

## Math 20C Calculus & Analytic Geometry for Science and Engineering Spring 2005

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**Office:** 5763 Applied Physics & Mathematics Building (APM)  
**Office Hours:** M 1:00p-1:50p, Tu 1:10p-2:30p, or by appointment  
**Meeting Times:** MWF 9:00p-9:50p  
**Room:** 115 Center Hall  
**Discussion:** Tuesdays, WLH 2208  
**Textbook:** *Calculus, Early Transcendentals, 5<sup>th</sup> Edition*, James Stewart. We will cover parts of chapters 10, 12, 13, 14, 15. Stewart's *Multivariate Calculus, Early Transcendentals, 5<sup>th</sup> Edition*, which is chapters 10–17 of the larger text, is also acceptable.  
**Prerequisites:** Math 20B  
**Course Webpage:** <http://scicomp.ucsd.edu/~spav/class/2005S-M20C/>  
**Final Exam:** Friday June 10, 8:00a-11:00a

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**Catalogue Description.** *20C. Calculus and Analytic Geometry for Science and Engineering. (4) Vector geometry, vector functions and their derivatives. Partial differentiation. Maxima and minima. Double integration.*

**Course Description.** This is the third course in calculus for students of mathematics, science and engineering. In this course we examine topics of elementary calculus, but from a multidimensional perspective.

**Grading Policy.** Grading will be based upon performance in homeworks, two single hour exams, and a comprehensive final exam. The quarter grade is subdivided as follows:

Homework: 10%; Lesser score on midterms: 22%; Greater score: 28%; Final Exam: 40%.

Note the scoring for the midterms: your better midterm score counts slightly more than your other midterm score. This is supposed to skew scores upwards, and decrease the effects of a “bad day.” Final scores will be converted into letter grades as follows:

Final Score	Final Grade
at least 90%	A- or better
at least 80%	B- or better
at least 70%	C- or better
at least 60%	D or better

These grade “promises” are guaranteed, but note that the “or better” might be *much* better, depending on certain factors: if the exams are too difficult, or the grading too harsh, etc. Thus, for example, the cutoff for a C- might be as low as 65%, say.

Frequently students ask for a change in grading policy late in the quarter. To make such a change would be unfair to any student who had already dropped the class thinking they couldn't pass. In any case, this is a calculus class, not a game show; there is no “deal-making.” If you get a perfect score on the final exam, I will buy you a candy bar, but you still might not pass the class—the final exam is only worth 40% of the final grade. The point of having midterm exams is to encourage students to review the material some time before 11pm the night before the final.

The dates and times for the midterms and final exam are listed in this syllabus: The first midterm is during class on Monday, January 26, the second is during class on Monday, February 23. The final is Tuesday, March 16 at 3pm. If you have known conflicts with any of these exams, I encourage you to switch to another section of 20C immediately. Legitimate, documented excuses for missing an exam will be dealt with individually.

I plan to have the first midterm exam returned before the end of the fourth week, *i.e.*, before the deadline to drop without a ‘W.’ Likewise, I plan to have the second midterm returned before the deadline to drop with a ‘W.’ The decision to drop the course is a serious one. However, I can only advise you on how you are doing in this course; I am *not* qualified to advise you on your educational career and know little about the various majors and their requirements. Please consult your academic advisor for these matters.

**Homework.** There will be 9 homework assignments, each worth one eighth of your homework grade; your lowest homework score will be dropped. If you fail to hand in a homework, that homework is scored zero.

Homework is to be handed to the TA at the end of discussion section. *No late homework will be tolerated.* Do not irritate the grader by handing in weathered, coffee-stained, unnamed, unstapled homework scribbled in crayon on paper towels. The answers to many homework questions may be found in the back of the book, or in the solution manual. For this reason, unless a homework question is trivial (*i.e.*, no work is required), simply writing the answer to homework questions is not acceptable; you must *show all your work*. If you do not know whether a given homework question is trivial, you probably do not understand the question. You are doing yourself a disservice if you merely copy the answers from the back of the book, as failure to comprehend this review material will certainly be fatal to your 20C career.

It is expected, and encouraged, that students will work together on the homeworks. This saves time (yours, mine, and the TAs’), builds leadership, and encourages cooperation. Each student must submit their own homework, written in their own hand (please no printouts, photocopies or faxes). Since the midterm exams follow the homework closely, it is strongly suggested that students pay careful attention to the homework.

**Getting Help.** I encourage you to attend my office hours, and the office hours of your TA. Students can also get help at the Department’s Calculus Lab, located in AP&M 2402, and open weekdays. See <http://www.math.ucsd.edu/resources/tutoring/> for a link to the 2402 schedule webpage.

Help is also available from OASIS, which is a tutoring program requiring regular attendance. See <http://oasis.ucsd.edu/mstp/mstp.shtml> for more information.

