MATH 53, Kelli Talaska
Syllabus, Fall 2019

Basics

Instructor: Kelli Talaska (acceptable names to call me: Kelli, Dr. Talaska, Dr. Kelli)
Lecture 2: MWF 1-2pm, 150 Wheeler
Discussion: Tuesdays and Thursdays, various times
Textbook: *Multivariable Calculus*, by Stewart, UC custom 8th edition.
The textbook will have copies on 2-hour course reserves at the Math/Stat library in Evans Hall. See notes about other versions in bCourses announcements.

Content

Topics: Parametric equations and polar coordinates. Vectors in 2- and 3-dimensional Euclidean spaces. Partial derivatives. Multiple integrals. Vector calculus. Theorems of Green, Gauss, and Stokes.
Prerequisites: Math 1B or an equivalent course.

Critical Dates

The following dates are NOT NEGOTIABLE, so do not make any plans conflicting with the exams. If you miss one or both midterms, your final exam will replace it/them; there will NOT be any makeup exams. If you do better on the final exam than on a midterm, I will replace the midterm grade with your final exam grade. This may be applied to both midterms if applicable. If you miss the final exam for any reason other than an extreme, unpredictable, and unavoidable emergency (with documentation), you will get a score of 0 and almost certainly fail the course.

Midterm 1 (NOTE: EVENING EXAM, locations TBA):
Wednesday, October 2, 8-10pm

Midterm 2 (NOTE: EVENING EXAM, locations TBA):
Wednesday, November 13, 7-9pm

Final exam (location TBA):
Wednesday, December 18, 7-10pm

Grading

Grades will be assigned according to the following breakdown:

Regular homework and other miscellaneous assignments, 10% total
Discussion quizzes, 10% total
Midterms, 20% each
Final exam, 40%

If any changes must be made to the grading policy, you will be given as much notice as possible.

General Info and Advice

What you should know about my approach to teaching large courses:

- I am happy to answer math questions whenever I can, even if you are worried they are very basic questions. I would much rather you ask me an "easy" question and get it sorted out than have you stay confused because you are too embarrassed to ask. If I have answered a question before, but you didn't understand the response, it is totally okay to ask me to phrase it another way. I check Piazza very frequently, though I cannot guarantee I'll be online at any particular time. I like seeing students in person even better.
- I want you to do well, and I want you to feel confident in your skills. To get there, you have to show up and put in the work and ask questions.
- **I am very strict about deadlines**. This is because of the very large class size. I have approximately **800 students**, so handling exceptions for even a small percentage of students would eat a large amount of time. It is simply not practical. Please reserve any requests for special accommodations to truly exceptional circumstances.
- The deadlines are according to the time on the Webwork and Gradescope servers, even if your computer thinks you have 2 more minutes or whatever. I don't recommend putting things off to the last minute, as the systems can be slow near the deadlines and you may not get things in.
- Similarly, **it is not practical for me to use email for communication about the course**. Please ask general questions in class, in office hours, or on Piazza, and talk to me in person for more individual issues.
- I assign quite a bit of homework and do expect you to really think through it. Some of my problems are quite hard, both on homework and exams. Some are quite routine.
- Computation skills and problem solving skills are both very important. I will emphasize both in the course.
- It is important to get things actually correct and to precisely say what you mean. I will insist on proper notation and writing mathematical expressions in non-ambiguous ways.
- I tend to give difficult exams, or rather, exams with a mix of difficulty levels for the problems, including hard ones. I think it's important for you to be challenged to try to use your knowledge in new ways. The exams are graded quite strictly. I do typically compensate by curving the exams. I set the curves according to my professional judgment; I am not tied to any particular model.
- Beyond the obvious (show up and complete your work), my best advice for doing well in this class is to find a study buddy or small study group and FREQUENTLY DISCUSS MATH WITH THEM. It is especially nice if you can make a math buddy in your section.
- **Seriously**, talk to other people about the math you are working on. Talk to me, talk to GSIs, and talk to your fellow students.
- You should definitely discuss homework problems with other students! The best way to learn is to think hard about a problem on your own until you get really stuck or solve it, then ask someone else how they thought about it. However, when it comes to writing down your solutions, you must do this by yourself, **in your own words**, without looking at someone else's paper or any other source.
- **You are not in competition with the other students in the course for grades.** There is no pre-determined percentage of A's, B's, C's, etc. that I can assign. If you master the material (which is doable, though not easy), your grade will reflect this. I am still dreaming of the day when I get a class where everyone earns an A or B. Maybe it will be this one?

