Complex Analysis
math 535, Spring 2016

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Class: MWF 11:10-12:20 in Briggs 416
Text material: Beck, Marchesi, Pixton, Sabalka, *A First Course in Complex Analysis,*
        available at http://math.sfsu.edu/beck/papers/complex.pdf
        Parks, *Notes on Complex Analysis,* pdf.

date	text	topic
M 3/28	1.1-2	Analysis basics, properties of the complex numbers
W 3/30	1.3-4	Conjugates in rectangular and polar, topology
F 4/1	2.1	Limits, continuity, the general derivative
M 4/4	2.2	Chain Rule, holomorphic functions
W 4/6	2.4	The Cauchy-Riemann equations, derivative zero
F 4/8		Examples, problems
M 4/11	7.1-4	Taylor series on a disk
W 4/13		Analytic functions are holomorphic, the exponential function
F 4/15		Cosine and sine and their hyperbolic analogs
M 4/18		A logarithm
W 4/20		Power functions and binomial series
F 4/22	4.1-2	Line integration
M 4/25	4.1-2	Properties of the line integral
W 4/27		**Exam**
F 4/29		Goursat's Theorem, existence of an antiderivative
M 5/2	4.3	Cauchy's Theorem on a star-like set. Null chains and equivalence.
W 5/4	4.4	Cauchy's Integral formula, the Maximum Modulus Theorem
M 5/9		Some definite integrals
W 5/11	8.1-2	Holomorphic functions are analytic
F 5/13	5.2-3	Cauchy-Riemann revisited, Morera's Theorem, Liousville's Theorem
M 5/16	10.1	The cotangent and zeta(2)
W 5/18	8.3	Residues, Laurent series
F 5/20	3.1,6.1-2	Linear fractional transformations, harmonic functions
M 5/23	6.2	Dirichlet's problem, the Poisson kernel
W 5/25		Fourier series in complex form
F 5/27		The Dirichlet kernel, a convergence theorem
W 6/1		Jump discontinuities, zeta(2) again
F 6/3		The Fundamental Theorem of Algebra
T 6/7		**Final Exam** (11:30-2:00)

Expectations

I expect you to engage fully in the course, as is necessary to all upper level courses in mathematics: attending class, taking careful notes, asking questions about anything you don't understand, completing assignments, reading the text and other assigned notes – all these activities are carefully coordinated to immerse you into the beautiful world of complex analysis.

To a point, an assignment may be allowed late, provided we discuss the situation before the assignment is due. This will be a rare occurrence in any case.

Grades

Assuming you are making satisfactory progress, a preliminary calculation of your grade will be 40% problem sets, 25% the midterm exam, 25% the final exam, 10% class work.

Honor Code

All assignments and exams figure into your grade, and so please abide by all collaboration and sourcing rules. There are many book and online sources for this material. In general, you may use outside text sources, provided you refer to them on assignments. Exams will be completed with no outside sources at all, as is typical.