Andrew Vince



Complex Variable

MAA 4402 and MAA 5404 Fall 2020

This course is online. All information can now be accessed via Canvas.

Time: MWF periods 3 and 6 Email: avince@ufl.edu

Zoom office hours: Wednesday, period 7 and by appointment



Textbook: Complex Variable and Applications 9th edition Brown and Churchill

Complex analysis is not only of use in other branches of mathematics, but also in various fields of engineering. The course, like calculus, concerns functions of a single variable and covers limits, derivatives, integrals, and series. However, because the variable is a complex number, rather than a real number, the subject has a completely different flavor than calculus - in my opinion simpler and more elegant.

Homework

Sec 3 (Pg 7) #1 Sec 5 (Pg 13) #1,5 Sec 6 (Pg 16) #1,2,10a Sec 9 (Pg 23) #1,2,5,6 Sec 11 (Pg 30) #1,2,4

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Sec 12 (Pg 34) #1-4
Sec 14 (Pg 43) #2,4,8
Sec 18 (Pg 54)#3b,5,10,11
Sec 20 (pg 61)#1,8a,9
Sec 24 (pg 70) #1ac,3ab,4a
Sec 26 (pg 76) #1c,2c,4c,6
Sec 29 (pg 85) #4
Sec 30 (pg 89) #1b,2,6,8ac,10
Sec 33 (pg 95) #1,2,5,8
Sec 34 (pg 99) #1
Sec 36 (pg 103) #1,2,3,8c
Sec 38 (pg 107) #5a
Sec 42 (pg 119) # 2,3,4
Sec 46 (pg 132) #1-6,13
Sec 47 (pg 138) #1,2,5,
Sec 49 (pg 147) #2,3,5
Sec 53 (pg 159) #1,2,3,4,6
Sec 57 (pg 170) #1-4,7
Sec 59 (pg 177) #1,2,3,7,8
Sec 61 (pg 185) #4
Sec 65 (pg 195) #1-4,9,11
Sec 68 (pg 205) #1-6
Sec 72 (pg 218) #1-4,6,7
Sec 73 (pg 224) #1,2a,3,4
Sec 77 (pg 237) #1,2,4
Sec 79 (pg 242) #1,2
Sec 81 (Pg 247) #1,2,3b,4,5,7
Sec 83 (pg 254) #2-5,7
Sec 84 (pg 257) #1,4,6
Sec 86 (Pg 265) #1,2,4,9
Sec 88 (Pg 273) #1-3
Sec 91 (Page 282) #1
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Complex numbers

rectangular and polar form

Analytic functions

limits and the derivative

Cauchy-Riemann equations

harmonic functions

Examples

exponential and log functions

complex exponents

trig functions

linear fractional transformations

Integrals

contour integral

antiderivatives

Cauchy-Goursat Theorem (and Morera's Theorem)

Cauchy Integral Formula

Liouville's theorem and the Fundamental Theorem of Algebra

maximum modulus principal

Series

geometric series power series Taylor series Laurent series Residues and poles isolated singularities residue theorem residues at poles behavior of a function near a singularity Evaluating real integrals

Grades

Three exams, each worth 30%:

Exam 1. September 30

Exam 2. November 4

Exam 3. December 9

Five homework assignments, each worth 2%.

The exams will be graded on a sliding scale, the harder the exam, the more lenient the grading. Out of 100, it will never be stricter than 90A, 80B, 70C, 60D.

Homework will receive full credit if there is an honest attempt to do the problems.

Exam and homework grades will be posted on the canvas Grades section within a week, but usually sooner.

Campus Resources

The course will be conducted in accordance with the **Academic Honesty Policy** and policy regarding the use of copyrighted material.

Students with disabilities requesting accommodations should first register with the **Disability Resource Center** by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Academic advise and tutoring, as well as health advise (physical and mental) is available to students.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: **Attendance Policies**

Information on current UF grading policies for assigning grade points may be found at: Grades

Students are expected to provide feedback on the quality of instruction in this course by completing a course evaluation online via **GatorEvals**. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals or in their Canvas **course menu under GatorEvals**.

Privacy Policy for canvas and zoom.

Our class sessions may be audio-visually recorded for students in the class to refer back and for

enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate verbally are agreeing to have their voices recorded.

If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared.

As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.



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