Miscellaneous information

- If you will need special accommodations approved by the Disabled Students' Program, make sure you discuss these with me as soon as possible. The official requirement is two weeks before the first midterm. I must receive official letters from DSP to make accommodations for exams.

  If you are in the process of setting up DSP accommodations mid-semester, please let me know as soon as you can. This makes planning much easier and makes it much easier to accommodate you even if official notices come later than the two-week notice requirement.

  DSP students must speak to me and to their GSI in person to confirm the details on any special arrangements that need to be made.

- Similarly, any students with conflicts that may affect their attendance (e.g. religious observances, travel for university athletics programs, extended illness) should speak to me as soon as possible to try to make arrangements. If you know or should have known about something far in advance, but you don't let me know until the last minute, you are not likely to receive accommodations.

- Incomplete "I" grades are almost never given. The only justification is a documented serious medical problem or exceptional personal/family emergency. Falling behind in this course or problems with workload in other courses are not acceptable reasons. In addition, you must be passing the course and have completed a majority of the assignments before the unusual circumstances. This is a university-wide policy, and it is not flexible.

Academic Integrity

- All students are expected to abide by the campus Code of Conduct. Details can be found at https://sa.berkeley.edu/code-of-conduct

- Examples of academic misconduct include but are not limited to: copying answers or solutions on any assignment, allowing another student to copy your answers or solutions, using unauthorized resources on assignments (such as electronic devices during exams), sharing course materials without permission, and lying to the instructor. Unfortunately, I have had to report students for all of the above offenses.

- In addition to the course grade consequences below, the university may also impose more serious sanctions, up to and including expulsion from the university, especially for repeat offenders.

- All academic misconduct incidents will be reported to Student Conduct and will almost certainly result in you failing the course. Students found cheating on a midterm will receive a score of 0 on that exam and will forfeit the ability to have their midterm score replaced by the final exam score. Students found cheating on the final exam will receive an automatic F.

- Course materials include but are not limited to homework assignments and their solutions, exams and their solutions, lecture notes, and GSI handouts. These are all copyrighted by their authors and are for your personal use only. You do NOT have permission to post them on outside websites or to distribute them in any other way without my explicit written permission. Additionally, students are not permitted to make audio or video recordings of lectures without my explicit consent. Distributing course materials and making unauthorized recordings constitute academic misconduct. Violations will be reported to Student Conduct, and your course grade may be lowered by a full letter grade or more.

- You should be aware that all of the electronic resources I use (bCourses, Gradescope, and Webwork) all have regular backups and detailed log files, and they are very reliable systems. Do not try to buy yourself extra time on an assignment by trying to tell me you actually submitted it on time, but it magically disappeared; I will know when this is false.

Attendance

- You are expected to attend every lecture and discussion section meeting. We will cover quite a bit of material, and it will be very hard to catch up if you fall behind.
- You are expected to read the textbook before lecture to get the basics down, so that we can be efficient and spend our time on harder ideas and questions.
- YOU MAY ONLY ATTEND THE DISCUSSION SECTION FOR WHICH YOU ARE REGISTERED. If space allows, GSIs may be slightly flexible during the first two weeks of class, as some students may be trying to switch sections. All section changes must be done officially through CalCentral.
- Discussion section meetings may have in-class assignments. If you miss them, there are no make-ups.
- It's important that you show respect for yourself and your classmates at all times. Come to class prepared and ready to participate. Be ready to start on time and stay until the end of class. It is extremely disruptive to your classmates when you pack up or leave early. I will definitely end on time.
- Electronic devices such as computers or phones are NOT permitted during lecture or discussion section. Exceptions are rare – to request one, you must come talk to me personally.

