MATH D001A 20D Calculus I Course Syllabus

Fall 2024

Class Modality:

This class meets in-person on **Tuesdays** and **Thursdays, 9:00-11:15am** in Room **L-24**.

Course Description:

This course is a part of the learning community. Pushing Past our Limits: Achieving Success Together in Calculus and Programming! This learning community consists of Math 1A and CIS 22A. This document is the syllabus for Math 1A: Calculus.

This course covers the fundamentals of differential calculus. Specifically, the course includes the basic concepts of analytic geometry, limits, derivatives, and their applications. The topics covered will include graphs and derivatives of algebraic, trigonometric, exponential, logarithmic, and hyperbolic functions. Applications, such as, motion, differentials, related rates, graphing, and optimization, will be covered. There will be a greater focus on mathematical rigor than is often present in precalculus courses, with extra emphasis on definitions, precise notation and logic.

Student Learning Outcomes:

Upon successful completion of the course, students will be able to:

- 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

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Course Content:

- Introduction to limits, definition of limits, theorems on limits, one-sided limits, computation of limits using numerical, graphical, and algebraic approaches, delta-epsilon definition of limit

- Continuity and differentiability of functions, determining if a function is continuous and differentiable at a real number
- Limits involving infinity and asymptotes
- Introduction to derivatives, and the limit definition of the derivative at a real number and as a function
- Use of differentiation theorems, derivatives of algebraic, trigonometric, inverse trigonometric, exponential, logarithmic, and hyperbolic functions, the chain rule, implicit differentiation, differentiation of inverse functions, higher order derivatives
- Use of derivatives for applications including equation of tangent lines, related rates, differentials, and Newton's Method
- Local/relative and global/absolute extrema of functions
- Rolle's theorem and the Mean Value Theorem
- The first derivative test, the second derivative test and concavity
- Graphing functions using first and second derivatives, concavity, and asymptotes
- Applications of extrema including optimization
- Indeterminate forms, and L'Hopital's Rule
- Antiderivatives

Expectations:

- **Communication**: I expect you to check your email and log into Canvas every day. I will send occasional reminders or make announcements this way, and I don't want you to miss them. Feel free to contact me via email (bambhaniadoli@fhda.edu) or via Canvas message outside of class with any issues related to the class. You do not have to wait until the next class meeting. You can expect a response within 24 hours on weekdays and within 48 hours on the weekend. If you don't get a reply back to your email, try Canvas message, and the vice versa.
- **Attendance and Engagement**: I expect you to attend each class and be fully engaged with the class throughout the quarter. I will look for your participation during class, during office hours, and through the submission of assignments. Be sure to submit all first week and second week assignments to get into the "rhythm" of the class. Please note that if you're not attending class and/or not submitting the assignments during the first two weeks of class in both classes, and not communicating with us, we will assume that you are not interested in the taking the classes and may drop you!
- **Feedback**: Any feedback on your discussions, problem sets, quizzes and exams will be provided as either annotation/comment in Canvas or on paper. If you need additional feedback regarding grading (especially automatically graded items such as homework), please email/message me directly about that assessment. I will aim to grade all items within a few days of submission, but you can expect most assignments and assessments to be graded within 1 week of submission.

Please note that since you are part of a learning community, if you drop one of classes (Math or CIS), you will automatically be dropped from the other one as well (at least for the first few weeks of the quarter).

Protecting self and others from COVID and other viruses:

Since this is an in-person class, please familiarize yourself with and follow COVID-related protocols for De Anza College.

- Covid-19 Information: https://www.deanza.edu/healthservices/covid-19.html
- If you become infected with Covid during the quarter, you must fill out the Student Self-Reporting Form at https://www.deanza.edu/covid/student-form.html and inform your instructor.

Other viruses:

- Please wear a mask to protect others if you're getting sick or recovering from the flu or another respiratory virus.
- Don't hesitate to put on a mask (there should be some in the classroom) for your safety at any time.

