# Math 3A: Calculus with Applications I
# Course Syllabus*

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**Lecture:** South Hall 1430 MTWR 11:00 - 12:05
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**Office Hours:** MTWR 1:00 - 2:00

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**Sections:** HSSB 1227 MW 2:00 - 2:50
HSSB 1231 MW 3:00 - 3:50
**Office Hours:** T 3:30 - 4:30
**MathLab:** T 12 - 2

**Text**: James Stewart, Calculus - Early Transcendentals
Any recent edition could help you. I will not require you to have it. We will roughly be going through the first four chapters.

## About the Course

This is meant to be a first course in calculus. If all goes as planned, we will cover differential calculus including analytic geometry, functions and limits, derivatives, techniques and applications of differentiation, logarithmic and trigonometric functions.

Disclaimer before you commit to this course: knowledge is power, and with power comes responsibility. After passing this course, you could reasonably be expected to

- understand the idea of a mathematical function.

- successfully evaluate limits and derivatives using appropriate rules.

- understand the derivative as a rate of change, and apply this knowledge to solve problems in other walks of life.

- understand the derivative geometrically, and apply this knowledge to correctly sketch curves.

- apply problem solving skills to effectively attack problems in a variety of contexts.

- intelligibly communicate in the language of calculus.

## Evaluation

Contrary to what many seem to believe, the point of going to school and taking classes is to learn. Since that happens to varying degrees, people who judge you in the future will want to know to what degree *you* learned things they think are important. Unfortunately, the way we convey that information is through grades. Your grade in this course will be determined by the following breakdown.

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*This syllabus may be reasonably altered if deemed necessary later in the term. In such an event, students will be notified.

| Homework | 20% |
|----------|-----|
| Midterm 1 | 25% |
| Midterm 2 | 25% |
| Final | 30% |

Letter grades will be determined by the usual breakdown:

| | | | | | |
|-----|-----------|-----|-----------|-----|-----------|
| A+ | > 100% | B | 83 - 86% | C- | 70 - 72% |
| A 1 | 93 - 100% | B- | 80 - 82% | D+ | 67 - 69% |
| A- | 90 - 92% | C+ | 77 - 79% | D | 63 - 66% |
| B+ | 87 - 89% | C | 73 - 76% | D- | 60 - 62% |

and F otherwise. If necessary, these ranges will be shifted to benefit the students once all grades are in.

**Homework:** There will be a reading and short response assignment due on August 5, the first day of class. Starting on the first day, there will be a WebWork assignment posted to GauchoSpace after every lecture. Each assignment will automatically close half an hour before the next lecture begins. Note that "lecture" does not include days on which we have exams. While WebWork does not require you to input anything but the final answer, I *strongly* encourage you to practice **writing full solutions** for each problem. Not only will you better learn and retain information, but you will also be better prepared to present solutions on exams.

Since this class is condensed into six weeks, it will be critical that you stay on top of the material by doing and acquiring a good understanding of the homework every day. Working together to do this is strongly encouraged. I would even go so far as to recommend that you **exchange contact information** with your peers and get together to study outside of class. Homework is easier, more enjoyable, and more helpful to you when you're all bouncing ideas off each other to figure things out. Of course, it is on you to make sure you have a full understanding of the material yourself.

**Exams:** The exams are scheduled as follows.

| Midterm 1 | Thursday, August 15 |
|-----------|---------------------|
| Midterm 2 | Thursday, August 29 |
| Final | Thursday, September 12 |

Please ensure you will be able to attend them. In the event that you must make up an exam, please inform me as soon as possible to set up an alternate time. Note that make-up exams will not necessarily look the same as the original exam and may not be of equal difficulty. When an exam is returned to you in section, please tell Sam **before you leave the room** if you think the grade needs to be changed. Once the exam leaves the room, the grade may be considered final.

Fortunately for your future selves, I believe that one demonstrates understanding by successfully applying to new situations, not just by repeating things one has seen before. Thus, I shall endeavor to give exams containing problems that use ideas from the homework and the class, but that do not resemble past problems too closely. If you ever encounter a problem you're not sure about in this class, **keep calm** and think about how the material we have covered might be used. You are not the only one who does not immediately know what to do. Partial credit will be awarded for valiant efforts. [Conversely, negative points may be awarded for particularly egregious errors that demonstrate critical flaws in understanding. This should not be common.] In an effort to reduce the number of times I am asked, I will also say now that there will be **no calculators**.

Also fortunately for you all, I happen to believe that the full extent of what one has learned by the end of a course is not always well represented by the exams taken throughout. As such, there will be opportunities to improve your midterm scores after you get them back. If you wish to do so, you will need to write a clean

and correct solution in your own words to any problems you would like to receive points back on. We will then schedule a time for you to present this solution to me and perhaps be questioned by me to determine whether your grasp of the topic has improved since taking the exam. More details will follow after the first midterm.

## Resources

As stated above, it is on you to determine whether or not you understand the material. In particular, simply getting 100% on all of the homework assignments is not necessarily sufficient to do well on exams, and thus, in the class. I encourage you to utilize the following resources in your efforts to master the material. Remember! There is never shame in asking for help in learning something new. None of your instructors would ever have been as successful if they had never received help during their own journeys.

