Sp23 MATH D001B 11Y Calculus Syllabus

Course Description:

This course covers the fundamentals of integral calculus. Specifically, the course explores indefinite and definite integrals, and their applications. The topics covered will include antiderivatives of all of the functions you learned in precalculus and their combinations. We will also cover applications, such as, motion, area, volume, arclength, surface area, work, center of mass, probability and differential equations.

Student Learning Outcomes:

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

- Analyze the definite integral from a graphical, numerical, analytical, and verbal approach, using correct notation and mathematical precision
- Formulate and use the Fundamental Theorem of Calculus
- Apply the definite integral in solving problems in analytical geometry and the sciences

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Course Content:

- Analyze and explore aspects of the integral calculus
- Analyze and evaluate the definite integral as a limit of a Riemann sum and examine its properties
- Examine the Fundamental Theorem of Calculus
- Find definite, indefinite, and improper integrals using various techniques
- Apply the definite integral to applications
- Examine differential equations

Notes about Attendance and Participation:

- **Communication**: If you need to reach me outside of class, you can contact me via email (bambhaniadoli@fhda.edu) or via Canvas message anytime. 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.
- **Engagement**: I will look for your engagement through regular attendance and participation during class meetings, and through the submission of assignments. If you will be absent, be sure to let me know. Be sure to submit all first week and second week assignments to get into the "rhythm" of the class. Please note that if you miss the first class and don't inform me, I will assume that you are not interested in being in the class and drop you!

If, for any reason, you stop participating and intend to drop the class, please do an official drop in a timely manner. If you fail to do so, you will receive an ‘F’ in the class. Follow the deadlines for this class in My Portal. We do not have the ability to make exceptions to these.

Covid Information:

Since this is an in-person class, please familiarize yourself with Covid-related information for De Anza College.

- Covid-19 Information: https://www.deanza.edu/covid/

Please note:

- Masks covering the mouth and the nose are strongly encouraged for this class.
- If you become infected with Covid during the quarter, refrain from attending class, fill out the Student Self-Reporting Form at https://www.deanza.edu/covid/student-form.html

- Links to an external site. and inform me immediately so you can keep up with the class remotely.

Textbook and Calculator:

Great news! Your textbook for this class is available for **free** online!
Calculus, Volume 2 from OpenStax, ISBN 1-947172-13-1

You also have an option to download the PDF from the link above if that's easier for you.

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 for you. Please print these and bring them to each class. You are to fill them out during lecture. If you have a tablet on which you can annotate, that is fine also. However, you must take notes on these to keep the course material organized for yourself.

Math 1B - Prepared Lecture Notes (S23).pdf

Download Math 1B - Prepared Lecture Notes (S23).pdf

Office Hours:

- Monday, Wednesday: 11am-12pm on Zoom (https://fhda-edu.zoom.us/j/83202771184) and in office (S-43A)
- Tuesday, Thursday: 11:45am-12:15pm on Zoom (https://fhda-edu.zoom.us/j/83202771184) and in office (S-43A)
- Friday 9:30am-10:30am on Zoom (https://fhda-edu.zoom.us/j/83202771184) only

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! Time spent on 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 for a section is usually due 2 days after we have completed the section in class. You will have 5 late passes, each of which will give you a 24-hour extension on the homework for a particular section.

Problem Sets: Each week, we will have a problem set based on the material for that week. These problems will be posted as a PDF in the Canvas modules. They will be due on Monday in class. 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:

- *Work out the problems on **separate paper**, or on a tablet. The Problem Set PDF won't have enough space.*
- *Put your **full name in the top right corner** of the page.*
- *Even though you are encouraged to work with one another, **write up your solutions independently**. NEVER copy anyone's work for any reason! This includes work from online calculators and AI software. If you rely on them, you will struggle on quizzes and exams.*
- ***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.*
- *Do the problems **in order**, showing all work neatly, clearly and completely.*
- *Don't squeeze a lot of work into small amount of space. Leave some white space around the problem for brief comments.*
- *Write your solutions out in **full detail**, as modeled in the textbook and in lectures. It's important to write up problem sets neatly, showing all work, and **explaining the logic behind each step**. You should also **draw well-labeled** and appropriately scaled diagrams and graphs when they are helpful in understanding your solution.*
- *Staple the problem set together.*
- *Problem sets are due on Mondays in class. You can submit them up on Canvas to 24 hours late for 10% penalty. If you submit on Canvas, submit a single PDF document, NOT multiple images. Use the Notes app on iOS, or a scanning app such as Adobe Scan or Genius Scan (both free), or something else from among many options. Be sure to check that your scanned copy is legible. I will need to be able to read it for you to get points.*

Discussions:

There will be **five** discussion prompts that you will need to respond to spread throughout the quarter. These count towards your grade, so be sure to complete them.

Participation:

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

- Attend each class, arriving on time and staying for the duration.
- Ask and answer questions during lecture.
- 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 - up to a maximum of 5 points).

Quizzes:

We will have **eight** 20-minute quizzes (see the calendar at the bottom of this page). They will be based on previous week's material. No notes are allowed on the quiz. You may use a scientific calculator if you wish.

NOTE: In general, there will be NO MAKEUPS for any of the quizzes, and your lowest quiz score will be dropped. However, if you need to quarantine due to a COVID infection, we will find a solution. As mentioned above under 'Covid Information', 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 me.

Exams:

We will have **two** midterm exams, and a cumulative final exam. See the calendar for the dates. You may use a scientific calculator and a half sheet of notes (front and back) on the midterm exams. On the final exam, you will be allowed to use one sheet of notes (front and back) and a scientific calculator.

