

Course Name: MATH 343 – Group Theory

Section: 531

Lecture: 1 3 5 (10:00 – 10:50) — Room A78

Tutorial: 2 (10:00 – 11:50) — Room A108

Instructor: Fahd M. Alshammari

Contact Information:

- Phone: 4676521
- Email: fmobarak@ksu.edu.sa
- Coordination can be done via email or phone

Learning System: LMS (Learning Management System)

Textbook: *Contemporary Abstract Algebra*, 10th Edition, Joseph A. Gallian

Course Topics

- Groups: Definition and Examples, Elementary Properties.
 - Finite Groups; Subgroups: Terminology and Notation, Subgroup Tests, Examples of Subgroups.
 - Cyclic Groups: Properties, Classification of Subgroups.
 - Permutation Groups: Definitions and Notation, Cycle Notation, Properties.
 - Isomorphisms: Motivation, Definition and Examples, Properties, Automorphisms, Cayley's Theorem.
 - Cosets and Lagrange's Theorem: Properties of Cosets, Lagrange's Theorem.
 - External Direct Products: Definition and Examples, Properties, Group of Units Modulo n
 - Normal Subgroups, Factor Groups, and Internal Direct Products.
 - Group Homomorphisms: Definition and Examples, Properties, First Isomorphism Theorem.
 - Fundamental Theorem of Finite Abelian Groups: The Fundamental Theorem, Isomorphism Classes.
 - Sylow Theorems: Conjugacy Classes, Class Equation, Sylow Theorems, Applications.
 - Finite Simple Groups: Non-simplicity Tests, Simplicity of A_5 .
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Grading Policy (Total = 100 Marks)

Component	Weight	Date/Details
Homework & Assignments	10	Distributed across the semester
Quizzes	10	To be announced
Midterm 1	20	Monday, 02-03-2026
Midterm 2	20	Monday, 11-05-2026
Final Exam	40	07-06- 2026

General Instructions

- Try to use the midterm exam dates to coordinate with other exams.
 - If you cannot attend the midterm exam, you must provide an acceptable justification such as a medical report, official leave, or other valid reasons to be approved by the othersized department committee.
 - The topics covered in the midterm exam will be based on the lectures completed before the exam. Weekly tests and the final exam will cover all topics.
 - It is strongly recommended to discuss homework solutions with your classmates and seek help when necessary. However, the solutions must be written **individually and independently**. Copying directly from others will be considered cheating and will result in a grade of zero.
 - Homework must be submitted on time; otherwise, it will not be accepted, and no grades will be given.
 - Fairness will be maintained among students: there will be no special make-up exams or alternative assessments except in exceptional cases.
 - A student is not allowed to miss more than **25% of total lectures and tutorials**. Exceeding this percentage will result in deprivation from entering the final exam, and the student will automatically receive a failing grade (DN).
 - Students must attend lectures **on time before the start of class**. Attendance will be taken at the beginning and arriving more than twice late (by more than five minutes) will be considered equivalent to one absence.
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Instructions During Lecture

- Mobile phones must be kept away and silent during the lecture.
 - Do not disturb your classmates with side conversations during the lecture.
 - If you have any questions during the lecture, feel free to ask without hesitation by rising your hand.
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Wishing you all successful enjoyable course.