Textbook and Calculator:

Great news! Your textbook for this class is available for **free** online!
Calculus, Volume 1 from OpenStaxLinks to an external site., ISBN 1-947172-13-1

You have several options to obtain this book:

- View online
- Download a PDF

You can use whichever formats you want. Web view is recommended -- the responsive design works seamlessly on any device.

You are not required to have any special calculator in this class. While doing your homework and problem sets, you're welcome to use any online or handheld calculator. During quizzes and exams, no calculators will be required, but you may bring a **scientific calculator** if you like. Graphing and CAS calculators will not be allowed on quizzes and exams.

Prepared Lecture Notes:

I have put together prepared lecture notes designed to help you keep your lecture contents organized. Here is the file: Math 1A Prepared Notes (1stEdition).pdf Download Math 1A Prepared Notes (1stEdition).pdf. Please print the file, or open it on a tablet if you have the ability to annotate electronically. When you attend class, you are expected to take notes on these. Keep all your notes organized in a binder. I strongly recommend that you do this.

Office Hours:

- Monday and Wednesday 10-11am in PST Village (S-55)
- Tuesday and Thursday 1:30-2:00pm in office (S-43A)
- Friday 12-1pm on Zoom (https://fhda-edu.zoom.us/j/83531635102.)
- Or, by appointment (Send me a Canvas message or email bambhaniadoli@fhda.edu to set up)

Professor Abeer Alameer's Office Hours:

- TTh: 9:30 AM - 11:20 AM on Zoom (https://fhda-edu.zoom.us/j/88305279914)
- TTh: 12:30 - 1:20 PM ATC 202

Counselor Huy Le's Office Hours:

- Thursdays from 11:15 AM to 12:15 PM in L-24
- To schedule an appointment with me, please click **here.**

Counseling and Tutoring:

We have two dedicated tutors for this LinC community who are former LinC students. They will be an invaluable resource to you.

Here is a message from your counselor Huy Le:

Hi there! My name is Huy Le, and I am the Learning Communities Counselor at De Anza College. I am very thrilled to be working with you this Fall 2024 quarter! As your dedicated LinC Counselor, my goal is to guide each and every one of you to ensure your success in your academic journey, no matter your background or circumstances.
Please see below for more information regarding my drop-in counseling hours and how to schedule a counseling appointment with me for Fall 2024:

Drop-in Counseling Hours:
Thursdays from 11:15 AM to 12:15 PM in L-24 (after Doli's MATH 1A class).

Schedule a Counseling Appointment:
*To schedule an appointment with me, please click **here**. You will then be prompted to enter your CWID (Student ID #) and your Date of Birth (DOB) to login to schedule an appointment with me. If any of those days and times do not work for you, please feel free to reach out to me via email (lehuy@fhda.edu) and let me know your preferred days and times to meet with me.*
I look forward to working with you this fall quarter, and please do not hesitate to contact me anytime if you have any questions or concerns about anything!

Tutoring Schedule (coming soon)

Monday	Tuesday	Wednesday	Thursday	Friday
Katia 10:30-11:30am in MESA (S-54)	Katia 11:30am-12:30pm in MESA (S-54)		Jin 11:20-1:20 in the CIS Lab or ATC 202	Jin 11am-12pm on Zoom
	Katia 2:45-3:15pm in ATC 204		Jin 3-4pm in ATC 204/ ATC 203 Katia 3-4 in ATC 204	Katia 4-5pm on Zoom
	Katia 9-9:30pm on Zoom		Jin 8-9pm on Zoom	

Mandatory Tutoring:

Our goal is to maximize your chances of success in the learning community classes. Please note that if your grade falls below 80% in a class, or you're not passing quizzes or exams, you will be required to attend a minimum of 2 hours of tutoring per week for that class. You may receive tutoring from one of our LinC tutors or through another tutorial center on campus that offers tutoring in Math or CIS. You will be asked to track your tutoring hours to demonstrate that you have completed the requirement.