**Calculators.** A TI-85 or -86 calculator, or one less powerful, may be used during the class and during the midterm exams. The TI-89 and -92 are *not* allowed.

**Academic Integrity** Students are expected to adhere to the University’s Policy on Integrity of Scholarship, found in the UCSD general catalogue. Minimum punishment for cheating on a midterm exam is a score of zero on that exam.

**Course Webpage.** The course page, <http://scicomp.ucsd.edu/~spav/class/2005S-M20C/> will include this syllabus and any updates, general announcements and some pertinent course materials.

**Collected and Possibly Irrelevant World Proverbs to Fill This Space:**

*“If you build a bridge, and the bridge falls down, there’s no partial credit.”*

*—Engineering Professor’s Credo*

*“No matter how far you have gone on the wrong road, turn back.”*

*—Turkish proverb*

**Course Schedule.** The lecture schedule is tentative, but the homework and exam schedules are exact.

week 1	M Mar 28	§12.1
	Tu Mar 29	Meet your TA.
	W Mar 30	§12.2
	F Apr 01	§12.3
week 2	M Apr 04	§12.4 §12.1 # 2, 6, 7, 10, 13, 17, 22, 27, 29, 35, 41.
	Tu Apr 05	HW 1 : §12.2 # 1, 2, 6, 9, 13, 15, 19, 23, 27, 31. §12.3 # 1, 2, 5, 7, 11, 21, 26, 35, 41, 51, 55, 57.
	W Apr 06	§12.5
	F Apr 08	§10.1 & 13.1
week 3	M Apr 11	§10.2 & 13.2 §12.4 # 1, 3, 7, 8, 9, 15, 27, 41. §12.5 # 1, 3, 7, 10, 11, 13, 17, 19, 23, 27, 30, 54,
	Tu Apr 12	HW 2 : 65. §10.1 # 1, 5, 7, 11, 13, 24. §13.1 # 1, 3, 5, 7, 10, 11, 13, 19–24, 40.
	W Apr 13	§10.2 & 13.3
	F Apr 15	§13.4 & 14.1
week 4	M Apr 18	§14.1 & review §13.2 # 1, 3, 5, 7, 9, 15, 16, 19, 21, 25, 33, 37, 44, 49.
	Tu Apr 19	HW 3 : §10.2 # 37, 39, 41, 43, 45. §13.3 # 1, 3, 5. §13.4 # 1, 3, 5, 9, 11, 19.
	W Apr 20	exam 1 covering §10.1, 10.2, 12.1–12.5, 13.1–13.3, 14.1
	F Apr 22	§14.2
week 5	M Apr 25	§14.3 §14.1 # 2, 6, 7, 9, 11, 14, 15, 23, 25, 30, 37, 39, 40, 41, 53–58, 59, 61.
	Tu Apr 26	HW 4 : §14.2 # 5, 7, 11, 12, 13, 19, 27, 28, 31. §14.3 # 13, 17, 29, 35, 37, 45, 46, 47, 49, 53, 57, 67.
	W Apr 27	§14.4
	F Apr 29	§14.5 (special guest?)

week 6	M May 02	§14.6 §14.4 # 1, 3, 11, 17, 23, 26, 31.
	Tu May 03	HW 5 : §14.5 # 1, 3, 7, 8, 13, 21, 35, 39, 40. §14.6 # 7, 9, 11, 13, 15.
	W May 04	§14.7
	F May 06	§14.7
week 7	M May 09	§14.8
	Tu May 10	HW 6 : §14.6 # 21, 25, 27, 31, 37, 55. §14.7 # 1, 5, 7, 11, 13, 27, 29, 37, 41, 48, 51.
	W May 11	§15.1
	F May 13	§15.2
week 8	M May 16	review
	Tu May 17	HW 7 : §14.8 # 3, 5, 7, 8, 14, 23, 25, 29. §15.1 # 2, 5, 11, 13.
	W May 18	exam 2 covering §13.3, 13.4, 14.1-14.8
	F May 20	§15.3
week 9	M May 23	§15.4 §15.2 # 1, 3, 5, 11, 15, 25, 33.
	Tu May 24	HW 8 : §15.3 # 1, 3, 4, 9, 11, 13, 19, 21, 37, 39, 43, 45, 55. §15.4 # 3, 5, 6, 7, 9, 11, 13, 18, 19, 21, 25, 30.
	W May 25	§15.5
	F May 27	§15.7
week 10	M May 30	Memorial Day: no class
	Tu May 31	HW 9 : §15.5 # 3, 5, 7, 8, 11, 12. §15.7 # 3, 5, 7, 12, 17, 25, 33, 37, 47.
	W Jun 01	§12.7
	F Jun 03	§15.8
finals week	F Jun 10	Final Exam. 8:00a-11:00a "HW" : §12.7 # 3, 5, 9, 13, 15, 19, 23, 29, 31, 33, 38, 50, 55, 65. (not collected)