Math 22, Summer Session 1, 2020

Introduction to Calculus of Several Variables

TuWF, 9am-11:30am, Zoom 98159657082, pwd: xxxxxx

`https://ucsc.zoom.us/j/xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx`

I might make slight updates to the syllabus during the course. Please check canvas and your email for any updates.

Instructor: Andres Perico
aperico(at)ucsc(dot)edu
Web-Office: "perico" in Zoom.
Office Hours: By appointment or Tue,Wed, 11:30 - 12:30 at Zoom personal room

Teacher Assistants:

Jason Chew
Email: jchew2(at)ucsc(dot)edu
Office: "jchew2" in Zoom,
Office Hours: Fri, 12:30-1:30,

Sam K Miller
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Office: "samkmiller" in Zoom,
Office Hours: Th, 12:00-2:00

Sections:
Thursdays 10:00 am
Room:
Thursdays 11:00 am
Room:

LSS:
Tutor: Sean Riedel
Hours: W 12:45pm-2:00pm, 6:00pm-7:15pm; Sat 4:00pm-5:00pm
Where: `https://ucsc.go-redrock.com/tracweb40/main.4sp`, find instructions to sign up at `https://lss.ucsc.edu/tutor-trac/tutor-trac.html#Sgt`.
Email: sriedel(at)ucsc(dot)edu

Course Description: Functions of several variables. Continuity and partial derivatives. The chain rule, gradient and directional derivative. Maxima and minima, including Lagrange multipliers. The double and triple integral and change of variables. Surface area and volumes. Students cannot receive credit for this course and course 23A.

Credits: 5 units

Prerequisite(s): One of the following: MATH 11B or MATH 19B or MATH 20B or AMS 15B or AP calculus BC exam score of 4 or 5. Prerequisites waived for non-UCSC students.

Text: *Calculus volume 3*
Author: OpenStax, `https://openstax.org/details/books/calculus-volume3`.

Text: *Multivariable Calculus. 8th Ed.*
Author: James Stewart

Note that you are **not** required to buy any textbook.

Important dates:
Drop: Monday, June 29
Request for "W": Friday, July 10

Summer is unique. You will not be dropped for non-attendance or non-payment. You must drop yourself. Dropping before the deadline results in a full-tuition reversal/refund. Withdraw posts a W for the grade and full tuition is charged (no refund).
For all dates and deadlines, including 'change of grade option' (P/NP) and grades due, here is the summer academic calendar: `https://summer.ucsc.edu/studentlife/index.html`.
For questions about dropping, requesting a W grade for a course, or withdrawing from the summer quarter, email summer@ucsc.edu.

Grade Distribution:

Pre-class work	10%
Mid-term Exam	15%
On-line homework	20%
Final Exam	25%
Written homework	30%

Pre-class: Canvas, due **before** the respective lecture.

Midterm Exam: Friday July 10th. Follow instructions in Canvas. Covers modules 1 to 15.

Online Homework: Go to `https://edfinity.com/join/YV4X97FV` and enroll **using your UCSC email address**. Due $\sim$ four days after the respective lecture. Two worse grades will de dropped.

Final: A **cumulative** final exam will be held on the last day of class, Friday July 24th. Follow instructions in Canvas.

Written Homework: Single pdf through Canvas-Gradescope, we won't receive anything via email. Due weekly on Sundays.

Late Policy: I do not accept late homework in any circumstances.

Make up Quizzes/Exam: "Make-up" quizzes/exams must be approved and arranged in advance. Absences from exams due to illness or personal crisis must be adequately documented.

Tentative Course Outline:
The topic coverage might change as it depends on the progress of the class. If you are using other textbook, let me know I'll give you the correspondent sections.

Course Outline:

Module	Day	Name	OpenStax	Stewart
1	06/23	Vectors	2.1-2.2	12.1-12.2
2		Dot product	2.3	12.3
3	06/24	Cross Product	2.4	12.4
4		Lines and planes	2.5	12.5
5	06/26	Cylinders and Quadric	2.6	12.6
6		More coordinates	2.7	15.7*-15.8*
7	06/30	Vector functions	3.1	13.1
8		Derivatives and integrals	3.2,3.4*	13.2
9		Arc Length Curvature	3.3	13.3
10	07/01	Functions several variables	4.1	14.1
11		Limits + Continuity	4.2	14.2
12		Partial derivatives	4.3	14.3
13	07/03**	Tangent planes	4.4	14.4
14	07/07	Chain rule	4.5	14.5
15		Directional derivatives	4.6	14.6
16	07/08	Max and Min	4.7	14.7
17	07/10	Midterm / Lagrange	4.8	14.8
18	07/14	Double integrals	5.1	15.1
19		General regions	5.2	15.2
20	07/15	Polar coordinates	5.3	15.3
21		Surface area	*	15.5
22	07/17	Triple integrals	5.4	15.6
23		Change of variables	5.7	15.9
24	07/21	In cylindrical coordinates	5.5	15.7
24		In spherical coordinates	5.5	15.8
25	07/22	Applications/Review	5.6*	15.4*, 15.6*

(*) Partially covered sections from the book or external material provided by me in Canvas.
(**) Holiday, no synchronous lecture.

