

MAT342.02: Applied Complex Analysis

Prof. Scott Sutherland Stony Brook, Spring 2019

About this course: This is an introduction to functions of a complex variable and emphasizes developing computational skill with complex numbers (complex arithmetic, power series manipulation, evaluation of real and complex integrals using residues,...). It is also a mathematically rigorous course, and most statements will come with complete proofs. Students will be expected to be able to do simple proofs and derivations, as well as perform the calculational skills mentioned above. Topics covered will include properties of complex numbers, analytic functions with examples, contour integrals, the Cauchy integral formula, the fundamental theorem of algebra, power series and Laurent series, residues and poles with applications, conformal mappings with applications and other topics as time permits.

An alternative (or sequel) to this course is MAT 536, which is a first year graduate course in one complex variable (offered every Spring). It covers about twice as much material at MAT 342 and is much more theoretical (all proofs, all the time).

Places, Times, and Contact:

Contact Info: Math 5-112 / 631-632-7306 / scott.sutherland@stonybrook.edu
for office hours, see www.math.stonybrook.edu/cards/sutherlandscott.html

Grader: [Yinzhe Gao](#), Math S-240a

Class Meets: MWF 11-11:53 in Frey 317

Textbook:

Complex Variables and Applications, 9th ed. by R. Churchill & J.W. Brown (McGraw-Hill, 2013)

Prerequisites: C or better in multivariable calculus (MAT203, MAT220, AMS261, or MAT307); also MAT200 or MAT205 is recommended.

Webpage and weekly schedule:

Please see the schedule at <http://www.math.stonybrook.edu/~scott/mat342.spr19/>. The most up-to-date version of [this document](#) can also be found there.

Evaluation and Grading: Grades in MAT342 will be calculated as follows:

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| Homework and class participation | 20% |
| In-class quizzes (there will be a few) | 20% |
| Midterm (early April) | 25% |
| Final exam (May 16, 11:15am) | 35% |

Homework: Homework is a fundamental part of this course (as in most math courses); working all of the assigned problems is essential for understanding. Assignments will be posted on the [schedule](#) the week before they are due, and will be collected in class on wednesdays. In order to receive full credit for any problem, you must provide full justification for your answer.

Email and appointments: I am accessible via email and will respond to your emails as soon as I can. However, I may not check email continuously throughout the day (and especially not late at night) so please do not wait until the last minute to email concerns or questions. Detailed questions are best done in person, which can be during my [office hours](#) or by appointment.

Americans with Disabilities Act: If you have a physical, psychological, medical or learning disability that may impact your course work, please contact the Student Accessibility Support Center, located at ECC (Educational Communications Center) Building, Room 128 (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

Academic Integrity: Each student must pursue his or her academic goals honestly and be held personally accountable for all submitted work. Representing another person's work as your own is **always wrong**. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at www.stonybrook.edu/uaa/academicjudiciary/.

Critical Incident Management: Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of University Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn.

Course Evaluation: Each semester Stony Brook University asks students to provide feedback on their courses and instructors through an online course evaluation system. The course evaluation results are used by the individual faculty, department chairs and deans to help the faculty enhance their teaching skills and are used as part of the personnel decision for faculty promotion and tenure. No individually identifiable data are ever reported back to the university or instructor. Students who have completed previous evaluations can view all faculty ratings at: classie-evals.stonybrook.edu/.