MATH 241 Honors **Syllabus** **Spring, 2010**

Vector (Multivariable) Calculus (III)

Instructor. Matt Miller, office LeConte 300I (also check LC 411), tentative hours: MW 3:00-4:30, Tu 2:00-3:30 and by appointment, phone: 777-3690, e-mail: `miller@math.sc.edu`, web: `http:// www.math.sc.edu/ ~miller/241` . Notice that these are ordinary email and website addresses, NOT accessed through Blackboard. I only use Blackboard for mass mailings to the class. Current homework, past quizzes and solutions, past exams and solutions, and some archived material is all accessed through this website.

Text. Required: *Calculus–Early Transcendentals* by Anton, Bivens and Davis, Wiley, 2005, 8th ed. You will also need a graphing calculator (TI-83, 83-Plus preferred).

Prerequisite. You must have earned a grade of C or better in MATH 142, an equivalent course, or a score of 4 or 5 on the BC version of the AP calculus exam.

Learning Outcomes. Students will understand the concepts of and be able to solve problems drawn from vector algebra, geometry of three-dimensional space; lines, planes, and curves in space; polar, cylindrical, and spherical coordinate systems; partial differentiation, max-min theory; multiple and iterated integration, line integrals, and Green's theorem in the plane.

Course overview. The pace is rather brisk. We will work through the content of chapters 12 through 16 of the text. As in your previous calculus courses, this course will be concerned primarily with the mechanical aspects of computation. As an Honors course, you will be expected to dig a little deeper into a conceptual understanding of the material. In the real world, solutions must be communicated effectively, both in writing and orally, and you will have some practice doing this.

Grades. Three major tests will be given, each worth 100 points, on Monday, 8 February (day 12), Friday, 19 March (day 26), and Friday, 15 April (day 38). The final exam is scheduled for Tuesday, 4 May at 9:00 am (the very first day of finals, so you will want to get started studying early). At least seven ten-point quizzes will be given; the six highest scores will be counted. **No make-ups will be given for quizzes or exams**, but the comprehensive (first) part the final exam (175 points scaled up to be out of 100) will be used to replace your lowest exam score, provided this helps you. The second part (25 points) will consist of problems that cover the material after the third exam. A total of 560 points may be earned:

Exams	300	
Quizzes	60	(best six)
Final	200	

Letter grades will be announced separately for each exam, and for the overall quiz totals. They will generally fall close to the scale 85–100 A, 75–84 B, 65–74 C, 55–64 D, below 55 F, but will vary up or down. Note that the deadline to drop this course without a grade of WF is Tuesday, 23 February; you should have a pretty good idea before then how you are doing.

Collaboration. One of the goals of this course is to learn how to communicate mathematical ideas. You will be expected to work with one another in class and I expect that you will do so on homework. However, you will have to take the exams individually, so don't get too dependent upon one another. According to the USC Student Handbook code of student academic responsibility, "**the first law of academic life is intellectual honesty.**" I expect this of all of you. If you are ever in the least bit uncertain about the ground-rules, ask for clarification!

Attendance. Regular attendance is crucial for success in this course. Ten bonus points will be awarded for perfect attendance and 5 for only one absence. No excuses will be considered in this regard. This class has 42 meetings; university policy states that if more than 10% of the meetings are missed, whether excused or unexcused, then the instructor may impose a penalty. I intend that this be a very rich and varied class, often with non-lecture activities. If you feel that a class is nothing more than a series of exams and some assignments to be turned in, with attendance optional, then this is not the class for you. If you miss 6 or more class sessions, I will lower your grade by half a grade point (from an A to a B+, or a C+ to a C, for example), and if you miss 9 or more classes (that's three weeks!), your grade will drop by a full grade point. If you do miss a class, you can find homework and a very brief synopsis on the class home page `http://www.math.sc.edu/~miller/241`. Be aware that I often take attendance silently: if you don't turn in a quiz, or I pass back a quiz or exam and you do not pick it up, I will assume you were not in class; so if you come in late you should always check to see if I have marked you absent.