Assignments

Exams

There will be two midterms and a final. The exams are written assuming you have: 1) attended all lectures and paid attention, 2) attended and thoughtfully participated in discussion section meetings, 3) visited office hours and asked questions when you needed help, and 4) completed all HW and given serious thought to all assigned problems and reading.

I will provide sample exam-style problems in advance of the exams for you to use for practice, but this is the first time I am teaching Math 53, so I obviously have not written any Math 53 exams in previous semesters. Most of my exam problems are fairly complex word problems or theoretical problems, graded with partial credit. You can also expect some true/false questions.

Midterm 1 (NOTE: EVENING EXAM, locations TBA):
Wednesday, October 2, 8-10pm

Midterm 2 (NOTE: EVENING EXAM, locations TBA):
Wednesday, November 13, 7-9pm

Final exam (location TBA):
Wednesday, December 18, 7-10pm

Notes: Midterm 1 partially overlaps with the midterms for EPS C82, PHYS 8A, PHYS 8B, and ECON 1 (some sections). Midterm 2 is scheduled at the same time as the MCB C100A midterm. If you are enrolled in one of these classes, I will work with the instructors to ensure you can take both exams, but you should expect two back-to-back midterms that night. If you are enrolled in three or more of the classes with evening midterms on October 2, you should seriously rethink your schedule, unless one of the other courses will allow an alternate day for your exam, as I only make minor time adjustments for the same evening. I will collect the names of students with these conflicts around the drop deadline, and details will be posted on bCourses.

Discussion section

Discussion section is for ACTIVELY working on math. You need to show up on time, stay for the full class, and be actually trying problems or participating in other activities that your GSI has arranged.

GSIs will generally hold regular quizzes on Thursdays and shorter T/F quizzes on Tuesdays. These will occur almost every week, with exceptions noted in class. Regular quizzes will be 20 points each and T/F quizzes will be 10 points each. During week 1, there will be a special activity instead of a quiz.

You will have 40 points worth of quizzes dropped; this could be two regular quizzes; one regular quiz and two T/F; or four T/F, whichever is most beneficial to your grade. This is meant to cover any unexpected absences or rough weeks.

Your overall quiz grade will be computed by adding all your quiz points after drops and dividing by the total number of available quiz points (minus the 40 that we drop).

We will do our best to ensure that quizzes are of roughly equal difficulty across sections, and most likely there will be no curve. If necessary, I will make small adjustments to quiz scores by section at the end of the semester, but this is usually unnecessary.

Homework

There will be lots of homework in this class, because the way people actually learn math is by working on problems. The plan is to have 2-3 Webwork sets due per week, plus 1-2 written problems. Webwork is an online homework system; the majority of your homework will be here. Written homework will be submitted through Gradescope. You will need to scan and upload your written work. You will access Webwork and Gradescope through bCourses. There may be other miscellaneous assignments announced in class.

Late homework is generally not accepted, with one exception, addressed below in the Late Pass subsection. Deadlines will not be extended unless there are unexpected major technical issues (in which case they will be extended for all students in the class). Exceptions are typically only made for reasons related to disabilities or extended illness. It is strongly recommended that you complete your homework well ahead of the deadlines, as sometimes the systems can be a bit slow with a lot of people trying to submit things last minute. This is not considered an unexpected technical issue; it is poor planning to put things off to the last minute.

