

SYLLABUS: Mathematics 445 (Advanced Calculus)
Professor W.R. Wade (Aconda 110)

OFFICE HOURS

Monday-Wednesday-Friday: 8:30–9:00 AM, 11:00–11:30 AM, 2:30-3:30 PM

Tuesday-Thursday: 9:00-10:00 AM, **or by appointment.**

This course is an introduction to *analysis*, a branch of mathematics, with emphasis on the calculus of functions of several variables. Our goal is to show you how to **use** multi-dimensional analysis to interpret and solve problems, and how to **prove** all the familiar theorems you already know from Calculus I, II, and III.

Unlike the honors version of this course, we shall strive for a balance between theory and computation. For each concept introduced, you should know both precisely what it means (this is the first step toward using it to solve real-world problems) and all the computational methods associated with it. Any proofs you will be responsible for will be simple and straightforward (compared to the honors class).

We shall take two semesters cover Chapters 6 through 14 at a leisurely pace. This semester we will begin with the introductory material in Chapters 1 and 2, and then concentrate on Chapters 8-12; next semester we will cover Chapters 6-7 and 13-14.

Your grades will have four components, all equally weighted.

Component 1: HOMEWORK (worth 100 points). Homework assigned during a lecture is due at the beginning of the next class meeting. It must be folded length-wise (like a book) with your name on the outside FRONT cover. Since the exams will be very much like the homework, and since the homework will count as one test grade, it is very important to do the homework on your own. No late homework will be accepted.

Components 2 and 3: HOUR EXAMS (each worth 100 points).

- (1) First Exam (late September) will cover Euclidean Spaces (Chapters 8 and 9)
- (2) Second Exam (mid November) will cover Differentiability (Chapter 11)

Component 4: THE COMPREHENSIVE FINAL EXAMINATION (worth 100 points). This examination will be given on **Monday, December 7** at **8:00-10:00 A.M.**

At the end of the semester I will average these points, and assign grades according to the following scale: 86-100 A, 66-85 B, 55-65 C, 45-54 D.

In particular, each exam and the homework is worth 25% of your grade.