Math 421 sec 1 (80185) - Complex Variables - Spring 2026
TuTh 10:00 → 11:15 LGRT 204

Professor: Eyal Markman
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Office hours: Tuesday 3:00 → 4:00 pm, Thursday, 4:00 → 5:00 pm, and by appointment. Office hours are held in 1223G LGRT.
Course Web page: `https://eyalmarkman.github.io/Home-page/math421_spring26_html/math421.html` **Please check it often!**

Text: *Complex Variables and Applications,* 8-th Edition, by James Ward Brown and Ruel V. Churchill, McGraw-Hill.

Prerequisites: Math 233.

Homework: Will be assigned weekly and will be due each Thursday unless mentioned otherwise. The homework will be graded by a special grader. Due to lack of funds it will not be possible to grade all the homework problems assigned. A few of the homework problems will be corrected and graded every week. Nevertheless, for your own benefit, you will be asked to hand in *all* the homework problems assigned. Your grade on each homework assignment will be calculated as follows:

70% The grade on the corrected problems.
30% Credit for handing in *most* of the homework problems assigned. Partial credit will be given.

Late homework will not be collected. Instead, your three lowest grades will be dropped.
Grades:

Homework–20%
Two Midterms–50% (each 25%)
Final Exam –30%

First Midterm: Tuesday, March 24, during class period.

Second Midterm: Tuesday, April 21, during class period.

Final: To be scheduled by the registrar. Make-ups will not be given to accommodate travel plans.

Calculators Policy: Calculators will **not** be allowed in the exams. Calculators and computers may be used to check answers on the homework assignments. Nevertheless, an unsubstantiated answer will not receive credit.

See back . . .

Syllabus:

1) Complex Numbers: algebraic and geometric properties, polar form, powers and roots.

2) Analytic functions: Differentiability and Cauchy-Riemann equations, Harmonic functions, examples.

3) Elementary functions of a complex variable: exponential and trigonometric functions, logarithms.

4) Path integrals: contour integration and Cauchy's integral formula; Liouville's theorem, Maximum modulus theorem, the Fundamental Theorem of Algebra.

5) Series: Taylor and Laurent expansions, convergence, term-by-term operations with infinite series.

6) Isolated singularities and residues. Essential singularities and poles.

7) Evaluation of Improper integrals via residues.

If time permits:

8) Mappings by elementary functions and linear fractional transformations; conformal mappings.