

MATH 53 Multivariable Calculus. Course Syllabus

with Professor Zvezdelina Stankova

MWF 12:10pm - 1pm (Lec 1); 1:10pm - 2pm (Lec 2), online

Updated 1/5/2021

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1. INSTRUCTOR AND GENERAL INFORMATION

- **Instructor:** Professor Zvezdelina Stankova (Zvezda)
- **Tentative office hours** (to be finalized by the end of the first two weeks of classes):
 - MWF 10:30am-11:30am, MW 2:10pm-3:00pm, F 2:10-2:30pm.
 - There are no individual appointments.
 - Questions will be answered on a first-come-first-serve basis.
 - Administrative questions will take priority during the last 10 minutes of each office hours.
 - If you have an urgent question, you must make time to come in office hours. The common excuse: “I couldn’t make it to your office hours because of reason X, and hence I am writing to you an email.” will **not** be accepted. If your issue is important, you will make time to come to office hours. Anything that can be resolved in office hours must be resolved in office hours; **not** on email!
- **Email:** stankova@math.berkeley.edu; ONLY FOR EMERGENCIES!
 - (occasionally) <http://www.math.berkeley.edu/~stankova>

2. ONLINE PLATFORMS USED FOR MATH 53

- (1) Zoom: live lectures, sections, polls, and OHs. Zoom links: on bCourses.
- (2) bCourses: HW assignments, course materials, and administrative announcements. bCourses is used only by instructor and GSIs to run the course, NOT by students for communications.
- (3) Gradescope: quizzes, HWs, and written parts of exams.
- (4) WebWork (in bCourses): T/F+M/C parts of exams; alternative lecture attendance checks.
- (5) piazza: mathematical discussion.

3. ENROLLMENT, SECTION SWITCHING, bCOURSE ACCESS

3.1. **For enrollment questions**, contact:

- **Jennifer Sixt**: at enrollment@math.berkeley.edu

or by booking a Google Hangouts appt with her through jenucbmath.youcanbook.me/

(1) Use e-mail only for *quick* advising questions.

- **Thomas Brown**: Last Name “A-L” students, thomasbrown@berkeley.edu.
- **Marsha Snow**: Last Name “M-Z” students, snow@math.berkeley.edu.

(2) For in-depth advising, make an appt M-F 10AM–12Noon & 1–4PM via Google Hangouts:

- Current UCB students: schedule an appt via Cal Central’s “My Academics” tab.
- Prospective UCB students: email directly your adviser above (by your last name).

3.2. **To switch discussion sections**, students must go to CalCentral at

(1) <https://calcentral.berkeley.edu>

- The switch will be possible only if there is room in the section.

(2) **No access to enrollment**: Do **not** ask the instructor or GSIs to switch you to another section or to enroll you in the class. We have no control over enrollment in the class/sections.

3.3. **bCourse Access**: is granted only to officially registered students in the class.

Students **on the wait list** will **not** be added to the bCourse site. Until registered, you need to:

- Ask a classmate to share with you any other materials on bCourses.
- The GSIs and I will NOT be sharing course materials with individual students who are not officially registered for the class, join late, miss part of the class, lose materials, etc.

Follow these instructions precisely, and keep emails to me and the GSIs only for real emergencies.

4. PREREQUISITES

4.1. **Required**: MATH 1B Calculus II, or MATH 10A Method in Mathematics, or equivalent.

5. ATTENDANCE: LECTURES AND DISCUSSION SECTIONS

5.1. **Enrollment in sections**: Each student must sign up for a discussion section on Tue/Thur.

5.2. **Attendance Checks**: Lectures and discussion sections are mandatory and must be attended synchronously by all students.

- (1) Lecture and section attendance will be taken in class, synchronously, via polls.
- (2) Students with severe time differences will be identified before the semester starts and directed to alternative lecture attendance quiz on WebWork btw 10-10:15pm that day.
- (3) Sections must be attended synchronously by all students and no alternative section attendance check will be possible. Thus, sign up for a section that you can attend synchronously.

