MAT 342: Applied Complex Analysis

Fall 2023

Course Description: We plan to cover basics of Complex analysis and some of its applications. More explicitly, we cover complex numbers, analytic functions, the Cauchy-Riemann and Laplace equations, the Cauchy integral formula and applications, the fundamental theorem of algebra and the maximum principle, power series and Laurent series, the Cauchy residue theorem and applications to evaluating real integrals, conformal mappings.

Prerequisite: In order to take this course, you must have passed MAT 203 or MAT 220 or MAT 307 or AMS 261 (Calculus III) with a grade of C or higher. The following courses are advisory prerequisites: MAT 200 or MAT 250 (Logic, Language, and Proof).

Course Website: SBU D2L Brightspace, or `https://sites.google.com/view/mat342`.

Textbook: Complex Variables and Applications (9th edition) by Brown and Churchill.

Instructor: Gorapada Bera, Office: SCGP 511, Email: gorapada.bera@stonybrook.edu.

Class schedule: Monday, Wednesday, Friday $10:00 - 10:50$ am, Earth & Space Sciences - 131.

Instructor's office hours: Monday 5 pm- 6pm, Thurday 3 pm - 4 pm or by appointment at SCGP 511 and MLC hours: Wednesday 11 am- 12pm.

Grader: Srijan Ghosh, Office: Math Tower 2-114, Email: Srijan.Ghosh@stonybrook.edu.

Grader's office hours: Tuesday 12 pm - 1 pm, MLC hours: Tuesday 1 pm - 3 pm.

Homework   Assignments will be posted on the course website (D2L Brightspace) at the beginning of each week, and will be due on Friday of the following week at 11 am.

Exams: Midterm exam (in-class): Wednesday, October 18, $10:00 - 10:50$ am
Final Exam: Wednesday, December 20, $2:15 - 5:00$ pm

Grading policy: Homework: 20%, Midterm: 30%, Final: 50%

Tentative Schedule: The table lists the chapter and sections we will cover in each lecture. Changes may be made during the semester depending on the progress.

Week	Starting	Monday	Wednesday	Friday
Week 1	Aug 28	I: 1	I: 2-4 , 6	I: 5 ,7-11
Week 2	Sep 4	No Class	I: 12 , II: 13-15	II: 16-19
Week 3	Sep 11	II:19-22	II:23-25	II:26-29
Week 4	Sep 18	III: 30-32	III: 33-36	III:37-40
Week 5	Sep 25	IV: 41-42	IV: 43-45	IV:46-49
Week 6	Oct 2	IV: 50-51	IV:52-53	IV:54-57
Week 7	Oct 9	No Class	IV:58-59	V:60-63
Week 8	Oct 16	Review: I-IV	Midterm: I-IV	V: 64-66
Week 9	Oct 23	V: 67-69	V: 70-71	V:72-73
Week 10	Oct 30	V:74-76	VI:77-79	VI: 80-82
Week 11	Nov 6	VI: 83-84	VII: 85-88	VII: 89-92
Week 12	Nov 13	VII: 93-95	VIII: 96-98	VIII: 99-102
Week 13	Nov 20	VIII:103, 107-108	No Class	No Class
Week 14	Nov 27	IX:112-113	IX: 114-115	IX: 116
Week 15	Dec 4	IX: 117	Course Review	Course Review
Week 15	Dec 11	Course Review	NO class	NO class
Week 16	Dec 18	NO class	Final Exam	

Student Accessibility Support Center Statement: If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact 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. Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the website at `http://www.stonybrook.edu/ehs/fire/disabilities`.

Academic Integrity Statement: Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another persons work as your own is always wrong. Faculty are required to report any suspected instance 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/commcms/academic_integrity/index.html`.

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 Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, and/or inhibits students ability to learn.Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.

Help: The Math Learning Center (MLC) is located in Math Tower S-235, and offers free help to any student requesting it. It also provides a locale for students wishing to form study groups. The MLC is open 10am - 7pm Monday through Thursday and 10am - 2pm on Friday. A list of graduate students available for hire as private tutors is maintained by the Undergraduate Mathematics Office, Math Tower P-143.