Analytic Geometry and Calculus - Math 16B - Spring 2013 - MWF 10-11 in 155 Dwinelle Hall

Professor: Jim Demmel, 831 Evans Hall and 564 Soda Hall, 643-5386, demmel@cs.berkeley.edu (for emergency contact only; please contact your GSI or use the piazza or bspace forums described below for homework questions).
Office Hours: T 11-12 in 564 Soda, Th 2-3 in 564 Soda, F 11-12 in 831 Evans

Class Homepage (announcements, homework, etc.): `bspace.berkeley.edu`

Announcements, homework, exams, etc. will be posted on the class homepage.

We have also asked for the class to be audio podcast by ETS (ets.berkeley.edu), so that audio (only) recordings of the lectures should be available on-line; see webcast.berkeley.edu.

We will use Piazza (piazza.com/berkeley) as an on-line forum for questions-and-answers.

Textbook: "Calculus and its Applications," by Goldstein/Lay/Schneider/Asmar, Pearson Custom Publishing, Custom edition for Math 16B (12th edition). We will cover most sections in this book.

Prerequisites: Math 16A or the equivalent. If you are not confident of your mastery of Math 16A, you might consider getting the 16A textbook as a reference.

Enrollment Questions: Please contact David Brown (brown@math.berkeley.edu) if you have equations about course enrollment (note that students will be processed in their order on the waiting list). You must attend the section for which you are registered. If you are enrolled and wish to switch sections, then you can do so yourself on TeleBears, if there is an opening. The instructor and GSIs cannot help you with these matters. Note that there are two Math16B classes this semester; the other one is taught by Prof. John Lott.

Exams:

- Midterm 1: Friday, Feb 15, in lecture (covers Chaps 7, 8)
- Midterm 2: Wednesday, Apr 3, in lecture (covers Chap 9, 10)
- Final Exam: Tuesday, May 14, 3-6pm, location TBD (covers Chaps 7-12, emphasize 11, 12)

Exams are closed book, closed notes, closed calculator/computer, closed network, and open mind. Bring pencils and erasers. We will supply all exam books and scratch paper. All work to be graded must be written in the exam books that we will supply.

You should understand the statements of the theorems. You are not required to memorize the proofs.

For some exam problems, boxes will be provided in which answers are to be written. This is done in order to eliminate miscommunication and facilitate grading. Please write your final answer in the box in order to receive full credit.

Partial credit will be given where appropriate.

Grades for exams or quizzes can only be changed if there is a clear error on the part of the grader, such as adding up marks incorrectly or forgetting to grade a question. If you write a correct answer for a problem but your reasoning is incorrect or nonexistent then you will not get credit.

Nobody should be too surprised if many of the problems on the midterms and/or the final are similar to those in the homework. It follows that a good way to prepare for these exams is to attempt every problem in the homework assignment every single week.

Grading: Grades will be computed as follows:

- Homework: 5%. 13 assignments, 3 lowest scores dropped.
- Quizzes: 10%. 7 quizzes, lowest score dropped.
- 2 Midterms: 25% each.
- Final Exam: 35% .

There is no make-up final exam for any reason. Don't miss it! In particular, if there is a conflict with the time of the final exam for another course, don't take both courses.

There are no make-up midterms for any reason. Instead, each (normalized) midterm grade will automatically be replaced by the maximum of that (normalized) midterm grade and the (normalized) final exam grade.

There are no make-up quizzes for any reason. Instead, the lowest score will be dropped. Quizzes will given be during section every other week, starting Jan 31, and emphasize the most recent assignments.

Late homeworks will not be accepted. Instead, the 3 lowest homework score will be dropped. Homework is due in section each week, except the first week. Your GSI decides what "late" means. We will grade 1 problem on each assignment for 1 point, and give another point for attempting all the problems. Solutions will be posted on bspace shortly after each homework is due. Collaboration on homework is encouraged, but you need to write up your own solutions.

An incomplete grade (I) will be given only if "your work in a course has been of passing quality but is incomplete for reasons beyond your control" (university policy).

The grading will be based on a curve. However, I retain the right to determine what grade corresponds to the middle of the curve. (This can be to your advantage; if everyone does perfectly then I will be very happy to give everyone an A+.) As a guideline, in recent years the average grade for Math 16B was a B. The grade distribution was roughly as follows: 40% A, 30% B, 20% C and 10% D/F.

Flu Policy: The University has asked us to announce to students that they should not come to class if they become ill. The University has adopted the CDC recommendation that members of the campus community who develop flu-like illness should self-isolate until at least 24 hours after they are free of fever or signs of fever without the use of medication. Students should follow this recommendation in deciding whether or not to come to class.

Helpful hints:

Don't fall behind! In a conceptual class such as this, it is particularly important to maintain a steady effort throughout the semester, rather than hope to cram just before homework deadlines or exams. This is because it takes time and practice for the ideas to sink in. Make sure you allocate a sufficient number of hours every week to the class, including enough time for reading and understanding the material as well as for doing assignments. (As a rough guide, you should expect to do at least one hour of reading and two hours of problem solving for each hour of lecture.)

