*Recognize, diagnose, and decide on the appropriate method for solving applied real world problems in optimization, related rates and numerical approximation.

Office Hours:

W,TH 09:30 AM 10:20 AM In-Person E37