6. TEXTBOOKS

6.1. **Required**: “*Calculus, Early Transcendentals*,” by Stewart, special UCB edition (ACP MATH 53 STEWART CALC ET), ISBN: 9781305756458.

6.2. **Recommended**: “*A Decade of the Berkeley Math Circle*,” vol. I-II, edited by Stankova and Rike, MSRI/AMS, for learning proofs and problem-solving techniques.

7. HOMEWORK

7.1. **Assigned/Due**: HW will be posted on bCourses every week, usually right before or after each lecture. HWs must be submitted to Gradescope by 11:59PM the following Monday. HW Solutions are posted 12:01am on Tuesdays, and the quizzes are usually on Tuesdays. Thus, NO late HW will be accepted, as the solutions will be posted for everyone to see at the deadline. No exceptions.

7.2. **If missed class:** If you miss lecture or discussion section: do NOT e-mail instructor or GSI to ask for missed handouts and announcements. Instead, check bCourses and ask your classmates.

7.3. Homework solutions:

- **Posted** on bCourses at 12:01am on Tuesdays. Do **not** ask for solutions to be posted earlier: you must attempt to do your homework without help from posted solutions.

- **Taken down** the web in a week or so after being posted; hence make sure that you download them and read them on time. No HW solution files will be sent to students at any time: please, do **not** request them; ask instead your classmates for any missed HW solution files.

8. READING ASSIGNMENTS

It is the students' responsibility to read carefully and thoroughly the assigned textbook section(s) and review their class notes after each class. If you missed a lecture or a discussion section do **not** ask the instructor or the GSI for their notes. Ask your classmates for their notes.

9. QUIZZES

9.1. **Total number of quizzes:** There will be about 14 quizzes in the discussion sections, given once a week. Quizzes will start 10 minutes before the end of section and will last for 10 min. + 10min. for pdf creation and submission on Gradescope.

9.2. **Number of quiz scores in final grade:** Only the top 10 quiz scores will be taken into account when determining a student's final grade. No more quizzes will be dropped, for any reason.

9.3. **No make-up quizzes:** If you miss the time when your quiz is given, you cannot retake the quiz at another time or in another section, and your quiz score will be 0. Thus, when you miss to take your quiz (for whatever reasons, including being sick, having a family emergency, etc.), keep in mind that exactly **the top ten** quiz scores will be counted, regardless of your reasons. **No** exceptions will be made to this policy: please, do not send me or to your GSI notes to be excused from quizzes. The quizzes will be based on the current or previous HW and class/section problems.

9.4. **Purpose of the "Top 10 quizzes":** Keep the few times when you might miss quizzes only for true emergencies. The quizzes to be dropped are not intended as a back-up for slacking off, lagging behind the material, or catching up due to unsatisfactory academic performance on previous quizzes. The quizzes that will be dropped are meant to help you in case of an emergency. No further quiz scores will be dropped.

9.5. **Joining the course late and quizzes:** Again, 10 quiz scores will be used towards the final grade, including some possible 0s if fewer than 10 quizzes have been taken.

9.6. **Content of Quizzes:** Ordinarily, each quiz will be graded out of 12 points and will consist of one problem for 10 points and 2 True/False or Multiple Choice questions. Each T/F and M/C question will be graded as follows: 1 point for correct answer, 0 for incorrect or blank. The T/F and M/C questions on the quizzes are intended to prepare you for a problem with many T/F and M/C questions on each exam. One of the T/F or M/C questions on each quiz may be on administrative matters reflected in the syllabus or discussed in lecture or in section. Thus, you must read the syllabus and be updated on any administrative announcements and in-class discussions.

9.7. **Cheat Sheet on Quizzes:** One page (one side of a regular sheet of paper), hand-written by the students. No copying and pasting of typed text from anywhere, unless the student has a registered disability that allows for typed or other specially prepared texts.

