Math 422, Theory of Functions of a Complex Variable II

Spring 2004

Instructor: David Wright
Office: Room 114, Cupples I
Phone: 314 935-6781 (office)
E-mail: wright@einstein.wustl.edu
Website: www.math.wustl.edu/~wright/

Office Hours: MWF 2:00-3:00

Class Meetings: MWF 10:00-11:00 in Whitaker, Rm 216

Text: **Complex Analysis** (Third Edition), by Lars Ahlfors

Prerequisites: Math 421 or permission of the department.

Content: This course continues from Math 421 the study of the basic theorems and methods of modern complex analysis. It will cover Montel's Theorem, the Arzela-Ascoli Theorem, the Riemann mapping theorem, infinite products, the Weierstrass factorization theorem, the Mittag-Leffelr theorem, Jensen's formula, Blaschke products, the gamma function, the beta function, the Riemann zeta function, the Euler product formula, the prime number theorem, elliptic functions, the monodromy theorem, and Picard's theorem.

Goals:

1. Cover the concepts and theorems of complex analysis which every mathematician should know.
2. Prepare Ph.D. students for the Complex Analysis Qualifying Exam in May 2003.
3. Develop/enhance the students' skills in proof and problem solving.
4. Show how complex analysis relates to other areas of mathematics.

Exams: *Midterm Exam:* Friday, March 5 (in class)
Final Exam: Monday, May 10, 10:30am-12:30pm

Homework: Assignments will be given out approximately every ten days. The due dates of the assignments are: 1/30, 2/10, 2/20, 3/3, 3/19, 3/31, 4/9, 4/21. Each assignment will have five exercises, which will be collected and graded. Students are encouraged to visit office hours to get help or hints toward solving the problems. The completed assignment should be placed in the mailbox of the grader Leonid Kovalev on the day it is

due. No late homework will be accepted. When an assignment is made, solutions to the previous assignment will be distributed. The two lowest homework scores will be dropped in calculating the final homework total.

Homework Grader: Leonid Kovalev
Office: Room 209, Cupples I
E-mail: lkovalev@math.wustl.edu

Course Materials: All course materials, including homework, solutions, and exams, will be posted as downloadable pdf files on the website www.math.wustl.edu/~wright/ under "Courses I'm Now Teaching".

Grading: The final grade will be based on homework and exam performance as follows. Each student's final average will be calculated two ways: (1) 1/4 weighting on the homework, 1/4 weighting on the Midterm, and 1/2 weighting on the Final (2) 1/3 weighting on the Midterm and 2/3 weighting on the Final. The higher of the two will be taken.