A number of students mistakenly treat homework as a chore to check off, get points, and forget about. Some bad behaviors include relying too heavily on help from friends without thinking for yourself or using calculators or other tools to shortcut work that you are expected to do by hand. These students tend to do poorly on exams, and their grades suffer. In this class homework is carefully designed to help prepare you for exams. This means you need to make sure you understand the problems, to the extent that you could do a similar problem, possibly with a twist, under time pressure on an exam. Taking homework seriously means you will be better prepared for my exams, in which most of the problems are variants of homework problems.

Webwork

Webwork will make up the bulk of our homework. There will be a Webwork set opening nearly every lecture day, at 2pm when class ends. The sets will usually be worth about 15-20 points each. Some problems may be worth more points than others. In particular, on sections with longer problems, we will have fewer problems, but each will be worth more points, so that the sets all have the same approximate total. I will also try to post a T/F Webwork set for each chapter.

Webwork will generally be due 11:59pm one week after the set opens. For example, Webwork covering Monday's lecture will open at 2pm that Monday and close at 11:59pm the following Monday.

It is in your best interest to complete each Webwork set (or as much of it as you can) before the next lecture, as this course moves quickly and covers a lot of material. If you have actually practiced problems from one section, it is much easier to keep up with lectures on the next section. It can be very hard to catch up if you let things pile up and get behind. To incentivize this good behavior, I will occasionally give a couple extra credit homework points to students who have completed 80% of a Webwork set before the next lecture. This will typically not be announced in advance, but it will definitely occur for the homework opening the first day of class.

Written HW

Written homework will be posted nearly every week (exceptions will be announced in class), with deadlines typically on Thursday nights. Each assignment will be worth 20 points. The point of written homework is for you to get feedback on your write-ups of more difficult problems. These are graded quite strictly. The expectation is that you will definitely get the right answer, as there are many ways to get help and collaboration is strongly encouraged. There will be a strong emphasis on writing up nice solutions, with organized work and explanations that are complete but concise.

You should think of written homework as a brief math paper that you are writing. In particular, almost nobody (including me!) can just sit down and write a good solution on the first try. You will do some scratch work, think about how to word your explanations, and write up a draft. The file you turn in should be in "final draft" form.

Homework solutions must be written up in your own words. While you are welcome to collaborate on solving problems, you must do the write up on your own. To avoid issues with plagiarism, do not show your written solutions to other students and do not look at theirs before the deadline.

Other than the get-to-know-you HW 0, written homework must be done on a copy of the assignment page that I post. This is largely to make grading as straightforward as possible, which is critical for timely feedback in such a large course. Additionally, my exams are written the same way – I provide the full exam, with space for each problem, carefully designed so that you can fit an appropriate amount of work in a reasonable handwriting size. You will want to get used to this.

Written homework must be handwritten, or if you prefer to work on a tablet, "handwriting" with a stylus is fine. Typed homework is not accepted. (Exceptions for disability reasons must be approved by me in person.)

Written homework will be uploaded by you to Gradescope for grading. You will not turn in a paper copy. If you are new to Gradescope, there is a handout in the Misc folder on bCourses detailing how to submit your assignments. It includes recommendations for phone apps to use for scanning. You can also use the copy machines in the libraries for scanning.

Late Pass

Everyone will be permitted ONE 72-hour (3 day) late pass for written homework for the semester. To use it, email your late homework to me (not your GSI) as a .pdf file, ready to upload to Gradescope. Be sure your file is complete (and actually the correct file, not your homework for another class or something). If you do not deliver a working file within 72 hours of the original deadline, it will not be counted.

Extra Credit

Occasionally I will offer opportunities for extra credit points to all students in the class. These could be basically anything reasonable, with or without advance notice. If you do not use your late pass during the semester, it will be converted to 10 extra credit homework points at the end of the semester. (Technically, you will get these 10 points in bCourses right away, and I will change the score to 0 if/when you use your late pass.)

There will not be any individual extra credit opportunities. Do not ask.

