Math 12 Introductory Calculus for Business and Social Science (5 units)

Instructor: Christopher Bradley   Email: bradleychristopher@fhda.edu

Classroom: G2   Classtimes: M-TH 12:30PM-1:20PM

Student Hours: Student Hours: Monday: 11:35AM-12:20PM (E31a) , Tuesday: 9:35AM-10:20AM (E31a),
Wed: 2pm-4pm (E31a), Thu: 11:35AM-12:20AM (E31a), and on ZOOM by appointment

Office: Room E31a

Course Format

This is a face-to-face course, with a small portion asynchronous. I will upload worksheets, videos, discussions, etc. onto canvas for you all to complete. We will meet in Room G2 at the scheduled times, Monday through Thursday. We will spend this time together to build community, to cover course content, to work on group activities, and to engage in classroom discussions.

I hope you actively participate in this course. Math education research literature shows that working together and learning from each other will help you better understand homework problems, minimize test anxiety, and strengthen your problem-solving skills.

There may be some times when you are unable to make it to the class meetings. All the class "lecture notes" will be posted to Canvas (Note: from experience, the lecture notes alone do not translate to a good grade, so it is important to be present in class!). You should make it a point to exchange contact information with a classmate, there could be information discussed in class that does not make it to the posted notes. If you find that these missed days are adding up, please talk to me so that we may assess your situation, together.

Prerequisites

Math 31, Math 31H, Math 31B, Math 41 or Math 41H

Scope and Objectives

This course covers the fundamentals of differential calculus.

- Discuss functions and use them to build mathematical models in the sciences including business and economics

- Define and discuss limits and study their properties and determine continuity/discontinuities of a function.

- Apply the definition of derivatives and use both the definition and rules of differentiations to find rates of change and equations of tangent lines.

- Apply the chain rule to differentiate composite functions, inverse functions and functions defined implicitly.

- Use Algebra and first and second derivatives to assist in sketching graphs of functions and use derivatives and graphs to analyze functions that model economic and business applications.

- Apply the first and second derivative tests to solve optimization problems including application in business and economics

- Examine integration of functions as Riemann sums of products, such as area, and use limits of Riemann sums, antiderivatives, tables, software and numerical techniques to evaluate/approximate definite integrals.

- Use integration techniques to solve application problems including first order separable differential equations.

- Apply rules of partial differentiation to find partial derivatives of multivariable functions and solve optimization problems including applications in business and economics.

- Classify improper integrals and examine their properties and use to solve applications problems

Student Learning Outcomes
- Use correct notation and mathematical precision in the evaluation and interpretation of derivatives and integrals.
- Evaluate, solve, interpret and communicate business and social science applications using appropriate differentiation and integration methodologies.

Homework Platform

MyOpenMath (required): www.myopenmath.com. MyOpenMath is the online homework/practice program that you will use to practice concepts learned in class. Make sure to register though canvas (by clicking any assignment and following the steps.), no course number is required. (Free)

Textbook

We will be using [OpenStax: Applied Calculus,](#) First Edition, by Shana Calaway, Dale Hoffman, David Lipman

Participation

This is a critical part of the course, participating in the group work, working with your peers, struggling through the material together. We will be doing activities (worksheets, think-pair-shares, etc.). Yes, you can miss some days because life happens. However, if you find that you are missing too many class meetings, please come talk to me so that we may assess your situation together. Everyone will have to present a solution to at least one problem sometime during the 12 weeks in order to get full credit for participation.

Homework

As stated above, we will be using MyOpenMath as our online homework platform. Our homework is an integral part of our class. I encourage collaboration with other classmates on the homework. Work together, but be careful, your partner won't be able to help you during the exams! There will also be written homework, which will be graded on completeness and clarity. Rather than accepting late homework, I will drop your lowest homework assignment automatically. There are roughly 5-6 short written assignments scattered throughout the 12 weeks we have together. You will have 1 late pass for each online homework assignment, the late pass will give you another 2 days to complete the assignment.

Exams

We will have 4 exams total. Three of them will occur during the 12 weeks and the last one, our final will happen on the last day of class. The final exam will be cumulative. The tentative dates for the exams will be 10/10, 10/31, 11/21, and 12/11 (Final Exam: 11:30am-1:30pm). More info on the exams will be posted in our canvas course. All 4 exams must be taken in order to pass this course. If you are unable to attend one of the midterms please make arrangements for an alternative day/time in advance.

Grading		**Important Dates**
Homework	20%	Last day to add: 10/6/24
		Last day to drop without W: 10/6/24
Participation	10%	Indigenous Peoples' Day: 10/11/24 (college closed)
		Veterans Day: 11/11 (college closed)
Quizzes	10%	Last day to Drop w/ W: 11/15/24
		Thanksgiving Holiday: 11/28-12/1 (college closed)
3 Exams	45% (15% each)	Final Exams: 10/9-10/13
		Last day of instruction: 12/13
Final Exam (12/11)	15%	

Grade Percentages

Grades in the class are as follows:

A+: 97% and above	B+: 86%-89%	C+: 76%-78%	D+: 66%-68%
A: 92%-96%	B: 82%-85%	C: 72%-75%	D: 62%-65%
A-: 89%-91%	B-: 79%-81%	C-: 69%-71%	F: Below 65%

If you are hovering around the border, getting bumped up will depend on your performance and participation (emphasis on participation) in the class.

Free Tutoring

All Math students can get tutoring at the [Math, Science & Technology Resource Center!](#) It is free, there is drop-in tutoring as well as online and workshops!

Disabilities Support Services

Students with disabilities needing reasonable accommodations are encouraged to contact DSS early in the quarter. If you think that you may have a learning disability (or physical disability), please contact DSS as soon as possible. More information is available at [Disability Support Services (deanza.edu)](#)

Classroom Conduct

You should not be listening to music during class. You should not be texting during class. Cell phones should be turned off/silent (if you need to leave your phone on for some reason, let me know). You may not use a cell phone, smart watch or other device capable of texting or connecting to the internet during an exam.

A graphing calculator is recommended for this class, and calculator usage is generally allowed on assignments, with some restrictions.

Cheating on exams is unacceptable and will result in a grade of 0 on the exam. See the [Student Code of Conduct](#) for further college policies.

 All students must comply with the college's [COVID policies and protocols.](#)

FAQ

Are we allowed to use notes during the exams? Yes, you are allowed 1 page of notes, front and back. These notes can include theorems, definitions, formulas, and steps to solve certain problems. The main goal of a cheat sheet (at least in my head) is to optimize our strategies. Get rid of what we don't need and lay out what we do need and how to use it.

Will the exams be just like the lectures and the homework? For the most part. What we learn in class will be the foundation, working through the homework problems helps us fine tune our understanding and exposes us to the ins and outs of different variations of the things we learned in class. When writing the exams, I will assume that you went through the notes, completed the assignments and prepared accordingly.

Will we have review sessions before the exams? Yes, before every exam we will have a review session where we will discuss any topic, problem, or strategy.

May I come to office hours to work on the homework? Yes, I recommend you take advantage of office hours. Not only for This class, but all of your classes!

Is coming to class mandatory? Yes, it will count towards your participation.

Student Learning Outcome(s):

• Use correct notation and mathematical precision in the evaluation and interpretation of derivatives and integrals.
• Evaluate, solve, interpret and communicate business and social science applications using appropriate differentiation and integration methodologies.

Office Hours:

M,TH	11:35 AM	12:20 PM	In-Person	E31a
W	02:00 PM	04:00 PM	In-Person	E31a
T	09:35 AM	10:20 AM	In-Person	E31a