

*Lecturer:* Russell Brown, POT 741, 257-3951, russell.brown@uky.edu. Office hours: MWF 10–10:50 in POT 741 and by appointment.

*Teaching assistants:* Lisa Bush, lbush@ms.uky.edu assists with section 007 and James Spilovoy, spilovoy@ms.uky.edu assists with section 008.

*Rooms:* The lectures will be in CB 349. Recitations will meet on Tuesday and Thursday. Please check your schedule for time.

*Textbook:* The textbook for this course will be *Calculus*, 3rd edition, by James Stewart.

*Material to be covered:* In Calculus I and II, we studied problems involving real-valued functions of one real variable. The third semester of calculus will begin the study of calculus in several dimensions. We study of vectors and geometry in the plane and space. For example, we will define the tangent plane to a surface in space learn how to compute a tangent plane. We will discuss curves in space and use this discussion to help describe the motion of a particle in space. We will define integrals over regions in the plane and use these to find the volumes of solid objects such as a ball. We will study vector-valued functions which are used to describe various physical quantities such as force fields or flows of fluids. If time permits, we will study Green's theorem, Stokes's theorem and the divergence theorem which are the generalization of the fundamental theorem of calculus to higher dimensions. These theorems (this theorem?) have important applications in studying electricity and magnetism, fluid flows and other areas of applied mathematics.

A schedule of topics is in the attached course calendar.

*Homework:* Homework will come in two flavors: routine problems which will not be graded in detail and more interesting problems which will be graded.

Time will be provided in recitation to go over a few of the routine problems. **HOWEVER, YOU DO NOT LEARN MATH BY WATCHING YOUR INSTRUCTOR WORK PROBLEMS.** An important part of learning mathematics is working problems. I will make regular assignments and I ask that you keep your neatly written solutions to these problems in a notebook or binder. This binder will be collected occasionally and audited. This means that we check to see if a small number of these problems have been completed. Your score on these audits will count as part of your homework grade.

In addition to the notebook assignments, small number of challenging problems will be assigned, collected and graded. On these problems we will look both at your solution and also how carefully and completely you explain your solution. Exams will be based on both the graded homework and the problems from the notebook assignments.

Your homework grade will be based on the challenging problems and the notebook audits.

*Quizzes:* Quizzes will be given on most Thursday's. These quizzes will not be collected or graded. However, they will provide important practice for examinations.

*Exams:* There will be two exams and a final. The dates of the exams are in the course calendar. Please be sure that you have these dates free. The final exam will be cumulative, but with an emphasis on the material covered since the second exam.

*Cheating:* Students are encouraged to discuss homework problems with each other. However, the solutions that you hand in and put in your notebook should be your own work. In particular, you should not copy a solution directly from another student or from the solutions manual.

Students may not collaborate on exams.

*Grading:* Students need an average of 90% for an A, 80% for a B, 70% for a C and 60% for a D. Grades may be curved by making small adjustments in these percentages. Your grade will be based on the activities in the table below.

2 hour exams	200
Final exam	150
Homework	100
TOTAL	450

*Calculators:* Students may use a graphing calculator on exams and homework. Students may not use a machine with symbolic manipulation capabilities on exams. Thus, no TI-89's, TI-92's, no HP-48's or laptop computers may be used on exams. Please see Brown if you have any questions as to whether a particular machine may be used during a test.

*Absences:* You should attend all of your classes.

If you are not able to turn in a homework assignment because of an absence, you will not be able to turn it in late. If you have an excused absence which causes you to miss an assignment, please inform your lecturer, Russell Brown. A list of all homework assignments that are missed because of absence will be collected during the semester. We will consult this list before assigning final grades and attempt to determine the grade you would have obtained if you had completed the assignment.

Missed homeworks should be reported to Brown. Do not miss exams.

*Web page:* A primitive web page may be reached from  
<http://www.ms.uky.edu/~rbrown/courses/> Any handouts will be available at this address.

*Library:* Solutions to exams and occasional homework problems will be kept on reserve in the Mathematics Library in the basement of Patterson Office Tower.

August 24, 2004