

MATH 53093 – Complex Variables
Fall 2021

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Office Hours: MTW10-10:50 am,
TR 11-11:50 pm or by appointment.

Catalog Description: An introduction to complex analysis. Topics will be selected from elementary operations and analytic functions, curves and integrals, power series, Cauchy's theorem, zeroes and singularities of analytic functions, Laurent series, maximum principle, analytic continuation, harmonic functions, conformal mapping and transformations.

Expanded Course Description: This course is used as an elective in the Master of Science degree in Mathematics. It is intended for graduate students and undergraduate students within 6 hours of graduating who intent to pursue a graduate degree in mathematics. The primary course content, the analysis of analytic functions, has both theoretical and applied applications and is a good complimentary course for Real Analysis (MATH 5320) and the applied mathematics courses at the graduate level.

Intended Student Learning Outcomes:

1. The student will demonstrate an understanding why complex are needed to extend certain areas of mathematical study.
2. The student will demonstrate an understanding of the field properties of complex numbers and will also understand norm properties and different forms of numbers in the complex plain.
3. The student will demonstrate an understanding of analytic functions.
4. The student will demonstrate an understanding of integral techniques in the complex plain.
5. The student will demonstrate an understanding of sequences and series of complex numbers.
6. The student will demonstrate an understanding of residues and poles.

Text: *Complex Variables and Applications* by Brown & Churchill, eighth edition. We will attempt to cover chapters 1-7.

Homework: Homework will be assigned for the sections covered. Assignments may be collected in written form or presented to the class on the whiteboard (time permitting). Homework will represent 25% of the student's grade.

Exams: This course will have approximately 3 in class exams, each weighted equally. Exam dates will be announced in class.

Grading:		90-100%	A
Homework	25%	80-89%	B
3 exams	75%	70-79%	C
		60-69%	D
		0-59%	F

General Syllabus Language – Fall 2021

Notes on grades for a failed class:

Tarleton differentiates between a failed grade in a class because a student never attended (F0 grade), stopped attending at some point in the semester (FX grade), or because the student did not pass the course (F) but attended the entire semester. These grades will be noted on the official transcript. Stopping or never attending class is considered an unofficial withdrawal and can result in the student having to return aid monies received. For more information, see the Tarleton Financial Aid website.

University Policy:

Students are responsible for knowing and abiding by the policies and information contained in the Tarleton Student Handbook. [See the Student Handbook].

Academic Conduct:

Any student guilty of academic dishonesty, cheating, or plagiarism in academic work shall be subject to disciplinary action. [See the Student Handbook] The instructor may initiate disciplinary action in and case of academic misconduct.

Services for Students with Disabilities:

Tarleton State University is committed to complying with the Americans with Disabilities Act (www.ada.gov) and other applicable laws. If you are a student with a disability seeking an accommodation for this course, please contact Disability Resources and Testing at 254.968.9400 or visit <https://www.tarleton.edu/drt/>

COVID-related Information:

Anyone feeling ill or exhibiting any symptoms commonly associated with COVID-19 is encouraged to stay home and monitor said symptoms and/or consult a physician. Commonly associated symptoms may be found here: <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>

The university reserves the right to both reduce classroom capacity and utilize remote instructional modes should either become necessary during the semester. The university will provide relevant guidance concerning both classroom capacity reductions and any changes to instructional modes directly to faculty. Faculty will communicate relevant changes to students.

Standards of Conduct & Academic Honesty:

Cheating, plagiarism, or doing work for another person who will receive academic credit is impermissible. This includes the use of unauthorized books, notebooks, or other sources in order to secure or give help during an examination, the unauthorized copying of examinations, assignments, reports, or term papers, or the presentation of unacknowledged material as if it were the student's own work. Disciplinary action may be taken beyond the academic discipline administered by the faculty member who teaches the course in which the cheating took place.

Tarleton State University expects its students to maintain high standards in personal and scholarly conduct. Students guilty of academic dishonesty are subject to disciplinary action. Academic dishonesty includes, but is not limited to, cheating on examination or other academic work, plagiarism, collusion, and the abuse of resource materials. The faculty member is responsible for initiating action for each case of academic dishonesty that occurs in his/her class. Academic honesty is expected. The University's Academic Integrity Policy will be maintained.

Tarleton State University Mission, Vision, and Values:

Mission: Tarleton State University, a founding member of The Texas A&M University System, transforms generations by inspiring discovery, leadership, and inclusion through educational excellence.

Vision: Tarleton will be the premier comprehensive regional university in the nation, with a keen focus on student success, teaching, and research.

Values:

- **Excellence** – Tarleton Texans pursue greatness in all efforts, promoting a spirit of leadership, adaptability, and innovation for exceptional outcomes and a better world.
- **Integrity** – Tarleton Texans hold to the highest ethical standards and commit to serving others through transparency and accountability in everything we do.
- **Respect** – Tarleton Texans create an inclusive community by embracing diverse perspectives with civility, honoring tradition, and promoting teamwork so everyone thrives.

Tarleton State University Value Statements:

Academic Integrity Statement:

Tarleton State University's core values are integrity, leadership, tradition, civility, excellence, and service. Central to these values is integrity, which is maintaining a high standard of personal and scholarly conduct. Academic integrity represents the choice to uphold ethical responsibility for one's learning within the academic community, regardless of audience or situation.