Homework and Problem Sets

The best way to succeed in any math class is to do all of the assigned work correctly and in a timely manner, making sure you really understand what you are doing! Focus on how to think mathematically about problems, not just on following a procedure and getting the right answer. Time spent developing ownership of the concepts and skills in the homework and problem sets will directly benefit you on quizzes and exams.

Online Homework: You will have online homework for each section we cover. The homework uses the free software MyOpenMath, and will be graded for correctness. The links and due dates are within the Canvas Modules, but generally speaking, the Online Homework is due twice a week. You will have 5 late passes, each of which will give you a 24-hour extension on the homework for a particular section with 5% penalty. You may ask me questions on the online HW by using the 'Message Instructor' button.

Problem Sets: Each week, we will have a problem set that you will work on. These problems will be posted as a PDF in the Canvas modules. You are to work them out on paper neatly. These sets include problem-solving and critical-thinking exercises that rely on your conceptual understanding of the material and related skills.

Problem Sets Submission Guidelines:

- *Write out the problems neatly on **separate paper**, or on a blank tablet file. There is not enough room on the Problem Set PDF.*
- *Do the problems in **order**, showing all work neatly, clearly and completely.*
- *Label each problem clearly – use a **highlighter** to mark the number, or put a **box** around it so it's easy to find. You don't need to write the question, just fully-worked out solutions.*
- *Don't squeeze a lot of work into a small amount of space. Leave some white space around your solutions for brief comments.*
- *You are encouraged to use resources such as classmates, tutors and AI, but you must **write up your own solutions independently**!*
- *Write your solutions out in full detail, as modeled in the textbook and in lectures. You should also draw well-labeled and appropriately scaled diagrams and graphs when relevant.*
- *Submit the Problem Set on paper in class. Alternatively, you may submit it as a **single PDF document** on Canvas. Use a scanning app such as Genius Scan. Your scanned copy must be **legible** and have **correct orientation**.*
- *Problem sets are **due** on **Tuesdays** at the **start of class**, about 9:00 a.m. You can have a 24-hour **extension** with 10% penalty.*

Joint Discussions:

There will be **six** discussion prompts that you will need to respond to spread throughout the quarter. These are worth points for both of the classes in the learning community, so be sure to complete them. Please follow Discussion Guidelines (see under 'Getting Started' in Modules) when completing them.

Joint Assignments:

There will be **two** joint assignments. These will be programming assignments in which you work with calculus concepts. You will get credit in both of the classes for these assignments.

Participation:

You are expected to **actively participate** in class. I expect you to:

- Ask and answer questions during during class.
- Participate actively in any group work during class.
- Outside of class, post and answer questions in 'Questions Discussion Board' (1 point extra credit for posting or answering a question).

Quizzes:

We will have **seven** 20-minute in-class quizzes. The quizzes will be based on previous week's material. They are all proctored, in-person quizzes. See the calendar for the dates.

*NOTE: There will be NO MAKEUPS for any of the quizzes, but your **lowest two** quiz score will be dropped to allow for a rare absence on a quiz day.*

Exams:

We will have **two** midterm exams, and a cumulative final exam. All of the exams are proctored, in-person exams. See the calendar for the dates.

*NOTE: There will be NO MAKEUPS for any of the exams, but your **lowest** midterm exam score will be replaced by the final exam score proportionally. If you miss a midterm exam, your grade will be replaced by the final exam score proportionally.*

NOTE: In case of an unforeseen emergency or illness due to which you cannot take the final exam, inform me immediately. If you are unable to take the final exam during finals week, may result in an 'Incomplete' (provided that you supply me with a sufficient proof).

