

**Syllabus for MATH 5220
Complex Analysis
Spring 2018**

Course: MWF 2:10-3, Ritter Hall 106

Professor: Jim Gill

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Office Hours: MWF 1-2 or when my door is open.

MATH 522: Holomorphic and Harmonic functions and power series expansions. Complex integration. Cauchy's theorem and applications. Laurent series, singularities, Runge's theorem, and the calculus of residues. Additional topics may include Analytic continuation, Riemann surfaces, and conformal mapping.

Text: There is no textbook for the course. It is suggested that students purchase one of

- H. Cartan, *Elementary Theory of Analytic Functions of One or Several Variables*, ISBN: 9780486685438
- R. B. Ash and W. P. Novinger, *Complex Variables: Second Edition*, ISBN: 9780486462509.
- L. V. Ahlfors, *Complex Analysis: Third Edition*, ISBN: 9780070006577

Material to be Covered: We will cover the complex plane, Cauchy's Theorem, Cauchy's Formula, Morera's Theorem, singularities, Rouché's Theorem, the maximum principle, Schwarz's Lemma, Möbius transformations, conformal mappings, harmonic functions, normal families, the Riemann Mapping Theorem and possible other material as time allows.

Homework: Homework will be due Fridays. Assignments will be posted on the course webpage and will consist mainly of problems from the book. Collaboration is allowed and encouraged for the assignments. All final write-ups should be your own work. This homework will take lots of time and is where you will do most of your learning of complex analysis.

Midterm Exam: The midterms will be Friday February 23 and Monday April 9 in class.

Final Exam: Wednesday, May 9, 2:00-3:5-

Grading: Homework: 20%, Midterm 1: 20%, Midterm 2: 20%, Final Exam: 40%

Scale: The scale will be 85 for A, 80 for A-, 75 for B+, 70 for B, 65 for B-, 60 for C, 55 for C-, 50 for D, 0 for F

Academic Integrity: Academic integrity is honest, truthful and responsible conduct in all academic endeavors. The mission of Saint Louis University is "the pursuit of truth for the greater glory of God and for the service of humanity." Accordingly, all acts of falsehood demean and compromise the corporate endeavors of teaching, research, health care, and community service through which SLU embodies its mission. The University strives to prepare students for lives of personal and professional integrity and therefore regards all breaches of academic integrity as matters of serious concern.

The governing University-level Academic Integrity Policy was adopted in Spring 2015, and can be accessed on the Provost's Office website.

Additionally, each SLU college, school and center has adopted its own academic integrity policies, available on their respective websites. All SLU students are expected to know and abide by these policies, which detail definitions of violations, processes for reporting violations, sanctions, and appeals. Please direct questions about any facet of academic integrity to your faculty, the chair of the department of your academic program, or the dean/director of the college, school or center in which your program is housed.

Specific College of Arts and Sciences Academic Honesty Policies and Procedures may be found at the college website.

Title IX: Saint Louis University and its faculty are committed to supporting our students and seeking an environment that is free of bias, discrimination and harassment. If you have encountered any form of sexual misconduct (e.g. sexual assault, sexual harassment, stalking, domestic or dating violence), we encourage you to report this to the University.

If you speak with a faculty member about an incident of misconduct, that faculty member must notify SLU's Title IX coordinator, Anna R. Kratky (DuBourg Hall, room 36; anna.kratky@slu.edu; 314-977-3886) and share the basic fact of your experience with her. The Title IX coordinator will then be available to assist you in understanding all of your options and in connecting you with all possible resources on and off campus.

If you wish to speak with a confidential source, you may contact the counselors at the University Counseling Center at 314-977-TALK. View SLU's sexual misconduct policy online.

Student Success Center: In recognition that people learn in a variety of ways and that learning is influenced by multiple factors (e.g., prior experience, study skills, learning disability), resources to support student success are available on campus. The Student Success Center assists students with academic related services, and is located in the Busch Student Center (Suite, 331) and the School of Nursing (Suite, 114). Students who think they might benefit from these resources can find out more about course-level support (e.g., faculty member, departmental resources, etc.) by asking your course instructor or University-level support (e.g., tutoring services, university writing services, disability services, academic coaching, career services, and/or facets of curriculum planning) by visiting the Student Success Center.

Disability Services: Students with a documented disability who wish to request academic accommodations are encouraged to contact Disability Services to discuss accommodation requests and eligibility requirements.

Please contact Disability Services, located within the Student Success Center, at disability_services@slu.edu or 314-977-3484 to schedule an appointment. Confidentiality will be observed in all inquiries.

Once approved, information about academic accommodations will be shared with course instructors via email from Disability Services and viewed within Banner via the instructor's course roster.