

Syllabus

Complex Variables I

Course Information

Course Number: Math617-600
Course Title: Complex Variables I
Section: 600
Time: MWF 9:10 - 10:00
Location: BLOC 110
Credit Hours: 3

Instructor Details

Instructor: Emil Straube
Office: BLOC 601M
Phone: NA
E-Mail: e-straube@tamu.edu
Office Hours: MWF 1:00 - 2:00pm

Course Description

Math-617 constitutes the first half of the *Complex Analysis* qualifier sequence (Math-617, Math-618).

The course covers chapters 1 through 6 in the text, Math-618 will cover chapters 7 through 12 (approximately). A brief list of topics for Math-617 is as follows: complex numbers, elementary properties of analytic functions, complex integration, Cauchy's theorem, powerseries representation, Cauchy estimates, Liouville's theorem, singularities, Laurent expansions, residues, the argument principle, the open mapping theorem, the maximum modulus principle, Schwarz's lemma, Mobius transformations, Riemann mapping theorem.

Course Prerequisites

This is a *first year graduate course*. Accordingly, a solid background in undergraduate analysis is expected. The officially listed prerequisite is Math-410.

Course Learning Outcomes

By the end of the course, you should be able to

- analyze holomorphic functions by using infinite series, integrals, and partial differential equations;
- state and prove the major theorems that distinguish complex analysis from real analysis; and
- solve half of the problems on past complex analysis qualifying exams (<https://www.math.tamu.edu/graduate/phd/quals.html>) .

Textbook and/or Resource Materials

John B. Conway, *Functions of One Complex Variable*, 2nd edition, Springer Graduate Texts in Mathematics 11.

A free pdf copy is available from Springer Link (from your A&M account):

<https://link.springer.com/book/10.1007/978-1-4612-6313-5>

Grading Policy

There will be two exams during the semester, each worth 100 points, and a *comprehensive* third exam, also worth 100 points. All exams will be take-home. In addition, there will be weekly graded homework assignments for a total of 100 points.

Letter grades will be assigned as follows:

85%-100% = A, 70%-84% = b, 55%-69% = C, below 55% = D.

Late Work Policy

Homework assignments are expected to be turned in on time. I am however willing to be flexible, on a case by case basis, if circumstances are reasonable.

Course Schedule

The course material will be evenly spread of the 15 weeks of the semester. Exams are planed as follows.

Exam 1: week of Sept. 19

Exam 2: week of Oct. 24

Exam 3: week of Nov. 28

Exact day of the week will be chosen according to where in the course we are, and will be announced at least one week in advance.

University Policies

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to **Student Rule 7** (<https://student-rules.tamu.edu/rule07/>) in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to **Student Rule 7** (<https://student-rules.tamu.edu/rule07/>) in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" (**Student Rule 7, Section 7.4.1** (<https://student-rules.tamu.edu/rule07/>)).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" (**Student Rule 7, Section 7.4.2** (<https://student-rules.tamu.edu/rule07/>)).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (**See Student Rule 24** (<https://student-rules.tamu.edu/rule24/>)).

Academic Integrity Statement and Policy

“An Aggie does not lie, cheat or steal, or tolerate those who do.”

“Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one’s work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case” (**Section 20.1.2.3, Student Rule 20** [_\(https://aggiehonor.tamu.edu/Rules-and-Procedures/Rules/Honor-System-Rules\)_](https://aggiehonor.tamu.edu/Rules-and-Procedures/Rules/Honor-System-Rules)).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu [_\(https://aggiehonor.tamu.edu\)_](https://aggiehonor.tamu.edu).

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources office on your campus (resources listed below). Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Disability Resources is located in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu [_\(https://disability.tamu.edu\)_](https://disability.tamu.edu).

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see **University Rule 08.01.01.M1** [_\(https://rules-saps.tamu.edu/PDFs/08.01.01.M1.pdf\)_](https://rules-saps.tamu.edu/PDFs/08.01.01.M1.pdf)):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

*Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with **Counseling and Psychological Services** (<https://caps.tamu.edu/>)(CAPS).*

*Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's **Title IX webpage** (<https://titleix.tamu.edu/>).*

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care by utilizing available resources and services on your campus.

*Students who need someone to talk to can contact **Counseling & Psychological Services** (<https://caps.tamu.edu/>)(CAPS) or call the **TAMU Helpline** (<https://caps.tamu.edu/helpline/>)(979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at **suicidepreventionlifeline.org** (<https://suicidepreventionlifeline.org/>).*