10. EXAMS

10.1. Times of the three exams:

- (a) **Midterm 1:** Fri, Feb 26.
- Written Part: 12:10-1pm (Lec 1), 1:10-2pm (Lec 2); 10:10-11pm (“overseas” students).
 - WebWork T/F+M/C part for everyone: \approx 15 minutes starting between 6pm-9pm.
- (b) **Midterm 2:** Fri, April 2.
- Written Part: 12:10-1pm (Lec 1), 1:10-2pm (Lec 2); 10:10-11pm (“overseas” students).
 - WebWork T/F+M/C part for everyone: \approx 15 minutes starting between 6pm-9pm.
- (c) **Final exam:**
- Wed, May 12th, 3-6pm (Lec 1).
 - Tue, May 11th, 8-11am (Lec 2).
 - “Overseas” students will be distributed among the two regular exams above.
Alternative version for the final exam (if at all): Tue, May 11, around 9PM-12midnight.

10.2. **No make-up midterms or final exams:** Every student must take the midterms and the final exam on the dates and times above. The alternative “overseas” time per exam will be offered to students who are identified (through a google form) by the instructor prior to the start of classes.

10.3. Scheduling or avoiding conflicts with exams?

- Do **not** buy tickets to travel and do **not** schedule other events during the days of exams: you must take the exams at the announced times.
- Do **not** ask for different dates or times for the final exam due to flight reservations or other reasons: the final exams times are assigned campus-wide and there will be no personal exceptions.
- Do **not** take this class if you have a conflict with any of this exam schedule. The MATH 53 must be taken synchronously; which in particular means that you CANNOT sign up for another class during the same time.

10.4. **Exam Content.** A substantial part of the exams will be based on versions of problems from:

- **Homework:** problems, both regular and bonus.
- **Class:** problems, theory, and ideas discussed in class.
- **Quizzes:** quiz problems from random sections.

10.5. Are the exams comprehensive?

- **Midterms:** The topics for each midterm exam will be based on the portion of the course between exams. Thus, formally, midterms are **not** comprehensive. Yet, you cannot forget previous material since parts of it may come up in the solutions to midterm problems.
- **The final exam is comprehensive:** Anything covered in the course is fair game.

10.6. **Cheat Sheet on Exams:** One page (one side of a regular sheet of paper) for midterms and two pages (two sides of a regular sheet of paper) for the final exam, hand-written by the students. No copying and pasting of typed text from anywhere, unless the student has a registered disability that allows for typed or other specially prepared texts.

All cheat sheets must be submitted PRIOR to each exam on Gradescope for a certain number of points towards the exam (including an empty cheat sheet with the student’s name, signature, and date on top), or -5 pts if nothing is submitted, or if the cheat sheet does not conform to the specifications.

In case of a suspected actual cheating on exams, a reference to a non-submitted cheat sheet or cheat sheet does not conform to the specifications will NOT be accepted.

11. FINAL GRADE COMPONENTS

11.1. **Grading scheme.** Grades will be computed by taking:

- (1) 3% homework. There will be ≈ 38 HWs, each out of 10 points, checked for completeness. No HWs will be dropped. Each HW will be worth $0.08\% = 0.0008$ of your final grade.
- (2) 12% quizzes (using only the top 10 quiz scores). At the instructor's discretion, quiz medians of all sections in the class will be uniformized at the end of the semester.
- (3) 12% lecture attendance. There will be 2 polls in lecture or alternative late evening quiz for "overseas" and DSP students with lecture accommodations. Each poll is out of 2 pts:
 - answer the two polls any way during the given time: 1 pt;
 - answer at least one poll correctly: 1 pt.The top 30 (out of ≈ 38) lecture attendances will count towards the final grade.
- (4) 8% discussion attendance. There will be 2 polls in discussion sections (no alternative options for section polls). Each poll is out of 2 pts:
 - answer the two polls any way during the given time: 1 pt;
 - answer at least one poll correctly: 1 pt.The top 20 (out of ≈ 28) section attendances will count towards the final grade.
- (5) 20% midterm 1.
- (6) 20% midterm 2.
- (7) 25% final exam.