Homework Total

At the end of the semester, your homework score will be computed by adding up your Webwork points, your written homework points, and any points from miscellaneous assignments or extra credit. This will be divided by the total number of points available to get your homework percentage.

There is no curve on the homework portion of your grade, other than extra credit points offered to everyone and the small buffer built in to allow you to miss a couple discussion sections without penalty.

The maximum homework score used to compute course grades is 100%. I expect all students to have rather high homework scores (ideally 90% or higher). Even when the problems are difficult, you have MANY resources you can take advantage of. It is important that you figure out how to do all the homework, even if that means getting help. You should absolutely expect to see variants of homework problems on exams.

Contact information

- Please direct math and logistics questions to our Piazza site, after checking that your question is not already answered in the syllabus, textbook, or lecture notes. The GSIs and I will check Piazza somewhat frequently, but most likely, your classmates will answer questions even faster.
- If you need to get in touch with me, come by during office hours or talk to me after class. If you cannot make my office hours and need to speak to me about something, talk to me before or after class to set up a time.
- Due to the size of the class, it will not be feasible to use email for communication. Please reserve email for emergencies and times when I specifically tell you personally to email me about a specific issue. Other emails may not receive a response. Note that bCourses messages are effectively emails, and the same guidelines apply.
- My personal/business phone number is easy to find online, but DO NOT call or text me for any reason. I do not have an office phone.
- Your GSI will let you know the best way to contact them.

Office hours

- A calendar of office hours will be posted separately. This will include my office hours and those of all GSIs for this course.
- Office hours are for ALL students in the course. If you are struggling, obviously you should come. If you feel you are doing well, come and discuss problems with other students anyway; you will know the material much better if you have some practice explaining things to other people.
- My office hours will be held at the SLC. I will split my time between the 16A and 53 tables. This is a fabulous space with big tables where you can work and talk to other students. It is a great place to work even when I am not there, as you can talk to other students in the class as well as the tutors hired by the SLC.
- You may attend the office hours of any GSI for this course, as well as mine, but be aware that GSIs may sometimes need to give priority to students in their own sections.

bCourses

- Assignments, course notes, and any official announcements will be posted to bCourses. Please make sure you can access our course info. You will be held responsible for the information in any bCourses announcements; I suggest you make sure notifications are enabled to make sure you do not miss my messages.
- bCourses will be a critical resource for this class. It is where I will post all course materials.
- Additionally, all scores for assignments will be recorded in bCourses, except that Webwork scores will not be transferred over until the end of the semester. Assignments on Gradescope will generally by synced to bCourses shortly after the grading is done, and periodically re-synced to account for any regrades.
- That said, bCourses is not complex enough to compute your grade; do not pay attention to any percentages it may display to you. All course grades will be computed in my personal spreadsheet in accordance with the details in this syllabus.

General technology reminders

- It is your responsibility to submit assignments on time. Not knowing how to do so is not grounds for an extension. Similarly, failure of your personal devices is not grounds for an extension. Slow campus wifi or minor outages (unfortunately common) are not grounds for an extension.
- All students have access to campus computer labs; keep this in mind as a backup plan if you have trouble with wifi or your personal devices. I will feel bad for you if you have last minute issues, but you still won't be able to submit late homework. Again, it's important to submit early so that you have time to deal with any issues that come up.
- Especially in the first couple weeks, I recommend submitting as early as possible, so that if you have tech issues, you have time to get help. We are happy to help if you are having trouble with any submission process, but you have to show up and ask!

