Mathematical Sciences, University of Delaware  
Math 602: Real and Complex Analysis, Spring 2015

Lecture M, W, F 10:10-11:00 - Willard Hall 104.

Instructor: Constantin Bacuta, 517 Ewing Hall  
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Course Web Page: https://sakai.udel.edu/portal  
http://www.math.udel.edu/~bacuta/M602/M602s15index.html

Office hours: M 11:15 AM-12:15 PM and W 2:15 -3:15 PM.

Recommended Textbooks:

- Principles of Mathematical Analysis (PMA) by Walter Rudin, 3\textsuperscript{rd} ed.
- Real Analysis (RA1) by H.L. Royden and P.M. Fitzpatrick, 4\textsuperscript{th} ed.
- Complex Analysis (CA) by E. Stein and R. Shakarchi, 2003
- Complex Variables (CV) by R. B. Ash and W. P. Novinger, 2003

Course Description: A continuation of MATH600. Riemann integrability, Introduction to Lebesgue integration and analytic function theory through the residue theorem and applications.

Homework will be assigned and will be collected regularly.

- You may discuss all the problems with your classmates or with me and NoOne Else. However, the final answers must be in your own style and your own words. Use caution when finding solutions to your homework problems Somewhere Else.
- You must show all important intermediate steps. No credit will be given for just providing the final answer.
- Please organize your solutions. Write the solution in the "natural inductive order", neatly, and completely. Latex typing counts as neatness and neatness always counts.
- Late problem sets will not be accepted unless prior permission is granted.

Exams: There will be two in-class midterm exams, March 13, May 1 and a comprehensive take-home final exam due May 18, 2015. No make-up tests will be given without an official excuse.

Final grade: Midterm exams = 50\%, Final exam =20\%, Homework =30\%.
Grading:  $A > 94\%, \ A^{-} \geq 90\%, \ B^{-} \geq 80\%, \ C^{-} \geq 70\%, \ D^{-} \geq 60\%, \ F < 60\%$.

Course Goals:

1) Consolidate basic real and complex analysis topics including Riemann integration, Lebesgue measure and integration, analytic function theory, the residue theorem and applications.

2) Develop the ability to use and apply concepts of real and complex analysis in the context of general analysis field, including numerical analysis, and analysis of differential equations.

3) Develop rigorous proof and problem solving skills.

4) Prepare for the Analysis preliminary exam.

Material to be covered:

1. Riemann Integral, Chapter 6 of PMA: (not the Riemann-Stieltjes integral)
2. Lebesgue measure and integration, from RA1 or RA2
3. Analytic function theory, the residue theorem, and conformal mappings (if time), from CV and CA

Attendance Policy: I encourage you to attend every class. Attendance and active participation in class or/and during the office hours will be taken into consideration.

Academic Integrity Statement:
All University of Delaware policies regarding ethics and honorable behavior apply to this course. Cheating receives a failing grade.

Accessibility for Students with Disabilities:
If you are a student with a disability and wish to request accommodations, please contact
1) Office of Disabilities Support Services, 240 Academy St. Alison Hall Suite 119, or call (302) 831-4643, or
2) Academic Enrichment Center located at 148 South College Ave., (302) 831-2805.
Information regarding your disability will be treated in a confidential manner. Because many accommodations require early planning, requests for accommodations should be made as early as possible.

Note: This syllabus is subject to change.