MATH 103A - Complex Analysis

Yuchin Sun

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Office Hours: Tu:01:30PM 03:00PM	Office McHenry4178
Course time: TuTh 03:20PM-04:55PM	Location: PhysSciences 130
TA: Shane Kennerly	E-mail: skennerl@ucsc.edu

Prerequisite

Prerequisite(s): MATH 23B; and either MATH 100 or CSE 101

Course Description

Complex numbers, analytic and harmonic functions, complex integration, the Cauchy integral formula, Laurent series, singularities and residues, conformal mappings.

Textbook

Complex Analysis by Ahlfors

Course Learning Objectives

Introduce basic properties of complex functions and analytic functions and illustrate some important uses of these theories. Topics to be covered: complex numbers, limits, continuity and derivatives, Cauchy-Riemann equations, analytic functions and harmonic functions; elementary functions; contours integrals, Cauchy-Goursat theorem, Cauchy integral formula, Morera's theorem, maximum moduli of functions, the fundamental theorem of algebra; Taylor series and Laurent's series; residues and poles, evaluation of infinite integrals. If time allows, we will also cover mapping by elementary functions and conformal mapping.

Grading

- **<u>40%</u>** homework

- **<u>5%</u>** Section Attendance and Participation

- **<u>15%</u>** Midterm exam (Feb 8th)

- **<u>40%</u>** final exam (Mar 14 4:00–7:00 p.m.)