Math 5022-Spring 2016

Complex Analysis II

General information

Location: Cupples I Room 111
Time: MWF 2-3pm
Professor: Greg Knese
Office location: Cupples I room 211A
Office hours: Monday 3-4pm, Wednesday 10-11am, Friday 10-11am, by appointment, or just drop by.
Email: geknese at wustl dot edu

Course description

An intensive course in complex analysis at the introductory graduate level. Math 5021-5022 form the basis for the Ph.D. qualifying exam in complex variables.
Prerequisite: Math 4111, 417, 418, and 5021 or permission of the instructor.

Textbook

The official textbook is **Complex Analysis** by Theodore W. Gamelin.
Refer to http://www.math.ucla.edu/~twg/CA.book.html for corrections.

Exams

There will be one midterm in class on **March 4** and a final exam in Cupples I Room 199 on **May 9, 2-5pm**. Students should tell me whether they would like to take the 3 hour qualifying exam (which covers the entire sequence 5021-5022) or just a 2 hour final exam (which emphasizes 5022).

Homework

There will be weekly homework assignments. These should be written up clearly and in detail preferably typed using LaTeX. You may discuss the homework verbally with other students provided you have already given the homework a serious attempt. If you have already solved a problem and someone asks you about it, then any help you provide should consist of hints or suggestions and not complete solutions.

In particular, homework should be written up independently and it should not be possible to tell who worked with whom. Do not search or post requests for solutions to HW.

Grade breakdown

Homework: 40%
Midterm exam: 20%
Final exam: 40%

Course topics

Ideally, we will get through the entire book in Complex Analysis I and II, leaving some topics as required reading and some as recommended reading. Some of the big goals in this course will be the Picard theorems, the prime number theorem, the Perron method for the Dirichlet problem, the uniformization theorem. Time permitting we may dabble in fractals, analytic combinatorics, or several complex variables.

Supplementary References

Complex Analysis by Lars Ahlfors
Complex Function Theory by Donald Sarason
Functions of one complex variables by John B. Conway
Complex Analysis by Stein and Shakarchi
Function theory of one complex variable by Greene and Krantz
Complex Analysis: the geometric viewpoint by Krantz
Search link.springer.com for many other texts