

Math 805
Applied Complex Variables, Course Policy and References

Instructor: Ovidiu Costin, Math Tower 404.

Office Hours: Will be announced soon.

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References

◦ For the Complex Analysis part I recommend one or more of the following texts:

1. Ahlfors, L: *Complex Analysis : An Introduction to the Theory of Analytic Functions of One Complex Variable*, 1979, QA331 .A4
2. Nehari, *Conformal Mapping*, Dover, QA360.N4
3. Rudin, *Real and Complex Analysis*, McGraw Hill, QA300.R82
4. Lang, S *Complex Analysis*, Springer 1999

◦ We will cover some very useful more advanced topics in Complex analysis for the first couple of weeks or so. These will include counting zeros of analytic functions, the minimum modulus principle and the Phragmén–Lindelöf theorem. For Asymptotic Analysis I will mainly follow my course notes which are prepared in LaTeX; I will mail a pdf file to all participating students.

Very interesting material and good problems are found in

Steven A. Orszag and Carl M. Bender Advanced Mathematical Methods for Scientists and Engineers 1979, QA371 .B43

This book is not fully rigorous but the material I provide will supply, among others, the missing proofs.

◦ Exponential asymptotics (806) is a new subject; here I will follow my LaTeX notes that are based on a textbook that I am writing with Martin D Kruskal.

The **grades** will be based on homework performance and a take-home final.