Syllabus for Math 4320, Complex Analysis

August 22, 2011

Instructor: Ernie Croot

email: ecroot@math.gatech.edu

Try not to email me unless it is absolutely necessary.

Office: 103 Skiles

Office Hours: Tuesday 1:00 to 2:00, and Thursday 3:00 to 4:00.

Class Meeting Times: MWF 9:05 to 9:55 in Skiles 270.

Textbook: Churchill and Brown's, *Complex Variables and Applications.*

Grade: 20% for each of the first two midterms, 30% for homework, and 30% for the final.

Letter grades will be based on the usual 60-70-80-90 scale. Also, I will curve exams to stabilize the median at 75 if it is necessary (I will not subtract points to curve DOWN to 75).

I reserve the right to modify the grading policy at the end of the semester in a way that can only help you (it could not hurt your final letter grade).

Homeworks: Homeworks will be collected about once every two weeks.

Course Material: You will learn the basics of analytic functions on regions of the complex plane. This will include a discussion of the following topics, and maybe more: harmonic functions, analyticity, Gauss's mean value theorem, the Cauchy-Goursat theorem, Cauchy's integral formula, Taylor series, Laurent series, the argument principle, Rouche's theorem, branches of functions, the Picard theorems.

Math 4320 – Complex Analysis
Lectures: MWF 10:05 – 10:55am in Skiles 270

Instructor: Plamen Iliev
E-mail: iliev@math.gatech.edu (I can answer only if you use your GT account!)
Office hours: MF 11:05-11:55am in Skiles 227

Textbook: *Complex Variables and Applications,* by James Ward Brown and Ruel V. Churchill, *eight edition*.

Prerequisite: Calculus III (Math 2401)

Syllabus: We will cover most of the material in chapters 1 through 9
- ? Complex numbers (Chapter 1)
- ? Analytic functions (Chapter 2)
- ? Elementary functions (Chapter 3)
- ? Integrals (Chapter 4)
- ? Series (Chapter 5);
- ? Residues and poles (Chapter 6)
- ? Applications of residues (Chapter 7)
- ? Mapping by elementary functions (Chapter 8)
- ? Conformal mapping (Chapter 9)

Time permitting; we will cover selected topics from Chapters 10 – 12.

Grading: Grades will be based on homework (20%), two tests (20% each) and final exam (40%).

Homework: Homework will be assigned periodically. A proper subset of each assignment will be graded. You may consult with each other on the homework assignments, but you must write up and submit your own work in class on the due date. **Late homework will not be accepted.**

Test dates:
- ? Test 1 - Friday, February 19, 2010
- ? Test 2 - Friday, April 9, 2010
- ? Final exam – Wednesday, May 5 , 2010, 11:30am - 2:20pm

School Calendar

MATH 4320, COMPLEX ANALYSIS
COURSE SYLLABUS
FALL SEMESTER 2010

INSTRUCTOR: ANDRZEJ SWIECH
LECTURES: MWF 9:05-9:55, SKILES 270
OFFICE: SKILES 235B
OFFICE HOURS: T 2:00-3:00 PM, W 11:00-12:00 and by appointment
PHONE: (404) 894-2705
E-MAIL: swiech@math.gatech.edu
COURSE WEB PAGE: http://www.math.gatech.edu/~swiech/4320.html

TEXTBOOK: J. W. Brown and R. V. Churchill, *Complex Variables and Applications*, 8th edition.

COURSE OBJECTIVES: This course is designed to introduce the studens to the basic results in complex variable theory and its applications. As regards the latter at the end of the course you should be able to compute the Laurent or Taylor series expansions associated to a function which is analytic in part of the complex plane, and to determine the region of convergence of such series, compute definite integrals by means of the residue calculus, and solve boundary value problems associated to the Laplace operator using the conformal transformations associated to analytic functions. A more detailed selection of topics can be found at http://www.math.gatech.edu/course/math/4320.

HOMEWORK: As the course progresses I will be assigning problems which should be worked out. Only selected problems will be collected for grading. I will assign enough problems so that you can determine what part of the material you have mastered and what you need to work on. However they will not constitute a complete set of exercises sufficient for getting an A in the course. If you have difficulty with any of the problems please ask me about them in class or in office hours.

GRADING: There will be two one hour tests (October 1 and November 15) and the final exam. Each test and the homework will count for 20% of the final grade, and the final exam will count for 40%. Your grade will be based on how well you have mastered the theory and how well you can solve problems. You will not be asked to reproduce proofs. To get an A, respectively B,C, and D, your final score will have to be greater than 85%, respectively 70%, 55%, and 40%. Some of these requirements may be lowered if the overall average score of the class is low (i.e. your grade may get curved up).

Please be aware of the Georgia Tech Honor Code and follow it carefully. In particular please make sure that all the work you submit is your own.