Academic Civility Statement:

Students are expected to interact with professors and peers in a respectful manner that enhances the learning environment. Professors may require a student who deviates from this expectation to leave the face-to-face (or virtual) classroom learning environment for that particular class session (and potentially subsequent class sessions) for a specific amount of time. In addition, the professor might consider the university disciplinary process (for Academic Affairs/Student Life) for egregious or continued disruptive behavior.

Academic Excellence Statement:

Tarleton holds high expectations for students to assume responsibility for their own individual learning. Students are also expected to achieve academic excellence by:

- honoring Tarleton's core values.
- upholding high standards of habit and behavior.
- maintaining excellence through class attendance and punctuality.
- preparing for active participation in all learning experiences.
- putting forth their best individual effort.
- continually improving as independent learners.
- engaging in extracurricular opportunities that encourage personal and academic growth.
- reflecting critically upon feedback and applying these lessons to meet future challenges.
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Academic Service Statement

Tarleton faculty, staff, and students are expected to model responsible citizenship through service activities that promote personal and academic growth while enhancing the university, local, regional, national, and global communities. These activities will foster a culture of academic/public engagement that contributes to the achievement of the university's mission and core values.

Study Aids:

- The Mathematics Clinic offers to all students enrolled in mathematics courses an opportunity to obtain free tutoring. The Math Clinic is located in room 203, and is open from 8 am to 5 pm Monday through Thursday, and 8 am to 2 pm on Friday.
- Remote tutoring is also available from Math Clinic tutors. See the Math Clinic website for details.
- Tutoring: The Tutoring and Learning Center (TLC) offers free tutoring for Tarleton State University students. Tutors help clarify concepts introduced in class and will help you become an independent learner. Our tutors are selected based on their academic performance and interpersonal skills and receive training each semester to become certified tutors. Tutoring sessions are appointment based, include one to three students per one-hour session, and are held both in the Dick Smith Library and online. If you have further questions please email our office at tutoring@tarleton.edu or visit the Tutoring and Learning Center online at tarleton.edu/tlc.

Student Safety and Title IX:

You are in college to achieve academic success, but you must feel safe and take care of yourself to reach your full potential. You have the right to pursue your education in a safe environment. Title IX makes it clear that violence, harassment, and discrimination based on sex and gender are civil rights offenses subject to accountability. *If you or someone you know has been harassed or assaulted, there is help and support on campus.* You may seek assistance confidentially through the Student Counseling Center or the Student Health Center. You may also make a report to the campus Title IX coordinator, which may trigger a university investigation (not a criminal investigation). Additionally, you may pursue criminal charges through the university police department. If the assault occurred away from campus, UPD can assist you in connecting with the appropriate law enforcement agency.

Student Counseling Center: 254-968-9044 (phone is answered 24 hours a day, 7 days a week), Traditions North (First Floor)

Student Health Services: 254-968-9271, Traditions North (First Floor)

Title IX Coordinator: 254-968-9754, Admin Annex 1, Room 106

University Police Department: 254-968-9002, located on the corner of Harbin and Frey

Student Responsibilities: The student is *solely* responsible for:

- Completing each assignment by the specified due date.
- Obtaining assignments and other materials for classes from which they are absent.
- Utilizing, as needed, all available study-aid options (including meeting with the instructor, purchasing a student's solutions manual, referring to outside texts, etc.) to resolve any questions that they might have regarding homework, course material, and/or technology projects.
- Giving as much of an effort as it takes to pass this course.

Absence Policy: This is scheduled to be a face-to-face course (with the potential remote synchronous-Zoom if necessary due to COVID). Students **must** attend class. Repeated absences may impact the student's ability to be successful in the class and may lead to failure to earn credit for the course. Attendance will be taken of the face-to-face students in case it is needed for contact tracing. The student is responsible for all material covered in class. The student may not be allowed to turn in late work or make up exams or quizzes unless they have a verifiable university recognized absence.

Makeup Policy: Each course instructor has the responsibility and authority to determine if work can be made-up because of absences. [TSUSH] Students may request make-up considerations for valid and verifiable reasons such as the following:

- Illness
- Death in the immediate family
- Legal proceedings
- Participation in sponsored University activities (It is the responsibility of students who participate in University-sponsored activities to obtain a written explanation for their absence from the faculty/staff member who is responsible for the activity.)

Drop Policy: A student who withdraws from a course before the thirteenth class day of a regular semester or before the fifth class day in a summer term receives no grade, and the course will not be listed on that student's permanent record. A student who withdraws from a course before the end of the tenth week of a regular semester or the fourteenth class day of a summer term receives a grade of W. [TSUCAT]

Calculator Policy: Students may be allowed to use an approved graphing calculator when taking this course. During the administration of a test, the use of calculators may be restricted, at the discretion of the instructor. Students may also be restricted to the use of a calculator that does not have course notes stored in the memory. The instructor reserves the right to examine and delete material from the memory of a student's calculator before approving its use on an exam.

Notes:

- In the event that the university is closed for a scheduled class time, whatever was scheduled for that day and/or whatever was due that day will be scheduled and/or due on the next scheduled class time.
- You are expected to present a TSU ID upon request.
- **All items contained in this syllabus are subject to change as the semester progresses. Students will be notified in advance of any changes.**