DRC Remote Accommodations:
The Disability Resources Center reduces barriers to inclusion and full participation for students with disabilities by providing support to individually determine reasonable academic accommodations. Operations continue via remote appointments. If you have questions or concerns about exam accommodations or any other disability-related matter, email the DRC Schedulers at drc@ucsc.edu for an appointment.

Small Group Tutoring:
Small Group Tutoring (SGT) supports students academically to advance educational equity by designing inclusive learning environments outside of the classroom. In SGT, you can expect the Tutor to facilitate cooperative group activities designed to have students work together on the course content and develop study skills for the course. SGT is offered at least three times each week for the entire quarter. The Tutor is an undergraduate student who took the class, did well, and is trained to facilitate group sessions to focus on students' needs to succeed in the course. SGT is open to

all students enrolled in the class and they must sign up on our online system: TutorTrac. When students sign up for SGT, they are committing to attend every week. For Summer 2020, students can begin signing up for tutoring on Monday, June 22rd and tutoring will begin Wednesday, June 24th. Students only have to sign up once for tutoring and their appointments will repeat weekly. Sign-ups will close on Friday, August 14th for all Summer Session Sign-Ups. This means that after August 14th, no new students can sign up for tutoring.
Want SGT to be successful for you? Bring your books, lecture notes, questions, and be open to working collaboratively with your peers. You can sign up using this link: `https://ucsc.go-redrock.com/tracweb40/NoAccess.4sp?errText=insufficient%20credentials%20to%20view%20content`
You can also find the link on our website: `https://lss.ucsc.edu/index.html`.

Academic Dishonesty
Academic integrity is the cornerstone of a university education. Academic dishonesty diminishes the university as an institution and all members of the university community. It tarnishes the value of a UCSC degree. All members of the UCSC community have an explicit responsibility to foster an environment of trust, honesty, fairness, respect, and responsibility. All members of the university community are expected to present as their original work only that which is truly their own. All members of the community are expected to report observed instances of cheating, plagiarism, and other forms of academic dishonesty in order to ensure that the integrity of scholarship is valued and preserved at UCSC.

In the event a student is found in violation of the UCSC Academic Integrity policy, he or she may face both academic sanctions imposed by the instructor of record and disciplinary sanctions imposed either by the provost of his or her college or the Academic Tribunal convened to hear the case. Violations of the Academic Integrity policy can result in dismissal from the university and a permanent notation on a student's transcript.

For the full policy and disciplinary procedures on academic dishonesty, students and instructors should refer to the Academic Integrity page at the Division of Undergraduate Education `https://www.ue.ucsc.edu/academic_misconduct`.

Title IX:
The university cherishes the free and open exchange of ideas and enlargement of knowledge. To maintain this freedom and openness requires objectivity, mutual trust, and confidence; it requires the absence of coercion, intimidation, or exploitation. The principal responsibility for maintaining these conditions must rest upon those members of the university community who exercise most authority and leadership: faculty, managers, and supervisors.

The university has therefore instituted a number of measures designed to protect its community from sex discrimination, sexual harassment, sexual violence, and other related prohibited conduct. Information about the Title IX Office, the online reporting link, applicable campus resources, reporting responsibilities, the UC Policy on Sexual Violence and Sexual Harassment, and the UC Santa Cruz Procedures for Reporting and Responding to Reports of Sexual Violence and Sexual Harassment can be found at `http://titleix.ucsc.edu`.

The Title IX Office is actively responding to reports and requests for consultation. If you are not currently working with someone in the office and want to make a report/request a consult, you can expect the fastest response by using our online reporting link `https://ucsc-gme-advocate.symplicity.com/public_report/index.php/pid304388?`.

For more information please visit the Title IX Operations under Covid-19 page `https://titleix.ucsc.edu/about/titleix-covid19.html`.

Grading Scale The grading scale for the class will be **approximately**:

A+:97%-100%,
A :93%-96%,
A-:90%-92%,
B+:87%-89%,
B :83%-86%,
B-:80%-82%,
C+:76%-79%,
C :70%-75%,
D :60%-69%,
F :0%-59%.

Letter grade boundaries may be lowered at my discretion in order to eliminate some borderline cases.

Some tips for the course:

- Read the sections to be covered in lecture before you assist to lecture.
- If you are stuck in some problem, work through the examples in the textbook first, the online version of the OpenStax book has great interface where you can hide answer for examples.
- Form a study group and meet regularly, you can create a discussion on canvas.
- Keep up with the schedule.
- Attend or watch all lectures and discussion sections if possible where you can get your questions answered.
- If something is unclear attend office hours.
- Use LSS for additional help.