In particular, you are requested to do the assigned reading (see below) *before* each lecture. Note that mathematical texts are not meant to be read like novels: very often you will come across passages that must be read many times before they make sense to you.

Take the homeworks seriously! The homeworks are explicitly designed to help you to learn the material as you go along. Although the numerical weight of the homeworks in your final grade is not huge, there is usually a strong correlation between homework scores and final grades in the class. Also, regardless of how well you did on the homework, read the sample solutions, even for the problems you got right. You may well learn a different way of looking at the problem, and you may also benefit from emulating the style of the solutions. (In mathematics and science people learn a lot from emulating the approach of more experienced mathematicians and scientists.)

Make use of office hours! The instructor and GSIs hold office hours expressly to help you. It is often surprising how many students do not take advantage of this service. You are free to attend as many office hours as you wish (you are not constrained just to use the office hours of your section GSI). You will also likely get more out of an office hour if you have spent a little time in advance thinking about the questions you have, and formulating them precisely. (In fact, this process can often lead you to a solution yourself!)

Take part in discussion sections! Discussion sections are not auxiliary lectures. They are an opportunity for interactive learning, through guided group problem solving and other activities. The success of a discussion section depends largely on the willingness of students to participate actively in it. As with office hours, the better prepared you are for the discussion, the more you are likely to get out of it.

Form study groups! As stated above, you are encouraged to form small groups (no more than 3 people) to work together on homeworks and on understanding the class material on a regular basis. In addition to being fun, this can save you a lot of time by generating ideas quickly and preventing you from getting hung up on some point or other. Of course, it is your responsibility to ensure that you contribute actively to the group; passive listening will likely not help you much. And recall the caveat above that you must write up your solutions on your own.

Additional help is available at the Student Learning Center which will organize study groups specifically for Ma16B; see slc.berkeley.edu/math_stat/math16b.htm, which will be updated after the semester starts.

Homework #	Due	Section	Assigned Exercises	Additional Exercises
1	1/31	7.1	2,8,12,16	1,7,13,23-26
		7.2	2,5,6,17,23,26	1,25,31
		7.3	2,8,11,12,23,31	1,7,16,24,30
2	2/7	7.4	2,5,8,10,14	1,6,13,21,23
		7.6	2,8,11,12,14	1,7,13
3	2/14	8.1	2,5,8,18	1,13
		8.2	2,6,11,21,22,38	1,5,37
		8.3	4,12,28,35,47,48	1,11,24,36
		8.4	3,12,27,31,32,39	4,10,11,18,37
4	2/21	9.1	2,3,6,29,30,53	1,14,31
5	2/28	9.2	2,8,15,23,24	1,7,16,30,32
		9.3	2,12,15	1,4,19
6	3/7	9.5	2,8,12	1,7
		9.6	16,17,28,29,35,36	48
		10.1	2,12,13,14,21	1,11
7	3/14	10.2	2,9,31,35	1,14
		10.3	7,10,11,14,21,22,28	9,12,19
8	3/21	10.4	5,6,8,9	7,13
		10.6	5,9	1,25
9	4/4	11.1	5,6,10,17,23	8,14,19
10	4/11	11.2	5,15,16	1,24
		11.3	3,4,15,23,27,29	1,8,16,25
11	4/18	11.4	9,14,23,24	13,28
		11.5	15,18,23,24	7,22
12	4/25	12.1	2,4,5,9	1,6
		12.2	6,15,20,27,28	1,7,19,25
		12.3	2,9,11,14	1,19
13	5/2	12.4	1,5,15,27	23
		12.5	1,7,8,13,15	2,5

Tentative Lecture/Exam/Quiz Schedule			
Monday	Wednesday	Thursday (section)	Friday
	1/23: 7.1	1/24: Review	1/25: 7.1-7.2
1/28: 7.2-7.3	1/30: 7.3	1/31: Quiz 1, HW 1 due	2/1: 7.4
2/4: 7.6	2/6: 8.1-8.2	2/7: HW 2 due	2/8: 8.2-8.3
2/11: 8.4	2/13: Review for Midterm 1	2/14: Quiz 2, HW 3 due	2/15: Midterm 1
2/18: Holiday	2/20: 9.1	2/21: HW 4 due	2/22: 9.2 (drop deadline)
2/25: 9.2-9.3	2/27: 9.3	2/28: Quiz 3, HW 5 due	3/1: 9.5
3/4: 9.6	3/6: 10.1	3/7: HW 6 due	3/8: 10.2
3/11: 10.2-10.3	3/13: 10.3-10.4	3/14: Quiz 4, HW 7 due	3/15: 10.4
3/18: 10.5	3/20: 10.6	3/21: HW 8 due	3/22: 11.1
4/1: Review for Midterm 2	4/3: Midterm 2	4/4: Quiz 5, HW 9 due	4/5: 11.2
4/8: 11.2-11.3	4/10: 11.3	4/11: HW 10 due	4/12: 11.4
4/15: 11.4-11.5	4/17: 11.5	4/18: Quiz 6, HW 11 due	4/19: 12.1
4/22: 12.2	4/24: 12.3	4/25: HW 12 due	4/26: 12.4
4/29: 12.4-12.5	5/1: 12.5	5/2: Quiz 7, HW 13 due	5/3: Review for Final