- Sam and Me: As your instructors, we are committed to helping you learn the material in this course. Talk to, email, or otherwise contact us if you have any questions, comments, or concerns about anything!

- Our office hours: This is time we put aside to talk to you all. Use it! We very frequently end up sitting in our offices all alone, so get all your friends together and come talk to us! We can talk about math or not-math alike.

- MathLab: Free walk-in tutoring by graduate students in the Mathematics department. They all have a deep understanding of calculus and are happy to help you.
  Hours: MTWR 11am-4pm, F 12-3pm in South Hall 1607
  There is also an online version of the MathLab, with many helpful videos: www.math.ucsb.edu/oml/3A.html

- CLAS: Free supplemental tutoring for lower division math courses. This is not affiliated with the Mathematics department, so I can't vouch for it. For more information, visit clas.sa.ucsb.edu or talk to your friends.

- Your textbook: My lectures will roughly be following the textbook. The textbook has explanations of everything we will be talking about, as well as plenty of practice problems.

- Paul's Online Notes: Paul's Notes are a series of notes freely posted online that could prove beneficial to you throughout your lower division math experience here. Differential calculus can be found at http://tutorial.math.lamar.edu/Classes/CalcI/CalcI.aspx or by Googling "Paul's Notes Calculus".

- The internet: For any topic we work on, a quick Google search can yield more explanations and practice problems than one could ever want.

- Private tutoring: Many graduate students offer paid private tutoring services. Contact either me or the math department if you feel that this option is good for you.

## DSP

Providing academic accommodations to students with disabilities is a shared responsibility of the campus. Students with disabilities are responsible for ensuring that the Disabled Students Program (DSP) is aware of their disabilities and for providing DSP with appropriate documentation. Please submit requests for accommodations as soon as possible so that we have a reasonable amount of time to accommodate you. Making me aware of your disability and any problems it may cause you (to the extent which you feel comfortable sharing) will help us provide you with a more comfortable classroom experience.

DSP is located at 2120 Student Resource Building and serves as the campus liaison regarding issues and regulations related to students with disabilities. The DSP staff works in an advisory capacity with a variety of campus departments to ensure that equal access is provided to all disabled students.

## Other Resources

I would like to provide an equal opportunity for all students in this class to succeed. If, at any time, you feel that any aspect of the class, of me, or of your general experience in life is not consistent with that goal, please let me know!

- CARE: The mission of the Campus Advocacy, Resources & Education (CARE) program is to anticipate and respond to the needs of students impacted by stalking, dating/domestic violence and sexual assault by providing confidential advocacy and support. CARE also works collaboratively with students, faculty and staff to educate the campus community about the vital role that each of us has in ending interpersonal violence at UCSB.

    The UCSB CARE program believes that all students deserve to learn in an environment free from violence. CARE envisions a campus where all students, faculty and staff members treat one another with respect and consideration, integrity, where free, open and respectful exchange of ideas can take place and where contributions to and participation in the community are free from violence.

- CAPS: Counseling And Psychological Services (CAPS) is committed to providing timely, culturally appropriate, and effective mental health services to our diverse UCSB student body, as well as professional consultation to faculty, staff, and families.

- SHS: Student Health Services (SHS) aims to provide exceptional, inclusive, compassionate, comprehensive, and integrated healthcare services to promote health and well-being in order to empower students to thrive throughout their university experience.

- RCSGD: The Resource Center for Sexual & Gender Diversity (RCSGD) exists as a counterspace, refuge, and sanctuary for LGBTQIA+ students, staff, faculty, and community members to gather and build power. The Center helps students and our communities facilitate resiliency skills, cultivate self-awareness, manifest self-empowerment, and build community in order to become values-based leaders. Through our programs, trainings, resources, and outreach, the RCSGD builds capacity across campus for UCSB to create and sustain more affirming environments for out LGBTQIA+ communities and to make a deeper commitment to justice.

- Undocumented Student Services: UC Santa Barbara is committed to fostering a safe and supportive environment for students of diverse backgrounds including our Dream Scholars – undocumented students at UCSB. The University strives to develop an awareness and understanding of the experiences of undocumented students (while maintaining the confidentiality of individual students) and to develop campus responses and processes to address their needs related to persistence, retention, and graduation.

## Academic Integrity

As mentioned previously, there are many helpful resources at your disposal. However, you should never be copying solutions from sites like Chegg Study. If you cannot complete the homework sets on your own, it is important to take this not as a sign of defeat, but an indication that there is still something that you need to learn. Whether you seek help from me, Sam, fellow classmates, or the course notes is up to you. The important thing is to not give up! Often, the only difference between the students who score well and those who don't is a refusal to give up and a willingness to seek help when necessary.

While the rest of the course is open-resources, the exams will **not** be. Unless otherwise instructed, exams are to be completed individually. Any instance of academic dishonesty that does not show me you have learned anything in the course (such as using a phone or looking at another's work during an exam) will result in a score of 0 and cannot be made up or replaced. Further action may be taken at my discretion.