## COURSE SYLLABUS – Math 52
Department of Mathematics, Stanford University

Welcome to Math 52! This course is designed to introduce you to integral calculus of several variables.

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### Instructors and Contact Information

**Instructor**: Athulya Ram
**Office Hours**: Mon and Fri 10:30 – 11:30 am (Hewlett 102), Wed 01:00 – 02:00 pm (380-381C)
**E-mail**: athulya@stanford.edu

**Teaching Assistants, Office Hours, and Meeting Locations**:

| TA | Email Address | Office Hours | Location |
|---|---|---|---|
| Yizhen Chen | chenyzh@stanford.edu | Fri 3-6pm | Room 380-380J |
| Jessica Yeh | ycy@stanford.edu | Mon 4-7pm | Room 380-384J |

### Important Websites
**Course Information:** http://canvas.stanford.edu (*the main platform of the course where announcements, homework assignments, solutions, files, grades will be posted. If you are signed up for the course, you should already have access to the Canvas page.*)
**Textbook:** Calculus: Volume 3 by Edwin Herman and Gilbert Strang, available for free online. We will cover material from chapters 5 and 6.
**Homework submission:** Gradescope (*the platform where you will submit your homework, access through canvas*)

### Course Description and Learning Outcomes

**Course Title**: Integral Calculus of Several Variables
**Course Meeting Times**:
        Lecture 01 | MWF 09:30 – 10:20 am | Hewlett Teaching Center, Rm 102
        Lecture 02 | MWF 11:30 – 12:20 pm | Hewlett Teaching Center, Rm 102
        Section 03 | TuTh  09:30 – 10:20 am | Room 380-380Y
        Section 04 | TuTh  10:30 – 11:20 am | Room 380-380Y
        Section 05 | TuTh  12:30 – 01:20 pm | Room 380-380Y
        Section 06 | TuTh  01:30 – 02:20 pm | Room 380-380Y

### Course Description

This is the second quarter in a yearly sequence on calculus of several variables. We discuss several generalizations of the one-variable integration to a multivariable setting. The material covered includes iterated integrals and Fubini Theorems; line and surface integrals (both scalar and vector integrals); vector analysis with applications to potentials and conservative vector fields, physical interpretations; divergence theorem and the theorems of Green, Gauss, and Stokes.

## Prerequisites

Math 21 and Math 51 or equivalents. Students are expected to be familiar with single variable integration techniques (Math 21 material), and the Math 51 material such as partial derivatives and multivariable differentiation, vector operations and basic linear algebra, linear maps and matrices (§13-14 of Math 51 text), computing area of parallelograms via determinants (§ E.3 and bottom of p. 668 of Math 51 text).

## Course Requirements and Grading

**EXAMS:** The course will have two 2-hour midterm exams on **Thursday April 24, 8:00 - 10:00 PM** and **Thursday May 15, 8:00 -10:00 PM**, as well as a 3-hour final exam on **Saturday June 7, 12:15 - 3:15 PM**.

You are required to take the exams at the scheduled date and time. Exact room assignments will be announced when they are available. If for some reason you know of a schedule conflict, please fill out the Exam Conflict Form ASAP and at least two weeks in advance. In such cases, the exam must be rescheduled on the same day (as per department policy), or your midterm score will be replaced with an appropriately scaled and weighted average of future exam scores. The final exam cannot be rescheduled. There will be a mandatory seating chart for exams, which will be posted/distributed in the exam classroom. Please arrive early for the exam so that you can find your assigned seat.

The assignment categories are weighted as follows:

| Homework | 20% |
|----------|-----|
| Midterm I | 23% |
| Midterm II | 23% |
| Final Exam | 34% |

All exams are closed-book, closed-notes, with no calculators or other electronic aids permitted.

**HOMEWORK:** There is a **weekly homework assignment due on Wednesdays at 09:00 AM, submitted on Gradescope**. There will be 9 homework assignments during weeks 2 through 10. Homework will (generally) be posted on Mondays during weeks 1 through 9 on Canvas, Hand-written homework is acceptable, but must be scanned and legible. The due date/time is strict, as we may occasionally discuss answers to homework problems in class after they are due; hence the due time precedes all lectures. Please plan accordingly. There is no extension or makeup for any assignment. However, in computing your homework average we will divide your total points by 80 percent of the total possible points for all assignments (and then cap this at 100 percent, if applicable). This policy is designed to account for both expected and unexpected challenges students may encounter throughout the quarter. It is important NOT to view the possibility of some "dropped" homework as an opportunity to skip certain course subject matter; Cash your "rainy day" drops only when absolutely necessary. You are welcome to use other texts and online resources to review the mathematical theory and computational techniques we cover. You may not, however, seek out solutions to specific homework problems. Outside sources should be used to improve your understanding of the material, not as a shortcut to finishing assignments with an incomplete understanding. You are encouraged to discuss the homework with classmates and work on difficult problems in groups. You must, however, write your own homework solutions, and you are responsible for understanding what you've written. Homework is your foremost resource for practice with the course material, and for feedback on your work. Doing the homework thoughtfully is essential to your success in this class. Since the homework is weighted lightly, there is very little to gain in submitting solutions you do not understand.

Showing work is required on all free-response questions. As writing mathematics properly is part of this course, points may be deducted for incorrect mathematical notation.

