Instructor: Alexander I. Bufetov
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Course description:
The course will give a rigorous treatment of analytic functions of one variable. Topics include complex differentiation and integration, residues, harmonic functions, the Riemann Mapping Theorem, analytic continuation. Particular emphasis will be placed the study of special functions and their asymptotics by the contour integral method. A detailed exposition of Lobachevsky’s geometry is also planned. If time permits, we’ll briefly discuss Riemann surfaces in the end of the term.

Remark. The Ahlfors is outrageously expensive new, but, since it was printed in 1979, it should be available cheaply second-hand. The Lebedev is less than $ 15 on the web.

Room and time: Tuesday and Thursday 9-25 – 10-40am, room 453.

Grading: There will be no final exam. The grading will consist of homework (20%); takehome midterms (40%); tests in class (40%). No credit for wrong answers.

Problem Sessions: Zhi Zhang (Zhi.Zhang-at-rice-dot-edu, x2840) will hold problem sessions every other Friday at 4pm in room 40, basement of Herman Brown Hall. While they are optional, I strongly encourage you to attend them when you can.

Homework: Homework will be assigned and collected weekly.

Late homework assignments will not be accepted for any reason whatsoever.
Topics covered:

1. Complex differentiation and the Cauchy-Riemann Equations.
2. Holomorphic Functions and Power Series.
5. The Method of Steepest Descent. Bessel Functions and Debye Contours.

Disability Support: It is the policy of Rice University that any student with a disability receive fair and equal treatment in this course. If you have a documented disability that requires academic adjustments or accommodations, please speak with me during the first two weeks of class. All discussions will remain confidential. Students with disabilities should also contact Disability Support Services in the Ley Student Centre.