MATH3121 Abstract Algebra
Course Outline - Fall 2025-26

MATH3121 L1: Monday: 16:30-17:50; Friday: 12:00-13:20, room 6591 (lifts 31-32)

Professor Home Page

1) https://machiang.wixsite.com/machiang, 2) http://www.math.ust.hk/people/faculty/profile/machiang/

Instructor

Professor Edmund Chiang

Email: machiang@ust.hk Office: Rm 3457

Phone: 2358-7441 Office Hours: Office hours hours TBA,

TA and Tutorials

Mr. Choy, Ka Hei

Office: Rm: RPG hub 1/F (near Starbucks)

Email: khchoyab@connect.ust.hk

T1A: Thu 18:00-18:50, Room 4504

Mr. Leung, Hei Chun

Office: Rm:

Email: hcleungat@connect.ust.hk

T1B: Wed. 16:30-17:20, 2504 (Lifts 25-26)

Course Description

Sets, mappings, polynomials, complex numbers, equivalence relations, modulo mathematics, groups including permutation groups, rings, fields, Jordan canonical forms, etc (depending on the schedule, the actual topics covered may differ from this list)

Duration: One semester

Credits: 3 units

Prerequisites: MATH 2111/MATH 2121/MATH 2131/MATH 2350

Exclusion: MATH 3131

Intended Learning Outcomes

On successful completion of this course, students are expected to be able to:

No	ILOs
1	Develop an understanding of the core ideas and the concepts of groups, rings and fields and related topics.
2	Be able to apply algebra concepts to solve real-world problems.
3	Be able to relate algebra concepts to different areas in mathematics.
4	write proper proofs with rigorous language and reasoning.

Assessment Scheme

This course will be assessed using criterion-referencing and grades will not entirely be decided basing on "a curve". Detailed rubrics for each assignment are provided below, outlining the criteria used for evaluation.

Assessment	Assessing Course ILOs
Tutorial 15%	1, 2, 3, 4
Midterm Exam 20%	1, 2, 3, 4
Final Exam 65%	1, 2, 3, 4

Grade	Short Description	Elaboration on subject grading description
A	Excellent Performance	Demonstrates a comprehensive grasp of subject matter, expertise in problem-solving, and significant creativity in thinking. Exhibits a high capacity for scholarship and collaboration, going beyond core requirements to achieve learning goals.
B	Good Performance	Shows good knowledge and understanding of the main subject matter, competence in problem-solving, and the ability to analyze and evaluate issues. Displays high motivation to learn and the ability to work effectively with others.
C	Satisfactory Performance	Possesses adequate knowledge of core subject matter, competence in dealing with familiar problems, and some capacity for analysis and critical thinking. Shows persistence and effort to achieve broadly defined learning goals.
D	Marginal Pass	Has threshold knowledge of core subject matter, has potential to achieve key professional skills, and the ability to make basic judgments.
F	Fail	Demonstrates insufficient understanding of the subject matter and lacks the necessary problem-solving skills. Shows limited ability to think critically or analytically and exhibits minimal effort towards achieving learning goals. Does not meet the threshold requirements for development in the discipline

- AI policy: Although you are allowed to use AI to assist your learning and homework, you must state the where you have used AI to help your to complete the work.
- The WebWork exercises will NOT be counted toward your final grades. Students are allowed to submit and check answers through the WeBWorK. You should contact your tutors for help on problems encountered.
- Students should visit the following WeBWorK@UST page to get familiar with the system as early as possible: https://webwork.math.ust.hk/. See also
  - https://openwebwork.org/i-am-a-student/

- The midterm examination is scheduled on 24^{th} (Fri.) October 2025 during evening.

Learning Resources

- J. Fraleigh, A First Course in Abstract Algebra (7th edition), Pearson 2002.
- J. Stillwell, "Elements of Algebra: Geometry, Numbers, Equations", Springer-Verlag, 1994'.

Teaching and Learning Activities

- Lectures, Tutorials

Academic Integrity

- Students are expected to adhere to the university's academic integrity policy. Students are expected to uphold HKUST's Academic Honor Code and to maintain the highest standards of academic integrity. The University has zero tolerance of academic misconduct. Please refer to Academic Integrity HKUST – Academic Registry for the University's definition of plagiarism and ways to avoid cheating and plagiarism.