1. Path integrals and closed and exact forms.

2. Cauchy's Integral Theorem.

3. Cauchy formula for $f(z)$ and derivatives.

4. Liouville's Theorem: every bounded analytic function on $\mathbb{C}$ is constant.

5. Analytic functions are given by power series.

6. Open Mapping and Maximum Modulus Theorems.

7. Radius of convergence (Cauchy-Hadamard formula).

8. Poles and Removable and Essential Singularities.

9. Riemann's Removable Singularity Theorem.

10. Laurent series.

11. The Residue Theorem. Real integrals with the Residue Theorem.

12. Logarithmic integral, Rouché's Theorem, and Winding Numbers.