Course Syllabus: Math 634
Advanced Calculus II
Kansas State University
Spring 2006

Time and place: MWF 2:30 pm, CW 120.
Course web page: A course web page will be maintained on K-State Online.
Instructor: Genevra Neumann
Email: neumann@math.ksu.edu
Office: CW 125
Phone: 785-532-0595
Office hours: MWF 11:00 am - noon or by appointment.


Course objectives: Our goals are:

1. To obtain a deeper understanding of multivariable calculus, including some linear algebra.

2. To review and reinforce concepts and theorems that you have already seen in Calc 2 and 3, as well as to introduce a number of new or related concepts.

3. To further develop your skill at reading, constructing, and writing proofs. You will be expected to write clean and rigorous arguments with correct logic and grammar.

Topics for this semester include the pointwise convergence of sequences of functions, $\mathbb{R}^n$ as a metric space, the inverse function theorem, the implicit function theorem, Fubini’s theorem, and, as time permits, line and surface integrals. Most of the material to be covered can be found in chapters 9-20 of the textbook. Because looking at alternate treatments can be helpful, the instructor has put a few other books at a similar level on reserve at Hale Library; see the class web page for details.

The material covered in this course represents a leap in abstraction from what you’ve seen in your calculus classes. Please don’t be shy about asking for help. You are encouraged to ask questions in class, to stop by office hours for help, and to make use of the “Advanced Help Sessions.” Once you get used to the abstraction, this material is a lot of fun and can lead you into all sorts of exciting topics.

Grading policy: Evaluation will be based on your performance on the homework problems, the two midterms, and the final exam. Opportunities for earning extra credit points will be offered at the instructor’s discretion. Attendance and class participation will be considered in borderline cases.

Homework: There will be at least seven and no more than twelve problem sets. The homework problems will range in difficulty from routine to challenging. You are expected to attempt all of the problems. You are encouraged to discuss the problems with your classmates; however, you must write up your solutions independently. You are also encouraged to come to office hours or to stop by the “Advanced Help Sessions” for help. In your written solutions, consider including sentences in addition to equations; this will make your solution easier to understand. If you do not completely solve a
problem, you should write up your best attempt, indicating where you got stuck or a “fact” that would help you move forward. Occasionally, you may find gaps in your approach, even when you thought that you had solved the problem. You are strongly encouraged to label these gaps, explaining the “shaky” point, instead of attempting to “snow” the grader. The point of the homework is to help you learn the material. Late homework is discouraged, because it’s important to stay current with the course. In honor of Murphy’s Law, the instructor will accept one late homework from each of you, provided that you give a reasonable explanation for the delay. Subsequent late homeworks will only be accepted under truly extenuating circumstances.

Midterm and final exams: The two midterm exams will be a take-home exams. You will not be permitted to work with others on the midterms. The final exam will be held during finals week; there will be no make-up final. You will be allowed one $8\frac{1}{2}'' \times 11''$ sheet of handwritten notes (both sides) for use on the final exam. You must turn in this sheet of notes with your exam paper.

Attendance and class participation: You are encouraged to be an active learner in this course. Part of being an active learner is coming to class and asking questions. Occasionally, you may need to miss class because of illness or a family emergency. If you miss class more than a few times, the instructor will assume that you are choosing to skip class unless you provide an alternate explanation.

Date of final exam: Friday, May 12, 2006, 4:10 pm - 6:00 pm.

Important notices:

1. Plagiarism and cheating are serious offenses and may be punished by failure on the exam, paper, or project, failure in the course, and/or expulsion from the University.

2. While you are encouraged to work together on the homework, you must write up your solutions independently.

3. You will be asked to sign the honor pledge on any written work where you must work independently on the entire assignment (for example, exams).

4. If you have any condition, such as a physical or learning disability, which will make it difficult for you to carry out the work as outlined above or which will require academic accommodations, please see the instructor during the first two weeks of the course.