

# MATH 201—Analysis I, Winter/97

**Instructor:** David Casperson, Office: Lib 444, Phone: 960-6672

**Approach:** This course can be viewed as either the last of the “calculus” sequence, or the first of the “analysis” sequence. As such, the emphasis of this course is a rigorous introduction to basic tools and techniques of analysis. The unifying theme of the syllabus material is understanding how the calculus interacts with infinite series.

**Syllabus:** Primarily from Chapters 7 and 8 of Kaplan. Fourier Series and Orthogonal Functions. Trigonometric series. Fourier series. Convergence of Fourier series. Bessel’s inequality. Orthogonal Functions. Completeness of systems of Orthogonal Functions.

Complex arithmetic. Functions of a Complex variable. Complex valued functions of a real variable. Complex functions of a complex variable. Continuity. Derivatives, Analytic functions, and the Cauchy-Riemann equations. Entire functions. The log function. Goursat’s theorem. Integration, analytic functions, and power series. Meromorphic functions, Laurent series, poles and singularities. Residues.

**Lecture information:** M W F 14:30–15:20. Room 5–173

**Text Book:** *Advanced Calculus* (4<sup>th</sup> edition), by Wilfred Kaplan.

## Grading Scheme:

Quizzes	10%
Homework:	10%
Midterm Tests:	40%
Final Exam:	40%

I reserve the right to change the weight of any portion of this marking scheme. If changes are made, your grade will be calculated using the original weighting and the new weighting, and you will be given the higher of the two. At the end of the course, the grades may be adjusted but this can only increase your grade and will be done uniformly.

**Prerequisites:** MATH 200 or permission of instructor.