Riemann surfaces

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Abstract:

This course is meant to provide a broad introduction to Riemann surfaces. We aim to study the notion of Riemann surfaces from various point of views like complex analysis or differential geometry with detours involving an introduction to sheaves and cohomology. The content of the course will include:

- Definitions and examples of Riemann surfaces, finite coverings

- Line bundles, divisors, meromorphic forms, residues, Riemann-Hurwitz formula

- Sheaves, Čech cohomology, Riemann-Roch theorem, embedding into projective space

Prerequisites:

Complex analysis, differential geometry.

References:

1. OTTO FORSTER, *Lectures on Riemann Surfaces.* Graduate Texts in Mathematics 81; Springer Verlag.

2. RAGHAVAN NARASIMHAN, *Compact Riemann Surfaces.* Lectures in Mathematics, ETH Zurich, Birkhauser Verlag.

3. RICK MIRANDA, *Algebraic Curves and Riemann Surfaces.* Graduate Studies in Mathematics Volume 5; Springer Verlag.