

Theory of Functions of a Complex Variable I

The course

This is a first rigorous course in the theory of functions of one complex variable. The basic objects studied in the course are holomorphic (that is, complex analytic) functions. The course covers the representation of holomorphic functions by power series and by integrals; complex line integrals, Cauchy's integral formula, and some of its applications; singularities of holomorphic functions, Laurent series, and computation of definite integrals by residues; the maximum principle and Schwarz's lemma; conformal mapping; and harmonic functions.

Textbook The required textbook is *Function Theory of One Complex Variable*, second edition, by Robert E. Greene and Steven G. Krantz, American Mathematical Society, 2002, ISBN 0-8218-2905-X. The course covers chapters 1–7.

Prerequisite The official prerequisite for this course is Math 410 (Advanced Calculus II) or its equivalent. The essential background you need is familiarity with the kind of analytic reasoning used in “ ϵ - δ (epsilon-delta) proofs”. Math 617 and its successor Math 618 form the basis for the Mathematics Department Qualifying Examination in Complex Analysis.

Venue The course meets Monday, Wednesday, and Friday, 3:00-3:50 P.M., in BLOC 156.

Home page The home page for the course is <http://www.math.tamu.edu/~harold.boas/courses/617-2003c/>.

The instructor

The instructor is Dr. Harold P. Boas. The email address is boas@tamu.edu and the telephone number is (979) 845-7269. The instructor's office hours are held in 202 Milner Hall, Monday, Wednesday, and Friday, 11:00–12:00; also by appointment.

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Examination dates

- There will be an in-class examination on Monday, September 29.
- On Friday, October 24, I will be attending a meeting of the American Mathematical Society in Chapel Hill, North Carolina, so there will be no class meeting on that day. Instead there will be a take-home examination handed out at the end of class on Wednesday, October 22 and due at the beginning of class on Monday, October 27.
- There will be an in-class examination on Friday, November 21.
- The final examination is scheduled by the registrar for Tuesday, December 16, from 10:30–12:30.

Grades

The four examinations each count for 20% of the course grade. The remaining 20% of the course grade will be based on homework/classwork.