

Math 450-001 (CRN 05643)
Complex Variables
3 hrs Credit
Spring 2014

Class Meeting Time: 11:10-12:30 TTH COHH 2121
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Office hours – T 12:30 – 2:30, 3:40 – 4:30, TH 12:30 – 2:30
Others by appointment or capture

This will be the first introduction many of you have had to the field of complex analysis. It is one of the most basic fields in all of analysis. A tremendous amount of research is currently going on in this area. In addition to this, complex analysis is widely used in applications. Electric circuit theory, boundary value problems such as the Dirichlet, Poisson, Neumann, and Robin problems, the study of heat flow, potential, and many other topics are examples. For the mathematician complex variables is the foundation upon which many other branches of analysis lie. Much of operator theory is based on complex variables for instance.

Like any first course in a subject 450 will be primarily concerned with the mechanics of problem solving. For this reason a lot of homework will be given and some of it will be graded. I tell my students every semester that the most important and most difficult thing about a math course is keeping up. The problems on the exams will be similar to those on the homework so DO YOUR HOMEWORK. Ask questions when they come up, not the day before the test. You need time to fully grasp the answers. Also, please make use of my office hours. Those hours are your time, not mine! I enjoy dealing with students and answering their questions. I never consider a question stupid, no matter how simple the answer may be, as long as the student asking it has made an honest effort to determine the answer.

There will be three tests and a comprehensive final. Your grade will be determined as follows. Homework - 15%; Each Exam - 20%; Final - 25%. The prerequisite for this course is 237. In addition to this a certain mathematical maturity will be necessary.

Every day homework will be assigned. I will not tell you which assignments I will take up do so them all.

MATH 450 specifically meets the five learning objectives as detailed below:

Learning Objective 1: Obtain a basic understanding of the geometry and topology of the complex plane

Learning Objective 2: Understand the importance of Analytic Functions

Learning Objective 3: Understand the concepts of residue theory and singularities

Learning Objective 4: Apply advanced integration techniques to problems

Learning Objective 5: Obtain a deeper understanding of Power Series

Textbook - Complex Variables and Applications by Brown and Churchill 9th edition. The course will cover most of the first eight chapters of this book as well as a few selected advanced topics if time permits. The following schedule will be adhered to as much as possible.

Chapter 1	2 days	Test I – Thursday February 27
Chapter 2	4-5 days	Test II - Thursday March 27
Chapter 3	3-4 days	Test III – Thursday May 1
Chapter 4	6 days	Final - Tuesday, May 13, 8:00 – 10:00
Chapter 5	4-5 days	
Chapter 6	5-6 days	
Chapter 8	4-5 days	
Chapter 9 and advanced topics	3-5 days	