

Complex Analysis I – Fall Semester 2014

Section 1 Syllabus

MWF 11:30 – 12:20 MSCS 509

Instructor: Dr. Anthony Kable
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Office Hours: MW 2:30 – 3:20
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Basic Information

The subject of this course, and its successor, is the basic theory of differentiable functions of a single complex variable. It is hard to appreciate from this simple description how broadly connected this subject is to other parts of mathematics and how many fundamental concepts were first recognized in the context of complex analysis. At the same time, the elementary parts of the subject have an elegance and cohesiveness which make them a pleasure to study.

One purpose of the course will be to prepare students to take the comprehensive exam in complex analysis. For this reason, there will be an emphasis on developing and assessing competence in solving the standard types of problems usually encountered on this exam.

The textbook is *Complex Made Simple* by David Ullrich. In this course, I plan to cover Chapters 0 – 9 and Appendices 1 – 3 of this book in full. During the last week of the course, I hope to cover part of Chapter 24.

Background

The major prerequisite knowledge for this class is drawn from Advanced Calculus. It will be essential to be comfortable with the basics of metric spaces, up to and including uniform convergence, compactness, and connectedness, and with derivatives and Riemann integration. Some exposure to point-set topology is helpful, but not essential. Fluency in manipulating complex numbers and power series will be assumed, but no prior knowledge of complex analysis is necessary.

Expectations

Although this course is open to others, it is mainly aimed at students in the PhD program in mathematics. In keeping with this, students in the course are expected to display a high degree of independence and self-motivation. In addition, the basic skills required to write and discuss mathematics will be assumed. Written work prepared for the class must adhere to the fundamentals of good mathematical style. I will encourage revision of work that does not at first meet this standard. I expect to hold a problem session once a week at a time to be determined. Attendance at this session is not mandatory, but is strongly encouraged.

Grading

The course grade will be based on three preliminary in-class exams (18% each), an in-class final exam (25%), and seven homework assignments (3% each). The dates of the preliminary exams and due dates for the homework are shown on the course schedule. The final exam will be held in MSCS 509 from 10:00 – 11:50 on Friday, December 12. A score of at least 90% will ensure an A, at least 80% will ensure at least a B, and so on. I will use discretion for close cases.

Miscellaneous Information

You are subject to the University's policy on academic integrity. Information about this policy may be reached from the Division of Academic Affairs web page at <http://academicaffairs.okstate.edu>.