Math 606, Fall 2000

Homework

Room Change Announcement (1/19/01): As of Monday, our classroom will be DBRT 312.

Old announcements

Location and Time: Monday, Wednesday, and Friday from 9:35 to 10:25 AM in DeBartolo 312.

Instructor: Jeff Diller. You can reach me at my office 356 CCMB, by phone at 631-7694, or by email at ``diller.1@nd.edu''. My office hours will officially be Wednesdays from 1 to 2 PM and Thursdays from 4:30 to 6:30 PM. Feel free to stop by at other times on Monday, Wednesday, and Friday, too, but you might want to call or email first to make sure I'll be in.

Textbook: I don't plan to follow any one textbook for the course of the entire semester, but I plan to lean on the following three books (the first of which I used last term) quite a bit:

- *Function Theory of One Complex Variable* by Robert Greene and Steven Krantz.
- *Complex Analysis in One Variable* by Raghavan Narasimhan.
  ISBN: 0817641645
- *Lectures on Riemann Surfaces* by Otto Forster.
  ISBN: 0387906177

These books will be on reserve in the math library. There are many other relevant books to look at. Also on reserve for this course are

- *Riemann Surfaces* by Hershel Farkas and Irwin Kra.
- *Introduction to Complex Analysis* by Junjiro Noguchi.
- *Complex analysis: An Introduction to the Theory of Analytic Functions of One Complex Variable* by Lars Ahlfors
- *Functions of one complex variable* by John Conway.
- *Functions of one complex variable II* by John Conway.
- *An introduction to complex analysis in several variables* by Lars Hormander.
- *Algebraic curves and Riemann surfaces* by Rick Miranda.

What this course will cover: An approximate list of topics, in roughly the order we'll meet them, is as follows.

- Runge's approximation theorem and the inhomogeneous Cauchy-Riemann equations.
- Holomorphic functions with prescribed zeroes and poles: The Mittag-Leffler and Weierstrass theorems.
- Analytic continuation and the monodromy theorem.
- (The gamma and zeta functions.)
- Modular functions, Picard and Montel theorems, and elliptic functions.
- Riemann surfaces--definitions and examples.
- Analytic continuation revisited.
- Existence of meromorphic functions on compact surfaces.
- (Riemann-Roch Theorem.)
- (The Riemann mapping theorem for Riemann surfaces: uniformization).

Parenthetic topics will be covered as time permits. I think I'll reach at least some of them before the semester is over.

Homework: I'll assign new problems less frequently than last term--maybe once every two weeks rather than once every week. Nevertheless, homework will still be an important component of the course and will count for 50% of your grade. Also, I'll try to stick to assigning and collecting homeworks on Fridays, and I'll leave solutions to old assignments in a folder in the math library.

Exams: There will be a midterm and final exam in this course. They'll be worth 20% and 30% of your grade, respectively. These will be take home exams due March 2 and May 10, respectively. I'm toying with the idea of having you pick a topic to pursue on your own and then present to me orally as part of your final exam.

The End: If you like, you can go up one page, or go to Jeff Diller's Home Page.