

Math 450-001 (CRN 05643)

Complex Variables

3 hrs Credit

Spring 2017

Instructor: Dr. Spraker

Office – COHH 3110

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Office hours – MWF 11:30 – 1:30, MW 3:00 – 4:00

Others by appointment or capture

Class Meeting Time: 10:20-11:15 MWF COHH 3119

This will be the first introduction many of you have had to the field of complex analysis. It is one of the most basic fields in all of analysis. A tremendous amount of research is currently going on in this area. In addition to this, complex analysis is widely used in applications. Electric circuit theory, boundary value problems such as the Dirichlet, Poisson, Neumann, and Robin problems, the study of heat flow, potential, and many other topics are examples. For the mathematician complex variables is the foundation upon which many other branches of analysis lie. Much of operator theory is based on complex variables for instance.

Like any first course in a subject 450 will be primarily concerned with the mechanics of problem solving. For this reason a lot of homework will be given and some of it will be graded. I tell my students every semester that the most important and most difficult thing about a math course is keeping up. The problems on the exams will be similar to those on the homework so DO YOUR HOMEWORK. Ask questions when they come up, not the day before the test. You need time to fully grasp the answers. Also, please make use of my office hours. Those hours are your time, not mine! I enjoy dealing with students and answering their questions. I never consider a question stupid, no matter how simple the answer may be, as long as the student asking it has made an honest effort to determine the answer.

There will be three tests and a comprehensive final. Your grade will be determined as follows. Homework - 20%; Each Exam - 20%; Final - 20%. The prerequisite for this course is completion of 237 with a grade of C or above. In addition to this a certain mathematical maturity will be necessary.

Every day homework will be assigned. I will not tell you which assignments I will take up do so them all.

MATH 450 specifically meets the five learning objectives as detailed below:

Learning Objective 1: Obtain a basic understanding of the geometry and topology of the complex plane

Learning Objective 2: Understand the importance of Analytic Functions

Learning Objective 3: Understand the concepts of residue theory and singularities

Learning Objective 4: Apply advanced integration techniques to problems

Learning Objective 5: Obtain a deeper understanding of Power Series

Textbook - Complex Variables and Applications by Brown and Churchill 9th edition. The course will cover most of the first eight chapters of this book as well as a few selected advanced topics if time permits. The following schedule will be adhered to as much as possible.

Chapter 1	2 days	Test I – Friday February 24
Chapter 2	4-5 days	Test II - Friday March 31
Chapter 3	3-4 days	Test III – Friday April 21
Chapter 4	6 days	Final - Monday, May 8, 10:30 – 12:30
Chapter 5	4-5 days	The withdrawal date is March 10.
Chapter 6	5-6 days	
Chapter 8	4-5 days	
Chapter 9 and advanced topics	3-5 days	

. The Learning Center (TLC) Should you require academic assistance with your WKU courses, The Learning Center (located in the Downing Student Union, 2141) provides free supplemental education programs for all currently enrolled WKU students. The Learning Center at Downing Student Union offers certified, one-on-one tutoring in over 200 subjects and eight academic skill areas by appointment or walk in. Online tutoring is offered to distance learners. TLC is also a quiet study area (with side rooms designated for peer-to-peer tutoring) and a computer lab to complete academic coursework. Please call TLC in the Downing Student Union at (270) 745-5065 for more information or to schedule a tutoring appointment. www.wku.edu/tlc

. Libraries:

1. WKU Libraries has subject specialist faculty members who work with every department and program on campus.
2. Students can make an appointment with the subject specialist faculty librarian any time they have a paper or project.
3. As your own personal librarian, the subject specialist library faculty member sit down with students and helps them get started with their research, makes sure the students know how to use the online resources, etc.

. Students with disabilities: In compliance with university policy, students with disabilities who require accommodations (academic adjustments and/or auxiliary aids or services) for this course must contact the Student Accessibility Resource Center (SARC) in Downing Student Union 1074. The SARC telephone number is (270) 745-5004; TTY is (270) 745-3030. Per university policy, please DO NOT request accommodations directly from the professor or instructor without a letter of accommodation from the SARC.

. Western Kentucky University (WKU) is committed to supporting faculty, staff and students by upholding

WKU's Title IX Sexual Misconduct/Assault Policy (#0.2070) at

<https://wku.edu/eoo/documents/titleix/wkutitleixpolicyandgrievanceprocedure.pdf> and

Discrimination and Harassment Policy (#0.2040) at

https://wku.edu/policies/hr_policies/2040_discrimination_harassment_policy.pdf.

Under these policies, discrimination, harassment and/or sexual misconduct based on sex/gender are prohibited. If you experience an incident of sex/gender-based discrimination, harassment and/or sexual misconduct, you are encouraged to report it to the Title IX Coordinator, Andrea Anderson, 270-745-5398 or Title IX Investigators, Michael Crowe, 270-745-5429 or Joshua Hayes, 270-745-5121.

Please note that while you may report an incident of sex/gender based discrimination, harassment and/or sexual misconduct to a faculty member, WKU faculty are “Responsible Employees” of the University and MUST report what you share to WKU’s Title IX Coordinator or Title IX Investigator. If you would like to speak with someone who may be able to afford you confidentiality, you may contact WKU’s Counseling and Testing Center at 270-745-3159.