

Instructor: Rajat Gupta

Class Room: RBN 4019 (Next to MLC Room)

Email: rgupta@uttyler.edu

Course Schedule: Class meets MoWe: 11:15 AM - 12:40 PM (Including 5 -10 minutes break in-between)

Course Website: You MUST activate your Canvas account. To do so, go to <https://uttyler.edu/canvas>. This is also the address to login. If you are registered in the course, you already have access to the course. All important documents will be posted on Canvas. I also use with my personal notes but only for Trigonometry and I will share these with everyone

Office hours: By appointments.

Required Text: I will follow my personal notes and following books:

- **Abstract Algebra**, 3rd Edition by David S. Dummit, Richard M. Foote.
- **Topics in Algebra**, 2nd Edition by I. N. Herstein. [For Practice]
- **Algebra** (2nd Edition), by Michael Artin. [For Practice]

Course Description: You all must have done some basic course on analysis, complex analysis, polynomials and matrices. This course will use the basic theories from these topics to study the structures of the sets with some operations on them. Sometime, these are called Groups, Rings and Fields. However, this course would be a basic introduction to the Groups and Rings. If time permits, I would love to introduce Fields.

Course Prerequisites: MATH 3336 or its equivalent.

Course Outline:

Part: 1. Binary Operations, Groups, Subgroups, Normal Subgroups and Quotient Groups, Homomorphism, Isomorphism, Group Actions, Direct and Semi-Direct Products, Symmetries (Isometry), Sylow Theorem, Simple Groups.

Part: 2. Rings, Euclidean Domains, Principal Ideal Domain, Unique Factorization Domains, and Polynomial Rings.

Student Learning Outcomes: Upon completion of this course, students should be able to do the following.

- State all relevant theorems.
- Create examples and counter examples demonstrating theorems and their applications.
- Write clear and logically correct proofs.

Grading: Scores will be posted on Canvas. After the end of the semester, final course grades will be available on my.uttyler.edu. A final course grade of 90% is guaranteed to be at least an A, a final course grade of 80% is guaranteed to be at

least a B, a final course grade of 70% is guaranteed to be at least a C, and a final course grade of 60% is guaranteed to be at least a D. All grades below D will be F. The breakdown of your final course grade into categories is given below.

Homework [Every Week]: 10%
Quizzes [Almost Every Week]: 15%
Midterm exams [Two]: 40%
Final exam: 35%

If you have any questions about the grading of a particular quiz or exam, you must contact me no more than one week after the day I return the graded assignment in class, whether you are present during that class or not.

Attendance: It is your responsibility to attend class. Attendance is mandatory. This means, among other things, coming to class on time and prepared. Before class begins, you should turn off cell phones and any other electronic devices. Students are responsible for all announcements made during lecture.

Homework: Homework will probably be assigned each week. Collaboration is allowed, but each student must write up their own solution individually.

Quizzes: Almost every week. I will drop lowest three quizzes in the final grading.

Cell Phones: Cell phones are not permitted in class. You must silence them and put them away before class begins.

Academic Integrity: Your work must be your own. Violations will be processed according to the established guidelines of the department, college, and university. Violations of academic integrity include, but are not limited to, cheating, fabrication, or plagiarizing. A range of academic sanctions may be taken against a student who engages in academic dishonesty. Below are ideas related to academic integrity.

A note about a resource NOT allowed in this course: while the internet may be a valuable resource, using it to unethically acquire answers for your work will be considered a violation of academic integrity and processed accordingly. Similarly, copying answers from other students' assignments, past or present, violates the idea that your work must be your own.

University Policies: September 1, is this semester's Census Date, the deadline for all registrations, schedule changes, and section changes. October 30 is the last day to withdraw from one or more courses. For university policies concerning Students' Rights and Responsibilities, Grade Replacement/Forgiveness, State-Mandated Course Drop Policy, Disability Services, Student Absence due to Religious Observance, Student Absence for University-Sponsored Events and Activities, Social Security and FERPA Statement, please see <https://www.uttyler.edu/academicaffairs/files/syllabuspolicy.pdf>.

Important Covid-19 Information for Classrooms and Laboratories: Students are required to wear face masks covering their nose and mouth, and follow social distancing guidelines, at all times in public settings (including classrooms and laboratories), as specified by Procedures for Fall 2020 Return to Normal Operations. The UT Tyler community of Patriots views adoption of these practices consistent with its Honor Code and a sign of good citizenship and respectful care of fellow classmates, faculty, and staff. Students are required to wear face masks covering their nose and mouth, and follow social distancing guidelines, at all times in public settings (including classrooms and laboratories), as specified by Procedures for Fall 2020 Return to Normal Operations. The UT Tyler community of Patriots views adoption of these practices consistent with its Honor Code and a sign of good citizenship and respectful care of fellow classmates, faculty, and staff.

Students who are feeling ill or experiencing symptoms such as sneezing, coughing, or a higher than normal temperature will be excused from class and should stay at home and may join the class remotely. Students who have difficulty adhering to the Covid-19 safety policies for health reasons are also encouraged to join the class remotely. Students needing additional accommodations may contact the Office of Student Accessibility and Resources at University Center 3150, or call (903) 566-7079 or email saroffice@uttyler.edu.

Recording of Class Sessions: Class sessions may be recorded by the instructor for use by students enrolled in this course. Recordings that contain personally identifiable information or other information subject to FERPA shall not be shared with individuals not enrolled in this course unless appropriate consent is obtained from all relevant students. Class recordings are reserved only for the use of students enrolled in the course and only for educational purposes. Course recordings should not be shared outside of the course in any form without express permission.

Online Proctoring: If classes must migrate online at some point, then online proctoring may be utilized. For online proctoring, students will need high speed internet, access to Zoom, a webcam, and a microphone. Please note that students can use university computer labs or the university library as a place to take an assessment being proctored online.