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**CONTACT INFO**

Paul Tokorcheck | 257 KAP | tokorche@usc.edu | [webpage](#)

I will hold virtual **office hours** each **Thursday from 12-2pm** through the Zoom link in Blackboard. If you can't meet at that time, just let me know and we can make other arrangements.

Our Teaching Assistants will run the discussions and host their own office hours through the [Math Center](#):

Wenhan Jiang (9am lectures) wenhanji@usc.edu | Inga Girshfeld (10am lectures) girshfel@usc.edu

**REQUIRED SETUP**

Our course will use the following online systems:

- **Blackboard** as the main hub for all communication, links, and course materials
- **Zoom** for (some?) lectures, discussions, and office hours
- **Gradescope** for all written work submissions and grading

You will access the latter systems through links in our Blackboard page and none of them should require separate logins. We'll work through the initial setup in our first lecture. All are free - you should only need to purchase a [textbook](#).

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For all live **Zoom** sessions you will need a camera, microphone/speakers, and a stable internet connection. If any of this is an issue you can also use the [free Zoom app](#) for cell phones and tablets.

You'll have a lot of freedom to attend whichever lecture/discussion times that you like, but whichever you choose, you should plan to be logged in **on time** and stay for the entire hour.

You should have your **camera on** for all Zoom meetings. If you don't want us to see your messy bedroom I invite you to choose a fun [virtual background](#).

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All written assignments will be handled through the **Gradescope** link in Blackboard. Gradescope will allow you to submit either individual JPEGs for each page, or a single document in PDF format.

If for some reason you need to email us a document, it should **always** be in PDF format. There are many free phone apps that you can use to scan/combine your work, including [Adobe Scan](#) and [Small PDF](#) and [others](#).

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**WHAT YOU WILL LEARN**

*Vectors, vector valued functions; differential and integral calculus of functions of several variables; Green's theorem, Divergence theorem, Stokes' theorem. (4 units)*

This corresponds roughly to Chapters 10-13 of our [textbook](#). Our main goals are to help you:

- develop knowledge and vocabulary around vectors in space and the geometry of curves and surfaces,
- understand functions of several variables, their derivatives, approximations, and extreme values,
- develop knowledge and vocabulary around vector fields, including their curl and divergence,
- compute line integrals and surface integrals,
- understand and compute with the major theorems of Green, Stokes, and Gauss.

**DISCUSSION SECTIONS**

In each discussion period you will be given a short activity (called **projects** or **labs**) that is intended to introduce a new idea or an application of the ideas we're discussing in lecture. These labs will be due in Gradescope at **11pm** that same day. Late work will **not** be accepted under any circumstances. However, from the ~27 activities we will drop the lowest **nine (9)** scores.

These discussions must be attended live because you will be asked to work both solo and in small groups. All sections on a given day will do the same work so you can choose the one that best fits in your schedule.

You are encouraged to collaborate with your friends and fellow students on these projects, but each student should submit their own work for grading. As a general guideline: If you talk to someone about a problem, hear a good idea and write down some notes, then go home to write it up, that's collaboration. If you find yourself writing a solution while **holding** someone else's work, that's cheating.

Some labs might ask you to use [Mathematica](#) (the computation engine behind the [Wolfram Alpha](#) website). Computers with this software are available in either the Calculus Lab (KAP 265) or Math Center (KAP 263), as well as most library computers around campus. You can also [install Mathematica](#) on your own machine.

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**HOMEWORK**

On most Fridays we will collect a **homework** assignment for the week in Gradescope, due by **11pm PST**. The list of exercises is posted in Blackboard and will be updated with due dates throughout the semester. Any exercises submitted after their due date will receive **half-credit**, regardless of circumstances. You are expected to do problems every day and stay ahead of the due dates.

**EXAMS AND GRADING**

Without regard to the format of lectures and discussions over the semester, all three exams will specifically be held **in-person** during our scheduled lecture periods. If you cannot be there on the date of an exam, you must contact me **before** the exam date to make other arrangements. If you no-show for an exam and attempt to contact me afterward, do not expect to be allowed a make-up exam.

Your overall course grade will be computed in Blackboard as a raw average according to the following proportions. The Lab Average column will be set to automatically drop the lowest scores, though those scores will still be visible in their original columns.

