Basic Complex Analysis I - Math 60370

Instructor: Gábor Székelyhidi
TTh 12:30 – 1:45, Fall 2021
Hayes Healy 229

This course will be an introduction to complex analysis in one variable. The main topics covered will be the following:

- Complex derivatives, holomorphic functions
- Complex integration, Cauchy integral formula
- Meromorphic functions, residue formula
- Entire functions, the Riemann zeta function
- Conformal mappings, Riemann mapping theorem

Textbook: I will more or less follow the book by Ahlfors, however you do not need to own the book for the course. It will be on reserve in the library, and in addition there are many other books which cover similar material, a few listed below.

- Ahlfors, *Complex Analysis*, 3rd edition.

References: Some other useful references are the following books:

- Remmert, *Theory of Complex Functions*, Graduate Texts in Mathematics
- Stein, Shakarchi, *Complex Analysis*, Princeton Lectures in Analysis II
- Narasimhan, Nievergelt, *Complex analysis in one variable*, 2nd edition. Birkhauser Boston, 2001.
- Greene, Krantz, *Function Theory of One Complex Variable*, Graduate Studies in Mathematics

Grading policy: There will be weekly homework sets, a midterm, and a final exam. The final grade will be broken down as follows: Homework 40%, Midterm 30%, Final 30%.