Webwork advice

- Preview, preview, preview! This does not use an attempt, and it will help you catch most minor errors.
- The number of attempts is generally capped at 10. While some instructors give unlimited attempts, I have found that students are more efficient when there are only finitely many attempts and don't spend time flailing around putting in tons of random answers. If you haven't solved a problem by attempt 5 or so, you probably need help! Go ahead and ask for it.
- Occasionally there are typos or other tech issues with Webwork problems, even though most of the problems have been used for many years. I can generally fix those very quickly if you let me know on Piazza, and usually I add a couple attempts if I have to fix something that affects the problem in a nontrivial way.
- I strongly recommend you keep an organized notebook of your scratch work for Webwork. You don't need to write up all these solutions nicely, as only the answer is graded, but it is good to a) think about what work would need to be shown on an exam, and b) have a record of how you solved the problem, which can be a big time saver when you are reviewing for exams.
- Unless a specific form is specified, Webwork will generally accept answers in any mathematically correct form. Go ahead and put in unsimplified answers to save time. The hard part for most Math 53 questions is getting things set up correctly, and most people are generally quite quick and competent at finishing the routine computations once they know what to compute.
- Again, Webwork can be slow near the deadlines, and that is something you just have to deal with. I strongly recommend you do not wait until the last minute to submit. This will prevent lots of anxiety.

Gradescope advice

- There is a handout with instructions on how to submit your work to Gradescope. Please make sure you understand how to do this.
- As a student, you don't have the option to delete submissions, only replace them. Nobody can accidentally delete your files after you upload them. I strongly recommend viewing your submission after you submit it to verify it was uploaded correctly.
- I am very firm about the requirement to submit written homework on a copy of the handout. (These will always be on bCourses. The first paper copy is free from your GSI; if you need an extra, you'll need to print it yourself.) If you submit on random paper, your work will not be graded. The handouts are carefully designed to give you enough space to provide a good solution. Furthermore, the standard layout streamlines grading, which is critical for providing timely feedback.

Using Piazza responsibly

Having a Piazza page with an instructor and GSIs who respond quickly is a VERY BIG PRIVILEGE. Do not abuse this. Before you post a question, consider the following:

- Is your question answered in the syllabus, textbook, or lecture notes? No need to post; just look it up yourself! If you have checked those resources and found an answer you don't understand, it's totally fine to ask for clarification, just be specific about where you looked and what is unclear.
- Has someone else already asked about the same problem? Scan/search for related questions before you post, and read the posted answers to see if they help with your issue (or wait for posted answers).
- If you determine you really do have a new question, include the following info: which homework set or reading assignment it's from and which problem it is (including the problem number and statement). We are not mind readers, and we don't carry our books everywhere we go. Describe what you have tried already, and where you are stuck. We are happiest to help students who are trying to help themselves first.
- If you are really struggling with trying to even articulate what it is you don't understand, probably it is best to go see someone in person during office hours or at the SLC.

Also note:

- Note that you can post anonymously on Piazza (many people appreciate this if they are feeling self-conscious about their questions), but you are only anonymous to other students; the GSIs and I can see who you are.
- If your account does not show your full name, it may be disabled.
- Please keep in mind that students come into this class from vastly different backgrounds and with very different goals. Things that are easy for you may not be easy for others. Remember to be kind in your responses. If you are disrespectful to other students, your account may be disabled.
- The only snarky response permitted is "Did you check the (ridiculously long but very organized) syllabus?"
- Please feel free to discuss current homework assignments with each other on Piazza, but DO NOT post any complete solutions for homework sets until after the due date. Just give hints or ideas for what to try next.
- Sometimes Webwork will be set up so that everyone has different numbers, but still essentially the same problem. This is part of why it is essential to explicitly say what your question is. Another large part is that in figuring out how to phrase your question or describe your work, you will often discover the answer yourself.
- Piazza is not a proofreading service. Do not post questions of the form "Here's 3 pages of computation work. Where's the error?" It is fine to bring this sort of thing to office hours if you are having trouble spotting your own mistakes, but it's super tedious on Piazza. (In OH, you'll be asked to explain what you tried, and often that will help you find your own errors.)
- We don't guarantee that we'll be checking Piazza at any particular time. Don't put homework off to the last minute and expect to get help in time. You might get lucky, but you might not.