Evaluation:

Your final grade will be computed as follows:

Point Values of Assignments and Assessments		
Category		**Points**
Homework	25 @ 5 points each	125
Problem Sets	10 @ 7 points each	70
Joint Discussions	6 @ 5 points each	30
Joint Assignments	2 @ 15 points each	30
Participation		20
Quizzes	Top 5 @ 15 points each	75
Exams	2 @ 75 points each	150
Final Exam		100
TOTAL		600

Letter Grade based on Overall Percentage	
Overall percentage	**Your grade will be at least**
97% or greater	A+
92% to less than 97%	A
90% to less than 92%	A-
87% to less than 90%	B+
82% to less than 87%	B
80% to less than 82%	B-
75% to less than 80%	C+
70% to less than 75%	C
55% to less than 70%	D
less than 55%	F

Help:

1. Your classmates are a great resource. Ask for help and provide help to others. You may use the Questions Discussion Board (worth extra credit)!
2. Message me through Canvas with questions or attend office hours. For online homework questions, message me by using 'Message Instructor' button in the problem.
3. Ask questions during class.
4. Get help from De Anza's Math Student Success Center. See details at http://deanza.edu/studentsuccess/Links to an external site..
5. Use NetTutor for 24-hour chat-based help through Canvas.
6. For help with tech equipment, food and financial assistance, health services, resources for undocumented students, etc at https://www.deanza.edu/services/Links to an external site..

Academic Integrity:

All students are expected to exercise academic integrity throughout the term. Any instances of cheating or plagiarism will result in disciplinary action, including at minimum, 0 on the assignment or assessment, but may include recommendation for dismissal. You are encouraged to work together on homework but simply copying down from someone else's work is wrong! Cheating on a quiz or an exam is more serious. It will certainly result in getting a 0 on the assessment, but could result in getting an 'F' in the course or dismissal from the class. Also, each incident of cheating on an assessment will be reported to the Dean of the Physical Science, Mathematics and Engineering Division and the Office of Student Development. Please see the De Anza College's page on Academic Integrity: https://www.deanza.edu/policies/academic_integrity.htmlLinks to an external site.. Check out this video produced by De Anza College on this topic: https://www.youtube.com/watch?v=4unoOe-IoeYLinks to an external site..

A note about Discord: We encourage you to ask and answer questions amongst yourselves to strengthen your understanding of topics in this class using any medium, including Canvas discussion boards and Discord. However, be careful that you don't compromise your academic integrity or entice others to compromise theirs! For example, never answer a classmate's question about a homework problem by providing a complete, fully worked out solution! There are at least two reasons for this: 1) It would create too much of a temptation to copy - not necessarily for the original question poster but other classmates; and 2) Your solution could be incorrect, in which case you would be hindering the class' understanding of the involved concepts and skills. It goes without saying that you should also never discuss anything during a quiz or an exam on Discord or any medium.

Disability Notice:

If you feel that you may need an accommodation based on the impact of a disability, please contact me privately to discuss your specific needs. Also, please contact Disability Support Programs & Services through https://www.deanza.edu/dsps/Links to an external site. for information or questions about eligibility, services and accommodations for physical, psychological or learning disabilities.

Tips for Success in this Class:

In any math class, and especially this one, your goal should be to get **ownership** of the material. This means that not only you understand the concepts, and can demonstrate the skills, but also that you can explain them to someone who doesn't have them. The material covered in this class is essential for the next courses in the series. This is not a "learn and forget" class; rather, it's a "learn well so you can succeed going forward" class. All of this is also true for your CIS class.

Here are our recommendations for succeeding in the learning community in the online setting:

1. **Do some work for the class every day!** This includes homework, reviewing notes, working on problem sets, studying for exams, or even reading ahead.
2. **Stay on schedule**. Be disciplined about staying on top of the class. Don't allow yourself to fall behind! Always keep your notes up-to-date, clearing up anything confusing along the way. Writing aids memory so you are more likely to retain the material. The quarter passes by faster than expected – especially if you're new to the quarter system – and it's very hard to catch up!

