

FUNCTIONS OF A COMPLEX VARIABLE

MATH-326

Textbook: *Fundamentals of Complex Analysis with Applications to Engineering and Science*, 3-rd Edition
by E.B. Saff and A.D. Snider (Prentice Hall)
Chapters 1,2,3,4,5,6,7 will be covered

Instructor: Dr. O. Bogoyavlenskij

Assignments: Due each Thursday at 11-20 a.m., Jeffery Hall Rm 102

Solutions to all assignments and to the Mid-term test will be presented on WEBCT

Mid-term test: Monday, **October 20**, 9-30 - 10-20 a.m. at Jeffery Hall Rm 102

Final examination: December, 2008

Evaluation: Final examination 50%
Mid-term test 30%
Assignments 20%

Office hour: *Monday, 3-30 - 4-30 p.m.* Rm. 515, Jeffery Hall

Outline:

- Complex numbers, Vector and Polar forms, Complex exponential
- Riemann sphere and Stereographic projection
- Analytic functions, Cauchy-Riemann equations, Harmonic functions
- Exponential, Trigonometric, Hyperbolic and Logarithmic functions
- Contour Integrals, Cauchy Integral Theorem
- Series representations; Taylor and Laurent series
- Zeroes and Singularities; the Residue Theorem
- Improper integrals over $(-\infty, \infty)$
- Conformal mappings; Mobius Transformations