

(revised version Feb 3)  
**Spring 2016 MATH 463 (0101)**  
**Complex Variables for Scientists and Engineers**  
**Professor D. H. Hamilton**

**LECTURES:** MATH 0411 11.00-11.50AM

**OFFICE HOURS** (*MATH 3212*) open from 4.00 MW until no students appear or 5.00 whichever comes first,  
also by special appointment by email: [dhh@math.umd.edu](mailto:dhh@math.umd.edu)

Complex Analysis combines elements of calculus, algebra and geometry together with imaginary numbers to solve problems in mathematics, science and engineering that cannot be solved any other way. Students are assumed to have taken calculus I, II, III as well as differential equations, linear algebra.

This course establishes the basic theory, using my notes (DH) and the text:

**SS: FUNDAMENTALS OF COMPLEX ANALYSIS:**  
**(Saff & Snider, Third edition, Prentice Hall, 2003)**

Midterm and Final questions are taken from any assigned homework (see below)

OR any examples from DH or those done in class.

You should also know statements of basic theory.

**GRADING:** 1 MIDTERM 100 pts

There are 5 HOMEWORK HW #1, 2, 3, 4, 5 (40 pts each) adding up to a total /200.

(No late homework is accepted, due dates shown on syllabus)

This results in a semester score for MIDTERM and HW of /300. This gives the grade **M**.

**A > 85%, B > 75%, C > 65%, D > 55%, F < 55% : +/- for border cases at my discretion**

**Final Exam** (Saturday, May 20, 8.00-10.00AM): 200 pts. This gives the final exam grade **E**.

**Semester grade:** If both **M** and **E** are passing (D or higher) then your semester grade is

$$S = \max(\mathbf{M}, \mathbf{E}).$$

Otherwise (ie if you fail one of **M** or **E**) then we total the pts for **M** and **E**.

**PROBLEMS**

There will be class time for problems. I do not do private tutoring for assigned problems,

i.e. don't come to my every office hour expecting me to work through all the problems with you.

So if you have questions about specific problems ASK IN CLASS SO EVERYONE BENEFITS!

**MAKEUPS:** Must be requested in writing: evidence should be presented that the absence was caused by a serious illness (with signed statement from a physician, it is not enough to have a note from the health center saying you had visited), death in the immediate family, recognized religious observance or University authorised active participation in activities.

**Disclaimer:** this information is subject to revisions which will be announced.

## Syllabus(Chapters from DH)

Week/date on Mon	HW due Mon			
1 (Jan 25)		***	***	DH1
2 (Feb 1)		DH1	DH1	DH2
3 (Feb 8 )	HW 1	DH2	DH2	DH3
4 (Feb 15 )		DH3	DH4	DH4
5 (Feb 22)	HW 2	DH4	DH5	DH5
6 (Feb 29 )		DH5	DH5	DH6
7 (Mar 7 )	HW 3	DH6	DH6	***
8 (Mar 14)		Spring Break	Spring Break	Spring Break
9 (Mar 21 )		Review	MIDTERM	discussion
10(Mar 28)		DH7	DH7	DH7
11(April 4)		DH7	DH7	DH7
12(April 11)	HW 4	DH8	DH8	DH8
13(April 18)		DH9	DH9	DH9
14(April 25)		DH9	DH10	DH10
15(May 2)		DH10	DH10	DH10
16(May 9)	HW 5	Review	***	***

Text

Due		DH Exercises*	SS Exercises
Feb 8	HW1	DH: 1.1.3, 1.1.5, 1.1.7, 1.1.9, 1.2.1, 1.3.1:1, 3, 7 1.3.3:3,4 1.3.5:2 1.3.7:2 2.1.3	1.4:12, 2.1:1,
Feb 22	HW2	2.2.1, 2.3.1:2,3,4 2.4.1:1,2,3,5 2.5.1:1,2,4 3.2.1:1,2, 3.3.1:1,2,3,4, 5 3.4.1, 4.3.1	2.2:19 2.4:7,8, 3.1:12, 3.3:15
Mar 7	HW3	4.4.1,5.2.1, 5.2.2, 5.2.4, 5.3.1	4.1: 1, 4.2:10, 4.3:5, 4.4:17,
April 11	HW4	7.4.1, 7.5.1	6.1: 7, 6.2: 11, 6.3: 11, 6.4: 9 6.5:10,6.6:8 6.7: 6,7,8
May 9	HW5	8.0.1, 8.1.1, 8.2.1, 8.2.3, 8.3.1. 9.0.1, 9.0.2, 9.1.1, 9.2.1, 9.3.1, 9.4.1, 9.5.1	

\*Either all problems in section e.g. 1.1.3

or just indicated problems from that section, e.g. 1.3.1:1, 3, 7