NOTE: In general, if you miss a midterm exam, your grade will be replaced by the final exam. In case of an unforeseen emergency or illness due to which you cannot take an exam, please get in touch with me immediately, and we can work with you to find a solution. If you need to quarantine due to a COVID infection, as mentioned above under 'Covid Information', you must fill out the Student Self-Reporting Form at https://www.deanza.edu/covid/student-form.html and inform me.

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	11 @ 10 points each	110
Joint Discussions	5 @ 7 points each	35
Participation		25
Quizzes	Top 7 @ 15 points each	105
Exams	2 @ 75 points each	150
Final Exam		100
TOTAL		650

Letter Grade based on Overall Percentage

Overall percentage	Your grade will be at least
97% or greater	A+
92% to less than 97%	A
89% to less than 92%	A-
87% to less than 89%	B+
82% to less than 87%	B
79% to less than 82%	B-
75% to less than 79%	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 either within your current groups or using 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/
5. Use NetTutor or SmarThinking for help through Canvas.
6. If you need any technical help with MyPortal, Canvas, etc., visit https://deanza.edu/online-ed/students/remotelearning.html

7. Besides technical help, you may be able to get help with tech equipment, food and financial assistance, health services, resources for undocumented students, etc. Check out https://www.deanza.edu/services/

Academic Integrity:

All students are expected to be academically honest throughout the term. Academic integrity is essential to the functioning of educational institutions. All work that you submit must be your own. Any instances of cheating or plagiarism will result in disciplinary action, which may include recommendation for dismissal. You are encouraged to work together, but submitting someone else's work as your own is never acceptable! Cheating will result in getting a 0 on the assignment or assessment, an 'F' in the course, or dismissal from the class. Also, each incident of cheating will be reported to the Dean of the Physical Science, Mathematics and Engineering Division. Please see the De Anza College's page on Academic Integrity: https://www.deanza.edu/policies/academic_integrity.html

Links to an external site.. Also, please watch this video that's designed to help you understand what academic honesty means: https://www.youtube.com/watch?v=4unoOe-I0eY

A note about Discord: You are encouraged 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.

A note about online calculators and AI tools: While these can help your understanding, relying on them for doing your homework and problem sets is ill-advised. To prepare yourself for quizzes and exams, you need the confidence that you can rely on your own abilities, and not require external help. This confidence comes from working through moments of confusion yourself!

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.
- Here are our recommendations for succeeding in this class:

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. Take notes during class and keep them up-to-date. Also, writing aids memory so you are more likely to retain the material. The quarter passes by faster than expected – and it's very hard to catch up if you fall behind!
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. I expect you to ask and answer questions.
5. **Invite productive struggle.** To succeed in any STEM class, you must **do your work diligently**. There are many sources that can provide you "help"and even worked-out solutions. However, **productive struggle** is essential in learning and retaining 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 me know so I can work with you to keep the class manageable, if possible.
10. **Practice personal discipline**! Succeeding in a college class requires **personal discipline**. 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 1B Calculus - Tentative Calendar: Spring 2023

	Monday	Tuesday	Wednesday	Thursday
Week 1	10-Apr Orientation/Questions 1.1	11-Apr 1.1, 1.2	12-Apr 1.2	13-Apr 1.3
Week 2	17-Apr Problem Set 1 due **Quiz 1**	18-Apr 1.3	19-Apr 1.4	20-Apr 1.4, 1.5
Week 3	24-Apr Problem Set 2 due **Quiz 2**	25-Apr 1.5	26-Apr 1.6, 1.7	27-Apr 2.1
Week 4	1-May Problem Set 3 due **Quiz 3**	2-May 2.2	3-May 2.2	4-May 2.3
Week 5	8-May Problem Set 4 due **Quiz 4**	9-May 2.3, 2.4	10-May 2.4	11-May 2.5
Week 6	15-May Problem Set 5 due **Midterm Exam 1 (1.1-2.4)**	16-May 2.5, 2.6	17-May 2.6	18-May 3.1
Week 7	22-May Problem Set 6 due **Quiz 5**	23-May 3.2	24-May 3.2, 3.3	25-May 3.3
Week 8	29-May **Memorial Day HOLIDAY**	30-May Problem Set 7 due **Quiz 6**	31-May 3.4	1-Jun 3.4, 3.5
Week 9	5-Jun Problem Set 8 due **Quiz 7**	6-Jun 3.6	7-Jun 3.6, 3.7	8-Jun 3.7
Week 10	12-Jun Problem Set 9 due **Midterm Exam 2 (2.5-3.7)**	13-Jun 7.2	14-Jun Probability	15-Jun 4.1, 4.2
Week 11	19-Jun **Juneteenth HOLIDAY**	20-Jun Problem Set 10 due **Quiz 8**	21-Jun 4.3	22-Jun 4.4
Finals Week	26-Jun Problem Set 11 due **Final Exam** **11:30am - 1:30pm**	27-Jun	28-Jun	29-Jun

Student Learning Outcome(s):

*Analyze the definite integral from a graphical, numerical, analytical, and verbal approach, using correct notation and mathematical precision.
*Formulate and use the Fundamental Theorem of Calculus.
*Apply the definite integral in solving problems in analytical geometry and the sciences.

Office Hours:

F	09:30 AM	10:30 AM	Zoom	
M,W	11:00 AM	12:00 PM	Zoom,In-Person	S-43A
T,TH	11:45 AM	12:15 PM	Zoom,In-Person	S-43A