## Course policies

**Regrades:** Be sure to look over the posted solutions to check over your solutions to the homework problems when your graded assignment is returned. It is ultimately your responsibility to look over your graded assignment while consulting the posted solutions, not only to check your understanding but also to find any grading errors. Regrade requests for homework assignments and quizzes will need to be submitted within 48h from the time of releasing the grades. After the regrade submission period ends, your entire submission will be re-evaluated and the score adjusted (up, down, or the score will stay the same).

**Class Attendance:** This course is structured with the expectation that you will attend every lecture. A student who misses class is responsible for finding what was discussed and learning the material that was covered on that day. In such a scenario, students are encouraged to seek notes from their classmates. The teaching team is not responsible for re-teaching material missed by a student who did not attend class regardless of the reason for the absence, though we are willing to address any questions in office hours (whether you were in class or not).

**Tutoring and advertisement for other resources:**

- Want to meet with an experienced peer to discuss course concepts, think through a problem set, or prepare for an upcoming exam? CTL offers free drop-in and/or appointment tutoring for this course and a variety of other courses. For more information and to schedule an appointment, visit the tutoring appointments and drop-in schedule.

- SUMO tutoring is available Sunday and Tuesday evenings. If you would like to access the on-line SUMO tutoring session, please follow this link: https://canvas.stanford.edu/enroll/B6FGDD.

**Access and Accommodations:** Stanford is committed to providing equal educational opportunities for disabled students. Disabled students are a valued and essential part of the Stanford community. We welcome you to our class.

If you experience disability, please register with the Office of Accessible Education (OAE). Professional staff will evaluate your needs, support appropriate and reasonable accommodations, and prepare an Academic Accommodation Letter for faculty. To get started, or to re-initiate services, please visit oae.stanford.edu.

If you already have an Academic Accommodation Letter, please use this form to upload it and detail the specific accommodations you will need in this course. Letters are preferred by the end of week 2, and at least two weeks in advance of any exam, so we may partner with you and OAE to identify any barriers to access and inclusion that might be encountered in your experience of this course. New accommodation letters, or revised letters, are welcome throughout the quarter; please note that there may be constraints in fulfilling last-minute requests.

You **must provide an accommodation letter, dated in the current quarter, by filling out the** ACCOMMODATIONS & FLEXIBILITY FORM **at least two weeks prior to an exam**, for us to have adequate time to arrange the accommodations. Renewing OAE accommodation is NOT equivalent to alerting the staff of Math 20!

Another resource which may be of use is Counseling and Psychological Services. See vaden.stanford.edu/caps-and-wellness. See also https://mentalhealth.stanford.edu/ for an overview on mental health resources.

**Academic Integrity:** By Math Department policy, any student found to be in violation of the Honor Code on any assignment or exam in this course will receive a final course letter grade of NP. You are fully responsible to adhering to the requirements of the Honor Code document. In particular, it is forbidden to

- Collaborating with another student or any other person on an exam.
- Copying from another's homework or exam, or allowing another student to copy your work.
- Communicating with a person other than the teaching staff via email, text messaging, Google, any form of social media, messenger, chat rooms, message boards, etc., about anything related to the exam.
- Plagiarism of material that you did not create, such as copying parts of posted solutions or text wholesale from anywhere, including the internet. The work that you submit must be your own. This also includes representing another's work as your own.
- Sharing the exam questions or anything in your solutions with any other person for any reason. The restrictions on sharing exam content applies until 11:59PM on the exam date.

The university is well-aware of "academic educational sites," such as Chegg, Slader, CourseHero, etc. Their use in connection with a course assignment or exam is an Honor Code violation that is taken very seriously at Stanford.

It is forbidden to share a copy of your written work from the current or a prior quarter with another student, or to make it available (say on a shared server, public or private) in such a way that it could be reasonably expected to be obtained by another student; it is additionally forbidden to copy the work of another or otherwise submit the work of another as your own. For the purposes of this course and general University policy, "the work of another" includes the output of AI chatbots as well as that of online "study" repositories or so-called "tutoring" sites.

More information about the Stanford Honor Code can be found here.

**Exam proctoring:** This course is participating in the proctoring pilot overseen by the Academic Integrity Working Group (AIWG). The purpose of this pilot is to determine the efficacy of proctoring and develop effective practices for proctoring in-person exams at Stanford. To find more details on the pilot or the working group, please visit the AIWG's webpage.

*Please note: Stanford as an institution is committed to the highest quality education, and as your teaching team, our first priority is to uphold your educational experience. To that end we are committed to following the syllabus as written here, including through short or long-term disruptions, such as public health emergencies, natural disasters, or protests and demonstrations. However, there may be extenuating circumstances that necessitate some changes. Should adjustments be necessary we will communicate clearly and promptly to ensure you understand the expectations and are positioned for successful learning.*

**MATH 1550 COURSE SYLLABUS, FALL 2022**

**Important Dates**

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|---|---|
| **31 Mar** | – First Day of Classes |
| **18 Apr** | – Last day to add or drop a class |
| **24 Apr** | – Midterm I |
| **15 May** | – Midterm II |
| **23 May** | – Course Withdrawal & Change of Grading Basis Deadline |
| **26 May** | – Memorial Day (no classes) |
| **4 Jun** | – Last Day of Classes, Last Day to Arrange an Incomplete |
| **7 Jun** | – Final exam |