

# MAT 342

## Applied Complex Analysis

MWF 11:35-12:30 ESS 181

**Instructor** [Araceli M. Bonifant](#)

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**Office Hours:** Monday: 13:00 - 14:00  
Tuesday: 13:00 -14:00

**Grader** [Renaud Gauthier](#)

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**Office Hours:** Thursday: 14:00 - 16:00 Math Learning Center, Math Tower S-240.

**Textbook:** Complex Variables and Applications, Sixth Edition by James W. Brown and Ruel V. Churchill

**About the course:** We will study: complex numbers, functions of one complex variable, limits, continuity, derivatives, Cauchy-Riemann equations, reflection principle, harmonic functions, the exponential function, trigonometric functions, logarithmic functions, contour integrals, antiderivatives, Cauchy-Goursat theorem, Cauchy integral formula, Liouville's theorem, fundamental theorem of Algebra, convergence of sequences and series, Taylor series, Laurent series, absolute and uniform convergence of power series, residues theorems, residues at poles, zeros and poles of order  $m$ , evaluation of improper integrals, argument principle and Rouché's theorem.

This course will be a rigorous mathematics course where students will be required to understand all of the definitions, theorems, proofs and so forth. Students will often be asked to explain mathematical concepts in essay questions on exams and quizzes, to prove certain facts, and to write concisely and accurately about the mathematical ideas of the course.

A tentative [syllabus](#) will be updated according to the progress of the class.

**Prerequisites:** MAT 342 is an undergraduate level course designed for students who have already taken MAT 203 or 205 or AMS 261; MAT 303 or 305 or AMS 361: MAT 200 or permission of the instructor.

### Grading Policy:

Your grade will be determined by your scores on

- Midterm : 30%
- Final : 35%
- Quizzes : 20%
- Homework : 15%

**Homework:** Homework will be assigned weekly and collected on Wednesday.

**Quizzes** There will be a quiz every other Friday. There will be no make up quizzes or midterm.

**Exam Schedule:**

Midterm : Friday March 14, 11:35-12:30 PM, ESS 181

Final Exam: Monday May 19, 11:00-1:30 PM, ESS 181

**Students with Disabilities:** If you have a physical, psychological, medical, or learning disability that may impact on your ability to carry out assigned course work, you are strongly urged to contact the staff in the Disabled Student Services (DSS) office: Room 133 in the Humanities Building; 632-6748v/TDD. The DSS office will review your concerns and determine, with you, what accommodations are necessary and appropriate. A written DSS recommendation should be brought to your lecturer who will make a decision on what special arrangements will be made. All information and documentation of disability is confidential. Arrangements should be made early in the semester (before the first exam) so that your needs can be accommodated.