11.2. **Resurrection final.** The final exam will resurrect one of the midterms if the midterm has a score lower than the final exam.

- This means that the final exam may count as 45% instead of 25%.
- It is up to the instructor to decide if some of three exams will be rescaled in the end to the same median, so as to give them comparable weights in the final grade.

11.3. **Class curve.** The final letter grades will be based on a curve, which is not known ahead of time and will be determined AFTER the final exam. Scores so-far will be sent out around mid-semester and Review week (RRR) before the final exam. Class statistics on the midterms and the final exam will be posted on bCourses.

11.4. **Missing both midterms:** will result in automatic failure of the course. No option of an incomplete grade here, as missing both midterms will not qualify a student for an incomplete grade.

11.5. **Missing the final exam:** will result in automatic failure of the course, unless valid reasons are provided for requesting an incomplete grade (see below).

12. SPECIAL ACCOMMODATIONS

12.1. **Skipping a midterm.** You may skip a midterm (but not the final exam!) due to a conflict with **religious creed** or with an **extra-curricular/sports activity**, or a severe **medical or family emergency**. Skipping both midterms or skipping the final exam will automatically lead to a failing grade. There are no make-up midterms or final exams.

- The student must notify the GSI that he/she will be skipping a midterm and explain the reason, so that the GSI does not worry about what happened. No need for a formal documentation.
- The final exam may resurrect only one missed midterm (but not both midterms). However, this option must be taken only when really necessary. Frivolous skipping a midterm usually leads to poor final exam outcome.
- It is the student's responsibility to learn the missed material due to the absence.

12.2. Special Arrangements for Disabled Student Program (DSP) students.

- If you are a student with a **disability registered by the DSP** on UCB campus and require special arrangements during exams and quizzes, I and the GSI must receive the official DSP accommodation by the DSP office at least **14 days (2 weeks)** in advance. We will **not** be able to accommodate anyone in less than 14 days (as all exams and quizzes will be locked for certain times on Gradescope/Webwork) and the student will have to take the exam (or quiz) along with everyone else under the regular conditions provided for the class. The earlier we are informed about your DSP status, the easier it is to provide appropriate accommodations for you.

- Do **NOT** ask to be given special accommodations while promising that in the future you will provide a DSP letter. Observe this policy: no exceptions will be made.

13. DROP DEADLINE

The results of the first midterm will likely be known **after** the drop deadline. Do not ask me or the GSIs if I think you are more likely to get, say, B^- instead of C^+ : we will not know. The decision to drop the course or switch between P/NP and letter grade options will be entirely yours and you will have to make it based on your first several quizzes and the first midterm (if its score is available at that point).

14. INCOMPLETE GRADES

14.1. **University policies:** Please, consult the university policies regarding incomplete grades.

14.2. **Reasons for Incomplete:** An Incomplete “I” grade is rarely given.

The only justifications for an I grade are:

- **documented serious medical problem, or**
- **a genuine personal/family emergency.**

14.3. **Conditions for giving an incomplete.** When requesting an incomplete, the student must:

- have a passing grade (C^- or above) up to that point in the class.
- have completed at least 2/3 of the course work up to that point (thus, essentially, completed everything but the final exam).
- present a formal document regarding the nature of emergency or the medical problem.

14.4. **Invalid reasons for requesting an incomplete.**

- Falling behind in this course or a heavy work load in other courses are not acceptable reasons for requesting an incomplete.
- If you miss a midterm (for whatever reasons), you will **not** qualify for an incomplete, as your grade before the final exam will include a 0 on that midterm, which will not have been “resurrected” by the final at the time of requesting the incomplete grade.

15. ACADEMIC INTEGRITY

The Mathematics Department, and in particular, the instructor and the GSIs in this course, expect that students in mathematics courses will not engage in cheating or plagiarism.

- Due to the online format of this course, **Specific Honor Code and Exam Instructions** for the exams and quizzes for this course will be provided in due time.

