

Basic Complex Analysis II - Math 60380

Instructor: Gábor Székelyhidi
MWF 10:30 – 11:20, Spring 2022
DeBartolo Hall 118

This course will be an introduction to Riemann surfaces. Some of the topics covered will be the following.

- Basic definitions, examples of Riemann surfaces.
- Differential forms on Riemann surfaces, Hodge decomposition.
- Riemann-Roch theorem.
- The Uniformization theorem.
- Introduction to complex manifolds if time permits.

Textbook: I will more or less follow the book by Schlag, 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 couple listed below.

- W. Schlag - *A course in complex analysis and Riemann surfaces*, AMS Graduate Studies in Mathematics.

References: Some other useful references are the following books:

- Miranda, *Algebraic curves and Riemann surfaces*, Graduate Studies in Mathematics
- Donaldson, *Riemann surfaces*, Oxford Graduate Texts in Mathematics.

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