

Schedule

A week-by-week breakdown of the material.

Week 1 (01/11-1/15)

Day 1 Introduction

Day 2 Complex Numbers, algebra¹

Day 3 Geometry of the Complex Plane²

Week 2 (01/18-01/22)

Day 1 Sequences and Series in the Complex Plane³

Day 2 Cauchy sequences⁴

Day 3 Cauchy sequences⁵

Week 3 (01/25-01/29)

Day 1 Series results from Calc 3⁶

Day 2 Series results from Calc 3⁷

Day 3 Series results from Calc 3⁸

Week 4 (02/01-02/05)

Day 1 Series results from Calc 3⁹

Assignment 1¹⁰ due Friday, February 12

Day 2 Topology of the Complex Plane: Open and Closed sets¹¹

Day 3 Open and Closed sets (cont)¹²

¹[notes/complex_numbers.html](#)

²[notes/complex_numbers.html](#)

³[notes/complex_series.html](#)

⁴[notes/complex_series.html](#)

⁵[notes/complex_series.html](#)

⁶[notes/complex_series.html](#)

⁷[notes/complex_series.html](#)

⁸[notes/complex_series.html](#)

⁹[notes/complex_series.html](#)

¹⁰[notes/assignment1.html](#)

¹¹[notes/complex_topology.html](#)

¹²[notes/complex_topology.html](#)

Week 5 (02/08-02/12)

Day 1 Continuous functions and relation to topology¹³

Day 2 Compact Sets, Heine-Borel theorem¹⁴

Day 3 Analytic Polynomials

Week 6 (02/15-02/19)

Day 1 Differentiable Functions

Day 2 Midterm 1

Day 3 Power Series

Week 7 (02/22-02/26)

Day 1 Differentiability of Power Series

Day 2 Cauchy-Riemann Equations, Analytic functions

Day 3 Extensions of standard functions

Week 8 (03/07-03/11)

Day 1 Line Integrals

Day 2 Line Integrals, cont

Day 3 Line Integrals and antiderivatives

Week 9 (03/14-03/18)

Day 1 Closed Curve Theorem

Day 2 Cauchy Integral Formula

Day 3 Taylor Expansion for entire functions

Week 10 (03/21-03/25)

Day 1 Louisville Theorem, Fundamental Theorem of Algebra

Day 2 Midterm 2

Day 3 Power Series for analytic functions on a disc

¹³[notes/complex_topology.html](#)

¹⁴[notes/complex_topology.html](#)

Week 11 (03/28-04/01)

Day 1 Mean Value Theorem

Day 2 Maximum Modulus Theorem

Day 3 Schwartz's Lemma

Week 12 (04/04-04/08)

Day 1 Morera's Theorem

Day 2 TBA

Day 3 TBA

Week 13 (04/11-04/15)

Day 1 TBA

Day 2 TBA

Day 3 TBA