The following is adapted from the Math Department web page to our course. Read it for general understanding of cheating and honor code and adapt it to the present online circumstances by following the Specific Honor Code and Exam Instructions that will be provided by the instructor.

15.1. What does cheating mean? Broadly speaking, cheating means violating the policies of a course or of the university in order to gain an unfair advantage over fellow students. A particular kind of cheating is plagiarism, which means taking credit for someone else's work. Cheating and plagiarism hurt your fellow students in the short term, they hurt the cheater in the long term, and they will not be tolerated. On exams, the most basic type of cheating is copying off of someone else's paper. Graders easily spot when two exam papers look unusually similar, or have similar (wrong or correct) answers, calculations, ideas, or thought structure, even if written in different words or order of words. Even glancing at someone else's paper to check your answer is cheating. If you write the correct answer to a computational problem without any justification or with a bogus justification leading to that answer, this raises strong suspicions that you cheated, on top of not receiving any credit anyways due to the lack of correct justification.

15.2. Electronic devices on exams/quizzes. Electronic devices such as phones, calculators (electronic, mechanical, or any other type), and other devices* are also not allowed on exams/quizzes not even to tell the time. There are too many ways to cheat using software and the Internet. Exams are not intended to test your ability to find the answer by any means necessary. The questions might be too easy for that! Rather, exams/quizzes are supposed to test your understanding of the course material, which you will need in order to use math correctly in subsequent courses and in the real world.

15.3. Expectations on exams, quizzes, and HW. Exams and quiz papers are expected to be your own work. In this class we encourage collaboration on homework, as it will be graded for "completeness" only; but you are carrying your personal responsibility to learn how to do the HW problems independently so as to be able to solve similar problems on exams and quizzes by yourself. When allowed, if you use proofs or calculations from textbooks or class notes, you need to cite these sources, even if you have rewritten the material in your own words; otherwise it is plagiarism.

15.4. How to avoid cheating? It is your responsibility to take reasonable precautions to prevent cheating. In exams, you should sit as far away from other students as the room permits, and hold your exam papers in such a way that they are not easily visible to other students.

15.5. What to do in a case of cheating? If you suspect that other students are cheating, you should immediately inform the instructor and/or your GSIs. Students may be cheating in ways that the instructor/GSI has never even heard of (unlikely, but possible). Even if you don't mention any names, the sooner you inform the instructor/GSI what is going on, the sooner they can take measures to put a stop to it. You can further report any cheating at:

<http://sa.berkeley.edu/conduct/reporting/academic>

15.6. Resolution to cheating. If you are suspected of cheating, the instructor may pursue a variety of actions depending on the particular nature of the incident. If you accept responsibility for academic misconduct, the matter can often be resolved between you and the instructor with possible academic sanctions ranging from losing points on an exam/quiz to failing the class, and a report will be sent to the Mathematics Department and/or Center for Student Conduct. It is not necessary for the instructor to determine whether the student(s) has a passing knowledge of the relevant factual material. It is understood that any student who knowingly aids in cheating is as guilty as the cheating student.

In serious incidents, or if you maintain that you are not responsible for academic misconduct, the instructor has the freedom and responsibility to impose any academic sanctions within the course that she deems appropriate, and the case will very likely be forwarded to the Center for Student Conduct. In such a case, more stringent actions (e.g., dismissing the student from the university) can be initiated by the Office of Student Conduct.

15.7. Conclusion. We hope that the above clarifications will help prevent cheating. If you have any questions about the rules or expectations, you should not hesitate to ask the instructor/GSI, or the vice chair for undergraduate affairs in the Mathematics Department.

*Tablets/ipads for writing will be allowed in MATH 53, with certain restrictions.

16. CONDUCT SANCTIONS AND GRADE DEDUCTIONS FOR ILLEGAL POSTINGS

This section concerns what will happen when a student pirates course materials and posts them on-line, including but not limited to coursehero.com, or assists someone else in doing that. Apparently, the problem is pervasive, it encourages plagiarism, and in the long-run it hurts everyone by undermining and jeopardizing their learning process.

