Math 606, Fall 2000
Prof. Jeff Diller

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.