Homework average	10%	
Lab average	15%	
Exam 1	20%	10 Feb 2023
Exam 2	20%	24 Mar 2023
Final Exam	35%	<a href="#">Finals Week Schedule</a>

The (very loose but consistent) department guidance on **letter grades** is that approximately 50% of students should receive A's and B's. So, assuming the distribution is **normal**, the overall **class median** grade will be (approximately) the division between B's and C's. The division between D's and F's will be fixed at 50%. All other letter grade cutoffs will be chosen relative to these two points. I'll rebalance these after each exam.

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## LECTURE CALENDAR

We will cover the following topics on roughly the weeks listed. The numbers on the right indicate the textbook sections that roughly correspond to the material in that week, including lab topics.

This calendar is very tentative.

Week 01: Geometry in two and three dimensions.	9.1, 9.3, 10.1 – 10.2
Week 02: <b>Monday Holiday</b> . Dot products, cross products, surfaces in space.	10.3 – 10.5
Week 03: Quadrics. Differential geometry of curves. <a href="#">Drop deadline is Jan 27 (with refund)</a> .	10.6 – 10.8
Week 04: Functions of several variables, limits, partial derivatives.	11.1 – 11.3
Week 05: Directional derivatives and the gradient. <b>Exam 1 on Feb 10</b> .	11.6
Week 06: Linear approximations and the chain rule.	11.4, 11.5
Week 07: <b>Monday Holiday</b> . Extreme values. <a href="#">Second drop deadline is Feb 24 (no refund)</a> .	11.7, 11.8
Week 08: Lagrange multipliers. Double and triple integrals.	12.1, 12.2, 12.5
Week 09: Changing variables.	12.3, 12.8
Week 10: <b>Spring Break</b> .	–
Week 11: More with triple integrals. <b>Exam 2 on Mar 24</b> .	12.6, 12.7
Week 12: Vector fields, curl, divergence.	13.1, 13.5
Week 13: Line integrals. <a href="#">Withdrawal deadline is Apr 07 (with a W on record)</a> .	13.2, 13.3
Week 14: Green's theorem. Parameterized surfaces.	13.4, 13.6
Week 15: Surface integrals and Stokes' theorem.	13.7, 13.8
Week 16: Gauss' Divergence theorem and review.	13.9

Finals Week is 03-10 May 2023. [Finals Week Schedule](#).

**IMPORTANT POLICIES AND LINKS**

**Calculators:** For in-person exams you may use any calculator that does not connect to the internet. Many discussion activities will specifically ask you to use Wolfram Alpha or Desmos or Mathematica.

**Formula Sheets:** For in-person exams you will be allowed a single  $8.5 \times 11$  sheet of notes, front and back, handwritten in your own handwriting. I suggest creating such a sheet with the first homework assignment.

**Academic Conduct:** Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. You should familiarize yourself with the [USC Student Handbook](#) and particularly with Page 11 on **Academic Integrity**.

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Counseling and Mental Health - (213) 740-9355 – 24/7 on call

[studenthealth.usc.edu/counseling](http://studenthealth.usc.edu/counseling)

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

Office of Student Accessibility Services - (213) 740-0776

[osas.usc.edu](http://osas.usc.edu)

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

Any student requesting accommodations based on a disability is required to register with DSP each semester. They will provide you with a letter of verification for that semester. Please deliver this letter to me as early in the semester as possible.

**Notetakers:** I often have requests from DSP for well-organized students who are willing to make their class notes available to approved DSP students. The DSP Office typically pays a nominal amount to the notetaker for their trouble. If you are interested in doing this, please contact me or email DSP directly at [osasNotetaking@usc.edu](mailto:osasNotetaking@usc.edu).

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call

[suicidepreventionlifeline.org](https://suicidepreventionlifeline.org)

Free & confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship & Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press “0” after hours – 24/7 on call

[studenthealth.usc.edu/sexual-assault](https://studenthealth.usc.edu/sexual-assault)

Free & confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) - (213) 740-5086 — Title IX – (213) 821-8298

[equity.usc.edu](https://equity.usc.edu), [titleix.usc.edu](https://titleix.usc.edu)

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298

[usc-advocate.symplicity.com/care\\_report](https://usc-advocate.symplicity.com/care_report)

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity—Title IX for appropriate investigation, supportive measures, and response.

USC Campus Support and Intervention - (213) 821-4710

[campussupport.usc.edu](https://campussupport.usc.edu)

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101

[diversity.usc.edu](https://diversity.usc.edu)

Info on events, programs and training, the Provost’s Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

[dps.usc.edu](https://dps.usc.edu), [emergency.usc.edu](https://emergency.usc.edu)

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

[dps.usc.edu](https://dps.usc.edu)

Non-emergency assistance or information.