Here are the relevant sections from the **University-wide Code of Conduct** and this is what **UCB Student Conduct Committee** will use to apply sanctions to students who have posted course materials on-line or elsewhere without explicit permission from the corresponding instructors:

- **102.23 Course Materials - Selling, preparing, or distributing for any commercial purpose course lecture notes or video or audio recordings of any course unless authorized by the University in advance and explicitly permitted by the course instructor in writing. The unauthorized sale or commercial distribution of course notes or recordings by a student is a violation of this Code whether or not it was the student or someone else who prepared the notes or recordings.**

Copying for any commercial purpose handouts, readers or other course materials provided by an instructor as part of a University of California course unless authorized by the University in advance and explicitly permitted by the course instructor or the copyright holder in writing (if the instructor is not the copyright holder).

As in other classes on campus, any unauthorized by me postings of any course materials, including but not limited to any handouts, syllabus, bCourse pages, quizzes, discussion worksheets, midterm reviews, exams, presentations, lecture notes, pictures, video, etc., will be:

- **Subject to a letter grade deduction of the final course grade, left entirely to the instructor's discretion, AND**
- **Formally reported to the University Student Conduct Committee.**

I had never felt the need to impose such strict rules until I was given the opportunity to see the damage that such mis-conduct causes to all students in classes on campus and elsewhere.

In case of doubt, before posting any materials related to the course, ask me or your GSIs. As a rule of thumb, anything that I or the GSIs have prepared for the course, anything on the bCourses site, etc., CANNOT be posted on-line. Be advised that there is a simple way to track down who has posted materials.

Finally, no one in the classes can take audio or video, or pictures of the boards or anyone in class, without my explicit permission and without the corresponding DSP accommodation presented to me in advance. Such audio, video, or picture materials are subject to the same rules of non-posting and usage strictly by the corresponding DSP student.

16.1. Piazza Site for MATH 53. The instructor will not moderate piazza.

- A couple of GSI will be assigned to loosely monitor the piazza site. Other GSIs may occasionally check but are not obligated nor should be expected to verify or moderate the content of the posts on piazza.
- The piazza site is open only for students enrolled in the course, and the topics discussed are restricted primarily to the math content the course: the piazza site is a math site. However, you CANNOT just ask how to solve a problem without having tried it and describing your attempts and where you are having difficulty. Posting full solutions to a problem is also NOT allowed. Posting ideas, partial calculations, and other math discussion is OK.

- You CANNOT post questions that have been answered in the syllabus, in lectures/sections, or in the announcements: if you miss something, you must fill in the blanks by watching the lecture recordings, re-reading the syllabus and other course materials and announcements on bCourses, and individually asking your classmates, and NOT publicly asking on piazza. Piazza is for math questions and some quick logistics questions that have NOT been answered elsewhere (and you have NOT missed lectures or sections). Piazza is NOT for “questioning, discussing, or arguing about ” the structure and policies of the class: these are the prerogative of the instructor, are NOT up for discussion, and will be applied equally to everyone.
- While we will disable the ability for students to post anonymously to instructors, we do not wish that to dissuade you from feeling comfortable asking any honest and relevant question.
- Any posting of links or references on how to obtain unauthorized or pirated copies of the textbook or other copyrighted materials directly violates the course syllabus about plagiarism. Posting such content is illegal, and any student who does so faces academic and other sanctions. Students CANNOT post pictures from the textbooks, the HW Solutions, Discussion Worksheets, Exams, etc.: no materials or pictures of these materials from our class can be posted (in whole or in parts) on piazza, on any other media used by the class, on email, or on the internet. If you want to refer to some problem, say, in the textbook, site the section and number of the exercise, and that will be sufficient.

17. QUESTIONS

17.1. **Whom to Ask?** Please, refer to the following list for who to contact when you have questions regarding the course. Contacting the wrong people will simply result in redirecting you to the appropriate contact person, and thus, will waste your and our time. GSIs are instructed **not** to answer any questions outside of their realm of expertise as listed below.

