MATH 1A CRN 48700 SECTION 01

This course covers the fundamentals of differential calculus.

Instructor: **Dr Zack Judson**

Time: TTh 8:30-10:45 Room: G-7

Drop In Hours: MW 7:30-8:20 Room: G-7

TTh 10:30-11:20 Room: G-1

Email: judsonzack@fhda.edu

(Note: I will not answer Math questions over email)

Prerequisite: Precalculus or an equivalent course or placement

Text: "Calculus I: Differential Calculus," Libre Text, De Anza

Student Learning Outcomes

1. Analyze and synthesize the concepts of limits, continuity, and differentiation from a graphical, numerical, analytical and verbal approach, using correct notation and mathematical precision.
2. Evaluate the behavior of graphs in the context of limits, continuity and differentiability.
3. Recognize, diagnose, and decide on the appropriate method for solving applied real world problems in optimization, related rates and numerical approximation.

Grading Scale

Due to the complexity of the material the grading scale we will use is as follows:

A :90−100 B+: 80−84 C+: 67−69 D : 50−59 F : 0−49
A−: 85−89 B : 75−79 C : 60−66
B−: 70−74

Grades will be computed using multiple measures.

Accommodations

Those of you who need additional accommodations, due to disability, campus-related activities, or some other reason, please meet with me during the first two weeks of class to discuss your options.

Exams

Three exams will be given with no make-ups. Each exam will be worth 10% of your grade. If an exam is missed under extreme circumstances and for a very valid reason, an alternative will be found.

Final Exam

A two-hour comprehensive final exam will be given on Wednesday, June 24, from 7:00am to 9:00am. The final will represent 20% to 30% of your grade. (see quizzes below)

Quizzes

Quizzes will represent up to 10% of your grade. However, all points that are missed on quizzes will be replaced by your final. For example, if you average a 60% across all quizzes and then score a 75% on the final, you will earn back 75% of the points you had missed on quizzes so that your final quiz score will be a 90%. In this way quizzes are designed to be a place where you can make mistakes and learn from them.

Due to the fact that all missed points are covered by the final, quizzes will only be graded if they are submitted on time on the day they are taken.

In order to assess your affective learning, there will also be a weekly self-reflection. These self-reflection will be open on Wednesday through Thursday each week. This will provide you the opportunity to think about your experience with the material covered during the week. This will provide me with the ability to check and see if you have questions. For you, this means an easy 5 quiz points. For me, this means an opportunity to address any confusion you might be having.

Homework

As with all courses you are expected to put in at least 2 hours of work per unit per week outside of class. Some of this time will be spent on your labs and quizzes and preparing for exams. Other time will be spent learning and practicing the course material. The grade attached to this additional time is your homework. We will have three types of homework in this class. We will use an online platform to practice our reflex skills, those things we need at our fingertips as a sort of cover charge to work on Calculus problems; we will have the traditional problem sets, where you are practicing more complicated exercises on your own; and we will also have homework lectures where you can absorb information about Calculus at your own pace.

Problem Sets.

The only way we can learn mathematics is by practicing mathematics. Each week you will be a problem set of 5 questions, many of these questions will have multiple parts. These problem sets will represent 5% of your grade.

Reflex Skills.

One of the largest struggles new Calculus students encounter is the abundance of math (algebra, geometry, trigonometry) that interacts with the Calculus. These are often referred to as "prerequisites" but we all have holes in our memory. The exercises in these assignments will focus on these reflex skills, things we are expected to have memorized and at our fingertips, as well as new reflex skills we will introduce in this course. These assignments will represent 5% of your grade.

Homework Lectures.

In order to make room for active learning during out time together we will be borrowing elements from the flipped classroom model. Before each class session there will be a collection of lecture videos you are expected to watch. The total time for each group of videos will be about one hour. To honor the time spent watching the videos there will be a short assessment for you to take while watching the videos. Since, the purpose of these assessments is to reflect the time spent watching the lectures, **alternate correct answers will not be accepted. Only the answer reflected in the videos will be awarded credit.** These lecture check-ins will represent 10% of your grade.

Group Work

In my experience, every calculus class understands the lecture right up until the point they have to work through a problem. To help facilitate this process, we will often break into groups and work on problems and get our hands dirty. This work will take place in small groups at the whiteboards. You will be graded based on your active participation both while you are writing on the board and while others are doing the writing. Remember, if you are not writing on the board, then you are responsible for the content of the solution.

Group Work will account for 10% of your total grade.

Labs

A half dozen times throughout the quarter we will have lab assignments. The intention behind lab assignments is to encourage students to think more deeply about the material. For this reason, the labs often cover topics you haven't seen in the course. By the time each lab is assigned you will have learned all of the skills you need in order to complete the assignment.

These labs will be worked on in groups of three or four. You will need to work on them outside of class to complete them. Although every student must turn in their own lab assignment, you will be graded as a group on the assignment. No late lab assignments will be accepted. Each Lab will be graded out of 100 points.

At least 3 days prior to the lab due date, we will have a lab check-in day. A rough draft of the lab must be submitted before midnight on the evening immediately preceding the Lab Check-In by a single agreed upon member of the group. The rough draft will be worth 10 points and will be graded solely based upon attempting all parts of the exam and asking meaningful questions about those parts you do not know how to do up to that point.

In addition, each Lab will have a Lab discussion worth 10 points where you will document your interactions with your group. This discussion will be graded both for the work you share with the group and for your responses to the posts of other group members. You are more than welcome (and even encouraged) to interact with your group in other ways; however, you need to make sure to document this interaction on your discussion board. This documentation needs to show what interactions are happening in your group. Bad example: "we met in zoom today and did the lab" Good example: attach a transcript of the meeting.

Labs will represent 10% of your grade. Your lowest aggregate (sum of rough draft, discussion and final draft) lab score will be dropped.

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

Office Hours:

M,W	7:30 AM - 8:20 AM	G-7
T,TH	10:30 AM - 11:20 AM	G-1