3. **Be fully present in every class.** Allowing yourself to occasionally miss class or multi-task during class is a slippery slope. It can easily turn into a bad habit that will likely cost you the grade you want in this class.
4. **Come to the class prepared and ready to contribute!** Be sure to come to class with all the necessary materials, ready to participate and contribute.
5. **Invite productive struggle.** To succeed in any STEM class, you must **do your work diligently**. We are aware that there are many sources that can provide you the answers and even the worked solutions. However, **productive struggle** is essential in learning and retaining the material, and in gaining the confidence in your problem-solving ability. You must sweat through the problems, especially the ones that challenge you.
6. **Form a study group**. Exchange your contact information with at least 3 other people in the class community. This will come in handy if you need to miss a class, if you want to work with someone on an assignment, or while studying for an exam. This is an **essential college skill**, especially for STEM students.

7. **Turn everything in!** Every homework, every discussion, every problem set. Don't allow yourself to skip anything!

8. **Prepare well for assessments.** Preparing well for quizzes will help you retain the material for exams. Preparing well for exams will help you retain this material for when you need it for the classes that come next in the sequence. If you are not prepared well for quizzes and exams, you will likely NOT be able to finish them!
9. **Don't wait to ask for help!** Whether it's to your classmates or me, get your questions answered in a timely manner. If you're dealing with an unusual or an unexpected challenge, please let us know so we can work with you to keep the class manageable, if possible.
10. **Practice personal discipline**! Succeeding in a college class requires **personal discipline**. This can be especially tough when first starting out in college. It's quite easy to put things off until later, skip some course activities, distract yourself with social media and other apps while doing class activities, etc. A life skill that is good practice this quarter: **Be mindful of what you are giving your attention to.** Think carefully about your priorities, and give the most time and attention to your biggest priorities. When working on your homework, turn off all notifications on your devices, silence your phone and keep it out of reach. Calculus requires focus and it will often challenge you. Don't put off working on something because it's hard or unpleasant. Learning anything that's worthwhile requires a sustained effort! And that practice is what ultimately leads to true personal growth.

Course Calendar:

Math 1A Calculus (LinC) - Tentative Calendar: Fall 2024

	Tuesday	Thursday
Week 1	24-Sep Orientation/Questions 2.1, 2.2	26-Sep 2.2, 2.3
Week 2	1-Oct Problem Set 1 due **Quiz 1** 2.4	3-Oct 3.1, 3.2
Week 3	8-Oct Problem Set 2 due **Quiz 2** 3.2, 3.3	10-Oct 3.3, 3.4
Week 4	15-Oct Problem Set 3 due **Quiz 3** 3.5	17-Oct 3.6, 3.7
Week 5	22-Oct Problem Set 4 due **Midterm Exam 1** 3.7	24-Oct 3.8, 3.9
Week 6	29-Oct Problem Set 5 due **Quiz 4** 3.9	31-Oct 7.1, 7.2 (Vol 2)
Week 7	5-Nov Problem Set 6 due **Quiz 5** 7.2 (Vol 2), 4.9	7-Nov 4.1
Week 8	12-Nov Problem Set 7 due **Quiz 6** 4.2, 4.3	14-Nov 4.3, 4.4
Week 9	19-Nov Problem Set 8 due **Midterm Exam 2** 4.5	21-Nov 4.5, 4.6
Week 10	26-Nov Problem Set 9 due 4.7	28-Nov Thanksgiving Holiday
Week 11	3-Dec Problem Set 10 due **Quiz 7** 4.8	5-Dec 4.8, 4.10
Finals Week	10-Dec **Final Exam** **9:15 - 11:15.m.**	12-Dec

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:

M,W	10:00 AM	11:00 AM	In-Person	S-55 (PST Village)
T,TH	01:30 PM	02:00 PM	In-Person	MLC downstairs lobby
F	12:00 PM	01:00 PM	Zoom	