#	Type of Questions	Person to Ask	When and How
1	enrollment and section placement	Jennifer Sixt Thomas Brown, Marsha Snow	email or appointment M-F 10am-12pm, 1-4pm
2	quiz and exam scores	the student’s GSI	office hours
3	missed handouts and announcements	bCourses, piazza, classmates	anytime
4	emergencies, administrative questions not addressed elsewhere	professor	office hours
5	math questions	GSIs, professor	sections, office hours
6	true emergencies that are not caused by you and cannot be resolved in office hours	professor	e-mail, phone

17.2. **Email is only for emergencies!** The professor will not answer any math or grading policy questions on e-mail: **professor’s e-mail is only for emergencies!**

- “Emergencies” are urgent and important situations that are **not** caused by a student’s procrastination, negligence, or disorganization.
- An “emergency” email is **no longer than 5 lines!** If you are in an emergency, you cannot write long emails!
- No attachments can be emailed to the professor, unless a prior agreement between professor and student has been reached after discussing the issue and the professor has requested more information in the form of an attachment.

18. GSIs CONTACT INFORMATION: UPDATED ON bCOURSES

DIS	Days	Time	GSI Name	Email	Office Hours
101	TuTh	0800 0930 A	David Casey	caseydj@berkeley.edu	TBA on bCourses
102	TuTh	0800 0930 A	John Nolan	john_nolan@berkeley.edu	TBA on bCourses
103	TuTh	0930 1100 A	David Casey	caseydj@berkeley.edu	TBA on bCourses
104	TuTh	0930 1100 A	John Nolan	john_nolan@berkeley.edu	TBA on bCourses
105	TuTh	1100 1230 P	Junsheng Zhang	jszhang@berkeley.edu	TBA on bCourses
106	TuTh	1100 1230 P	Michael Yeh	yehm@berkeley.edu	TBA on bCourses
107	TuTh	1230 0200 P	Junsheng Zhang	jszhang@berkeley.edu	TBA on bCourses
108	TuTh	1230 0200 P	Michael Yeh	yehm@berkeley.edu	TBA on bCourses
109	TuTh	0200 0330 P	Carlos Esparza	esparzac@berkeley.edu	TBA on bCourses
110	TuTh	0200 0330 P	Pranav Trivedi	pranavtrivedi@berkeley.edu	TBA on bCourses
111	TuTh	0330 0500 P	Carlos Esparza	esparzac@berkeley.edu	TBA on bCourses
112	TuTh	0330 0500 P	Pranav Trivedi	pranavtrivedi@berkeley.edu	TBA on bCourses
113	TuTh	0500 0630 P	Mingyang Li	mingyang_li@berkeley.edu	TBA on bCourses
114	TuTh	0630 0800 P	Mingyang Li	mingyang_li@berkeley.edu	TBA on bCourses
201	TuTh	0800 0930 A	Theodore Coyne	theodorecoyne@berkeley.edu	TBA on bCourses
202	TuTh	0800 0930 A	Michael Smith	doctorq@berkeley.edu	TBA on bCourses
203	TuTh	0930 1100 A	Theodore Coyne	theodorecoyne@berkeley.edu	TBA on bCourses
204	TuTh	0930 1100 A	Michael Smith	doctorq@berkeley.edu	TBA on bCourses
205	TuTh	1100 1230 P	Marvin Castellon	marvincast@berkeley.edu	TBA on bCourses
206	TuTh	1100 1230 P	Xiaoyu Huang	hxyy288@berkeley.edu	TBA on bCourses
207	TuTh	1230 0200 P	Marvin Castellon	marvincast@berkeley.edu	TBA on bCourses
208	TuTh	1230 0200 P	Xiaoyu Huang	hxyy288@berkeley.edu	TBA on bCourses
209	TuTh	0200 0330 P	Yuchen Mao	yuchen_mao@berkeley.edu	TBA on bCourses
210	TuTh	0200 0330 P	Sean Murphy	sean.murphy@berkeley.edu	TBA on bCourses
211	TuTh	0330 0500 P	Sean Murphy	sean.murphy@berkeley.edu	TBA on bCourses
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- Any student is **welcome to visit** any GSI with math questions. The GSI's and instructor's office hours do not overlap, and hence there are lots of office hours during the week when one can get answers to questions. You do **not** have to come to the instructor's office hours with math questions: all GSIs are qualified to answer math questions related to the course.
- Direct admin. questions (not answered in class) **in person** to your GSI or the instructor.
- **Reserve email for emergencies only!** "Emergencies" are urgent and important situations that are **not** caused by a student's procrastination, negligence, or disorganization. Yes, this is repeated, as a number of students ignore this and send all sorts of routine or non-emergency emails that can be resolved in office hours.
- **No repeats.** Administrative questions that are addressed in this handout or answered in lectures or sessions will not be answered on e-mail or otherwise.
- **Missed information.** For any missed information: ask your classmates.
- **Be organized, responsible, and hard-working:** these traits will take you half of the way to performing well and getting a lot out of this course.

