

Winter 2018
COURSE SYLLABUS – Math CS 122A
Complex Analysis
TR 2:00 – 3:15, Building 494, Room 164B

Instructor David Morrison, South Hall 6708

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Office Hours: To be announced

Course Information: All course information will be provided on Gauchospace.

Description This is the first of a two-quarter introductory course on complex analysis. Complex analysis is an old and beautiful subject, and it is also extremely useful. We will explore its analytic and geometric sides, balancing theory and computation. Topics will include complex numbers, differentiability of functions of one complex variable, Cauchy-Riemann equations, conformal mapping, Cauchy's Theorem, Cauchy Integral Formula and its consequences, etc.

Text I will not follow a text in this course. However, the book by Marsden and Hoffman (reference 5 on the list below) is a good introductory text that contains most of the topics that I will cover.

Prerequisites I will assume that you have already had a rigorous course in introductory calculus/real analysis. You should be familiar with the concepts of limit, continuity, derivative, and Riemann integral. You should be able to execute coherent mathematical proofs.

Grading Courses in CCS are not letter graded, instead they are assigned variable units. The number of units you receive will depend on your performance in the class. A minimum of 3 units is necessary to pass this class. If you receive fewer than 3 units, this class will not count as a requirement for graduation, and you will need to replace it with another class (this should be discussed with your academic advisor).

Your performance will be evaluated on the basis of class participation and weekly homework. I encourage you to prepare your homework using the \LaTeX mathematical typesetting software. Your work will be graded for correctness as well as for clarity and conciseness of mathematical exposition. Illegible, sloppy, or poorly written homework will not be given full credit. First drafts normally do not meet the expected standard. I will accept at most one late homework assignment from you during the quarter.

Grading Scale

- 4 units = A/B, very good
- 3 units = C, satisfactory
- 2 units = D, poor
- < 2 units = F, unsatisfactory

References (All of these are on reserve in the campus library)

1. Ahlfors, L. Complex Analysis. (somewhat advanced)
2. Brown, J. and Churchill, R. Complex Variables and Applications. (elementary)
3. Conway, J.B. Functions of One Complex Variable. (advanced)
4. Greene, R. and Krantz, S. Function Theory of One Complex Variable. (advanced)
5. Marsden, J. and Hoffman, M. M. Basic Complex Analysis. (intermediate)