Syllabus Math 440/540 – Spring 2010

Professor Anders Linnér
e-mail: alinner@math.niu.edu
Office: Watson 363
Office Hours: M,W,F: 2-2:50 (or by appointment.)
Text: COMPLEX VARIABLES with Applications (3ed.), by A. David Wunsch
Recommended additional reading: COMPLEX VARIABLES and APPLICATIONS by Ruel V. Churchill and James Ward Brown, McGraw-Hill.
Grades: F: 200, M: 100, Assignments: 200, A:425, B:375, C:325, D:275

Final Exam: Wednesday May 5, Noon-1:50 p.m.

WEEK 1
Mon. 01/11 why complex #s?
Wed. 01/13 polar form and roots
Fri. 01/15 geometry/topology

WEEK 2
Mon. 01/18 no class (MLK holiday)
Wed. 01/20 complex limits
Fri. 01/22 complex derivatives

WEEK 3
Mon. 01/25 Cauchy-Riemann equations
Wed. 01/27 harmonic functions
Fri. 01/29 exponentials

WEEK 4
Mon. 02/01 trigonometric functions
Wed. 02/03 logarithms
Fri. 02/05 inverse trigonometric functions

WEEK 5
Mon. 02/08 branch points and cuts
Wed. 02/10 line integration
Fri. 02/12 Cauchy-Goursat theorem

WEEK 6
Mon. 02/15 complex fundamental theorem
Wed. 02/17 Cauchy integral formula
Fri. 02/19 maximum modulus theorem

WEEK 7
Mon. 02/22 Liouville's theorem
Wed. 02/24 fundamental theorem of algebra
Fri. 02/26 series

WEEK 8
Mon. 03/01 power and Taylor series
Wed. 03/03 techniques to calculate power series
Fri. 03/05 Laurent series

SPRING BREAK

WEEK 9
Mon. 03/15 properties of analytic functions
Wed. 03/17 residues
Fri. 03/19 residue theorem

WEEK 10
Mon. 03/22 types of singularities
Wed. 03/24 finding residues
Fri. 03/26 residues and real integrals

WEEK 11
Mon. 03/29 types of contours
Wed. 03/31 review
Fri. 04/02 **Midterm Exam**

WEEK 12
Mon. 04/05 principle of the argument
Wed. 04/07 Rouché's theorem
Fri. 04/09 conformal mappings

WEEK 13
Mon. 04/16 Möbius transformations
Wed. 04/18 cross-ratios
Fri. 04/20 Schwarz-Christoffel transformation

WEEK 14
Mon. 04/19 exact values of series
Wed. 04/21 complex techniques &
Fri. 04/23 differential equations

WEEK 15
Mon. 04/26 review
Wed. 04/28 review
Fri. 04/30 **Reading day**