TURN OVER FOR TENTATIVE TOPICS OF THE COURSE

19. TENTATIVE TOPICS OF THE COURSE

- 1 Introduction. §10.1. Parametric Curves
- 2 §10.3. Polar Coordinates.
- 3 §10.2-10.3. Tangents in Cartesian and Polar Coordinates.
- 4 §10.2-10.4. Applications to Calculus on Parametric and Polar Curves
- 5 §12.1-§12.2. Three-Dimensional Coordinate Systems. Vectors
- 6 §12.3. Multiplying Vectors. The Dot Product
- 7 §12.4. The Cross Product
- 8 §12.5. Applications of Vectors to Lines and Planes in Space
- 9 §10.5. Conic Sections. §12.6. Cylinders and Quadric Surfaces
- 10 §13.1. Vector Functions and Space Curves. Derivatives, Part I
- 11 §13.2. Derivatives (Part II) and Integrals of Vector Functions. Arc Length, Part I
- 12 §13.3. Arc Length (Part II) and Curvature
- 13 §13.4. Normal and Binormal Vectors. Velocity and Acceleration
- 14 §14.1. Functions of Several Variables.
- 15 Midterm I, in class
- 16 §14.2. Limits and Continuity
- 17 §14.3. Partial Derivatives. Baby PDE's. Laplace PDE
- 18 §14.4. Tangent Planes. Linear Approximations. Differentiability
- 19 §14.5. The Chain Rule. Implicit Differentiation. Wave PDE
- 20 §14.6. Directional Derivatives and Gradient
- 21 §14.6. Tangent Lines and Planes to Curves and Surfaces. §14.7. Local Extrema of Functions
- 22 §14.7. Global Extrema of Functions
- 23 §14.8. Lagrange Multipliers
- 24 §15.1. Double integrals over Rectangles
- 25 §15.2. Iterated Integrals. Double Integrals over General Regions I
- 26 §15.3-15.4. Double Integrals over General Regions II and in Polar Coordinates
- 27 §15.6. Triple Integrals
- 28 §15.8. Triple Integrals in Spherical Coordinates, Change of Variables in Multiple Integrals
- 29 Midterm II, in class
- 30 §16.1. Vector Fields
- 31 §16.2. Line Integrals
- 32 §16.3. Fundamental Theorem for Line Integrals, I
- 33 §16.3. Fundamental Theorem for Line Integrals, II
- 34 §16.4. Green's Theorem, I
- 35 §16.4. Green's Theorem, II, Curl and Divergence
- 36 §16.6. Parametric Surfaces and Surface Area
- 37 §16.7. Surface Integrals
- 38 §16.8. Orientable Surfaces and Stokes's Theorem
- 39 §16.9. Divergence Theorem and Applications
- 40-42 Reviews for Final Exam I, II, III
- 43 Final Exam