

ALGEBRA

Autumn 2021

MATH-UA.0343-005

Instructor:	Liming PANG	Email:	liming@cims.nyu.edu
Lecture Time:	Tue. Thu. 12:30 – 13:45	Classroom:	19W4 102
Office Hour:	Thu. 14:00 – 15:00, WWH 705		
Teaching Assistant:	Liudeng Wang	Email:	lw3010@nyu.edu
Recitation Time:	Fri. 12:30 – 13:45	Classroom:	GCASL 275
Office Hour:	Fri. 15:45 – 17:45, WWH 524		

Lecture Notes: You can find the lecture notes on NYU Brightspace.

Reference Books:

- Michael Artin, *Algebra, 2nd Edition*, Pearson, 2010
- David Dummit and Richard Foote, *Abstract Algebra, 3rd Edition*, Wiley, 2003
- Thomas W. Judson, *Abstract Algebra: Theory and Applications* (Open Source Textbook)

Grading Policy: Quiz (10%), Homework (20%), Midterm (30%), Final (40%).

Exam Schedule:

Quiz 1	Oct 05 2021, in Recitation
Midterm	Oct 29 2021, in Recitation
Quiz 2	Nov 23 2021, in Lecture
Final Exam	TBD

Class Policy:

- **We shall follow all the NYU COVID-19 Prevention and Response policies.**
- Homework will be released on Gradescope each Thursday or Friday, and due on the following Friday. Your solution should be uploaded to Gradescope. Late homework shall NOT be accepted. One LOWEST homework score shall be dropped.
- You may discuss with your classmates about homework, but you should write your solutions by yourself.
- We will use NYU Brightspace as the main website for our class, where you can find the most up-to-date Syllabus, lecture notes, homework solutions and announcements.
- We will not be able to accommodate out-of-sequence exams for purposes of more convenient travel, including already purchased tickets. Please note again the date of the exams and plan your travel accordingly.

Integrity: We value integrity and do not tolerate academic dishonesty. You are expected to uphold academic integrity as specified by the university and the College of Arts and Science.

Tentative Course Outline:

09/02: Functions
09/07: Equivalence Relations
09/09: Groups
09/14: Subgroups, Additive Integer Group and Its Subgroup
09/16: Cyclic Groups and Cyclic Subgroups
09/21: Homomorphisms, Normal Subgroups
09/23: Isomorphisms and Automorphisms
09/28: Cosets and Lagrange Theorems
09/30: Quotient Groups
10/05: Congruence of Integers
10/07: First Isomorphism Theorem
10/12: **No Class**
10/14: Direct Product of Groups
10/19: Symmetric Groups
10/21: Symmetric Groups
10/26: **Midterm Review**
10/28: Isometries of Euclidean Spaces
11/02: Isometries of the Plane
11/04: Group Operation
11/09: Counting Formula and Class Equation
11/11: Sylow Theorems
11/16: Semidirect Product
11/18: Classification of Groups
11/23: Rings and Integers
11/25: **No Class**
11/30: Ideals and Ring Homomorphisms
12/02: Quotient Rings
12/07: Quotient of Polynomial Rings
12/09: Field of Fraction
12/14: **Final Review**