

Syllabus for Math 536

Spring 2012

Jordan Curve Theorem

Caratheodory's Theorem

Def. of Riemann surface

Double of a finitely connected plane domain

A Simply Connected covering space of a Riemann Surface

Perron's solution to the Dirichlet problem

Barriers

Riemann Mapping Theorem revisited

Green's function on a Riemann surface

Uniformization for simply connected Riemann Surfaces with Green's function

Green's function for $W \setminus B$ where B is a ball.

Dipole Green's function

Uniformization for simply connected Riemann Surfaces without Green's function

The Fundamental Group

Fuchsian Groups and Uniformization

Green's function and Blaschke products

Denjoy Domains

Numerical construction of the covering map from the generators of a Fuchsian group via conformal welding

Here are some books covering portions of the material:

Pommerenke, Ch., Univalent Functions

Ahlfors, L.V., Conformal Invariants,

Ransford, T., Potential Theory in the Complex Plane

Gamelin, T.W. Complex Analysis

Garnett, J.B. and Marshall, D.E., Harmonic Measure

D. Marshall 3/2012