

SYLLABUS: Mathematics 341 (Analysis I)
Professor W.R. Wade (Ayres Hall 319)

Text: None (because YOU will write it during the semester!)

Office Hours:

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

Tuesday–Thursday 9:00-11:00 AM **or by appointment.**

THE COURSE. *Analysis* is the branch of mathematics that deals with limits and convergence. This course is an introduction to analysis with emphasis on infinite series. Not only will we study their properties, we will also study their theory. You should finish the course with a greater facility with infinite series as well as a greater appreciation and fluency in their theory. You will also learn how to construct proofs about analytic properties, a valuable tool for many courses at the 400 level and higher.

Although primarily designed for mathematicians, this course is useful to all who plan a professional career in disciplines which use mathematics heavily, e.g., engineering, physics, geology, chemistry, and computer science.

It is essential that you have mastered the techniques of one variable calculus before enrolling in this one. In particular, we assume that you are familiar with the chain rule, the mean value theorem, the fundamental theorem of calculus, basic tests for convergence of infinite series, and the standard integration techniques (e.g., u -substitution and integration by parts).

THE GRADE. From time to time, I shall assign homework problems which will be due the next class period. Not all of these exercises will be easy. At first, you might struggle to finish them. Do not give up. Do not get someone else to do them for you. Struggle is an integral part of learning difficult material. As your powers of deduction grow, your grades will improve. Do not be discouraged if your score on the first few assignments is low. You are here to learn, and one of the best ways to learn is to practice. This is a no penalty activity since I will NOT record your grades on the homework.

Gradually, as the semester unfolds, you will write a book about infinite series. You will hand that book to me to be graded on the last day before Thanksgiving Break. I will grade it, and hand it back on the last day of classes so you can use it to study for the final.

In addition to homework and writing your book, there will be two one-hour exams evenly spaced throughout the semester and a comprehensive final exam. Each hour exam, and the topics which it covers, will be announced a week in advance. Thus you will always have a good idea about what material will be covered on a given exam and a weekend to prepare for it. The comprehensive final examination will cover the entire course. This examination will be given on

Tuesday, December 6, 10:15—12:15 AM

Your book is worth 100 points, each hour exam is worth 100 points, and the final examination is worth 100 points. At the end of the semester I will average all your scores and assign grades according to the following scale:

85-100 *A* or *A-*, 70-84 *B* or *B±*, 60-69 *C* or *C±*, 50-59 *D*.

I am always willing to discuss the method I used to arrive at any grade I give you anytime during this course.

Please note that your book is worth as much as an exam or the final. Moreover, if one of your scores on an hour-exam is significantly lower than the other one, I will drop the low score. In particular, your book might be worth as much as ONE THIRD of your grade. Do a good job and you will be rewarded.