MAT 342

Applied Complex Analysis

Tu-Th, 1:30pm - 4:55pm, Harriman Hall 111

Important: *This syllabus contains the policies and expectations that the instructor has established for this course. Please read the entire syllabus carefully before continuing in this course. These policies and expectations are intended to create a productive learning atmosphere for all students. Unless you are prepared to abide by these policies and expectations, you risk losing the opportunity to participate further in the course.*

Instructor: El Mehdi Ainasse (elmehdi.ainasse@stonybrook.edu)

Office: Mathematics Building, Office 2-109 (2nd floor)

Hours:

- MLC Hours: Tuesdays and Thursdays, 11:00 AM - 12:00 PM

Course Description: Introduction to functions of a complex variable, calculus of residues including evaluation of real integrals, power and Laurent series, conformal mappings and applications, Laplace and Cauchy-Riemann equations, the Dirichlet and Neumann problems, and the Laplace and Hilbert transforms and their applications to ordinary and partial differential equations.

Prerequisite(s): C or higher in the following: MAT 203 or MAT 220 or MAT 307 or AMS 261 (Prerequisite must be met within one year prior to beginning the course.)

Recommended Prerequisite(s): MAT 200 or MAT 250.

Credit Hours: 3

Text – RECOMMENDEND, NOT required:
Basic Complex Analysis, *Third Edition*, by Jerrold E. Marsden and Michael J. Hoffman, ISBN-13: 978-1464152191, ISBN-10: 1464152195. Errata and supplement to the book can be found here. (Click on 'here'.)

Grade Distribution:

Assignments	40%
Exam I	30%
Exam II (Final Exam)	30%

Course Policies:

- **General:**
  - Computers are not to be used by students unless they are allowed to do so.
  - Every student is expected to arrive to lecture on time and remain until the lecture is concluded. (Leaving early creates distraction and is disrespectful to the instructor and your fellow students.) Cell phones should be silenced for the duration of the lecture.
  - Quizzes and exams are closed book, closed notes. No aids of any kind.
  - **No makeup quizzes or exams will be given. The only exceptions will be due to medical conditions.**
  - If you do not sit in the Final Exam, you will fail the course.
  - You may however take exams early if need be.
- **Grades:**
  - Your *course average* will be determined by a weighted average of the graded components above. (This is a purely quantitative grade.)
  - Your *final grade* for the class will be based on your course average above and on your participation. (This is a partially qualitative grade.)
- **Homework:**
  - Homework will be subdivided into **Assignments** and **Practice Problems**. The graded component will be the **Assignments** component.
  - Students are expected to work independently. **Offering** and **accepting** solutions from others is an act of **plagiarism**, which is a serious offense and **all involved parties will be penalized according to the Academic Integrity Policy**. Discussion amongst students is encouraged, but when in doubt, direct your questions to the instructor (that is me), or a tutor – at the MLC (which also includes me), for instance.
  - **No late assignments will be accepted under any circumstances, except truly reasonable ones; e.g., health issues** (be it physical, mental, whatsoever).
  - You may turn in homeworks in advance if you wish. However, that may be to your disadvantage. You will not be allowed to resubmit your answers.
  - Note that the **Practice Problems** sets may be used for **extra credit** in exceptional circumstances (such as a significantly low exam grade or in case you miss an exam). You should personally consult me about that.
- **Attendance and Absences:**
  - Attendance is expected and encouraged. It will be to your benefit since some material presented in class may differ from what is offered in the textbook (say, more detailed, for instance), and also because participation will factor in your final grade.
  - Students are responsible for all missed work, regardless of the reason for absence (except reasonable cases such as health issues, as mentioned above). It is also the absentee's responsibility to get all missing notes or materials.

University Policies:

- **Academic Integrity:**
  Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's 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 the following link:

  www.stonybrook.edu/uaa/academicjudiciary/

- **Disability Support Services:**
  If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact Disability Support Services (631) 632-6748 or

  studentaffairs.stonybrook.edu/dss/

  They will determine with you which 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 following website:

  www.sunysb.edu/facilities/ehs/fire/disabilities

- **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.

- **Syllabus Revision:**
  The standards and requirements set forth in this syllabus may be modi ed at any time by the course instructor. Notice of such changes will be by announcement in class and changes to this syllabus will be posted on the Blackboard.

Tentative Schedule:
The contents and topics are based on the sections of the recommended textbook, which can be found here. (Click on 'here'.)

Lecture	Contents/Topics (Sections from the Recommended Textbook)
Lecture 1 (July 9th)	1.1 + 1.2
Lecture 2 (July 11th)	1.3 + 1.4
Lecture 3 (July 16th)	1.5 + 1.6
Lecture 4 (July 18th)	2.1 + 2.2
Lecture 5 (July 23th)	2.3 + 2.4
Lecture 6 (July 25rd)	2.5 + 3.1
Lecture 7 (July 30th)	Exam I Review + **Exam I**
Lecture 8 (Aug. 1st)	3.2 + 3.3
Lecture 9 (Aug. 6th)	3.4 + 3.5
Lecture 10 (Aug. 8th)	4.1 + 4.2
Lecture 11 (Aug. 13th)	4.3 + 4.4
Lecture 12 (Aug. 15th)	Exam II Review + **Exam II**