MAT536: Complex Analysis I
Prof. Scott Sutherland   Stony Brook,   Spring 2023

About this course: This is a course covering the basic complex analysis in the core course description, including analytic functions, conformal mappings, complex integration (theorems of Cauchy, Morera, and Liouville) and topological implications, meromorphic functions (singularities, Laurent series, residues, the argument principle), Möbius mappings and the Schwarz lemma, the Riemann mapping theorem, and harmonic functions.

Places, Times, and Contact:

> **Contact Info:** Math 5-112 / 631-632-7306 / `scott.sutherland` at `stonybrook.edu`
> for office hours, see my department webcard, since these may change
>
> **Grader:** Will Lim
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> **Class Meets:** MW 11:30-1:05 in Physics P-127

Textbook: I will primarily be following *A Course in Complex Analysis* by Saeed Zakeri (Princeton Unversity Press, 2021). It is not required that you purchase it (I will post all homework problems and the notes from each lecture on the website), but I strongly recommend having a copy– the presentation of the material here is very good. It covers more than we will be able to, and is quite readable. (You can save $10-30 buying from Amazon resellers rather than Princeton, which sells it for $65).

Some other references you might find useful are listed below. All of these cover the necessary material, albeit in a different order and perhaps with a different emphasis.

- L. Ahlfors, *Complex Analysis*, 3rd ed., McGraw-Hill, 1978.
- J. Conway, *Functions of One Complex Variable*, 2nd ed, Springer, 1978.
- T. Gamelin, *Complex Analysis*, Springer, 2001.
- R. Remmert, *Theory of Complex Functions*, Springer, 1991.
- W. Rudin, *Real and Complex Analysis*, 3rd ed., McGraw-Hill, 1987.
- E. Stein and R. Shakarchi, *Complex Analysis*, Princeton University Press, 2003.

Webpage and weekly schedule:
The main webpage is `https://www.math.stonybrook.edu/~scott/mat536.spr23`. This includes links to the schedule as well as the most up-to-date version of this document, among other items.

Evaluation and Grading: Grades in MAT536 will be calculated as follows

> 30% Homework
> 30% Midterm (mid-March)
> 40% Final exam (May 15, 11:15am-1:45pm)

Email and appointments: I am readily 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 or via zoom, 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, Stony Brook Union Suite 107, (631) 632-6748, or at sasc@stonybrook.edu. They will determine with you what accommodations 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 `https://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: `https://classie-evals.stonybrook.edu/`.