Math 4441/6441: Modern Algebra I — Spring 2026
(Section 002, CRN 16018/16019)

5:30–6:45pm, Tuesdays and Thursdays, 313 Aderhold Learning Center (ALC)

Instructor: Yongwei Yao

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Lecture: 5:30–6:45pm, Tuesdays and Thursdays, 313 Aderhold Learning Center (ALC).

Office Hours: 2:15–3:45pm Tuesdays and 5:30–7:00pm Wednesdays, online on Webex (URL posted on iCollege).

Textbook: *Basic Abstract Algebra* (2nd edition or newer) by P. B. Bhattacharya, S. K. Jain and S. R. Nagpaul, Cambridge University Press, **ISBN-10**: 0521466296; **ISBN-13**: 978-0521466295. The lectures will be based on this textbook, covering materials in Chapters 1, 2, 4, 5, 7.

Alternative textbook: *A First Course in Abstract Algebra with Applications* (3rd edition or newer) by J. J. Rotman, Pearson Prentice Hall, **ISBN-10**: 0131862677; **ISBN-13**: 978-0131862678. This course covers materials from Chapters 1, 2.

Alternative textbook: *Abstract Algebra* (3rd edition or newer) by I. N. Herstein, John Wiley & Sons, Inc., **ISBN-10**: 0471368792; **ISBN-13**: 978-0471368793. Chapters 1, 2, 3.

Alternative textbook: *A First Course in Abstract Algebra* by John B. Fraleigh.

Prerequisites: Math 2215, Math 2641, and Math 3000, each with a grade of C or higher. During the first two weeks of the semester the Department of Mathematics and Statistics checks the computer records to determine whether or not each student has met the prerequisites for this course. If you do not have the prerequisites please inform your instructor and change to another course. In case the system finds that you don't have the prerequisites, you need to drop this course.

Course content/outcome: The course offers a solid introduction to group theory covering its most basic concepts. The course emphasizes the understanding of the concepts, through examples and proof writing. The course will study algebraic structures through an axiomatic approach. In particular, the course covers the definition of groups, permutations, subgroups, homomorphisms, normal subgroups, and factor/quotient groups. Students passing the course will be able to present proofs, understand the majors results as well as apply them in solving routine exercises.

Homework: There will be weekly homework assignments that will be graded. You may discuss the problems with your classmates, but the write-up of the solutions has to be done individually according to your own understanding. Identical solutions will not be graded. The assignments and the exams for Math 6441 will be more involved than the ones for Math 4441.

Show your work/steps. No late homework is accepted.

Homework weighs 25% of your overall performance.

Exams: There will be two midterm exams and a final exam, all held in 313 Aderhold Learning Center (ALC).

Exam	Date	Time	Location	Weight
Midterm Exam I	Feb. 19 (Thursday), 2026	5:30–6:45pm	313 ALC	25%
Midterm Exam II	April 02 (Thursday), 2026	5:30–6:45pm	313 ALC	25%
Final Exam	May 05 (Tuesday), 2026	4:15–6:45pm	313 ALC	25%

All three exams are required and the final exam is cumulative. Make-up exams will only be allowed in case of extreme emergencies that must be documented, such as medical emergencies. It is the instructor's role to determine if a specific excuse is a valid one.

(more on the next page)

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Grading Scheme: Total scores are computed by using the weights as follows:

Component	Homework	Midterm Exam I	Midterm Exam II	Final Exam
Weight	25%	25%	25%	25%

Then the letter grades will be assigned as follows:

Score (%)	97—	93–96	90–92	87–89	83–86	80–82	77–79	70–76	60–69	0–59
Grade	A+	A	A−	B+	B	B−	C+	C	D	F

Attendance: You are expected to attend regularly for the entire period of the class. That is, you are expected to arrive on time and stay for the duration of the class. Attendance will be taken periodically. If you miss all the classes during the first two weeks, you could get withdrawn administratively. After five or more absences a student could get withdrawn from this class. In case of an absence, the student is responsible for knowing/studying all the materials covered. For university policies, see `http://codeofconduct.gsu.edu/`

Important withdrawal dates: Remember that a student who misses all the lectures during the first two weeks can be withdrawn by the instructor.

Last day to add/drop classes: Friday, Jan. 16, 2026, 5:00pm. See PAWS or GoSolar.
Midpoint of the semester: Tuesday, Mar. 03, 2026
Last day to withdraw and receive a **WP** (then turned to **W** or **WF**): Friday, Mar. 13, 2026
For details, see `http://advisement.gsu.edu/self-service/policies/withdrawal-policy/`

Academic (dis)honesty: Academic honesty is expected. Cheating will not be tolerated and will be handled according to the University's policy on academic honesty found at
`http://codeofconduct.gsu.edu/`,
which includes academic as well as disciplinary consequences.

Teaching evaluations: Your constructive assessment of this course plays an indispensable role in shaping education at Georgia State. Upon completing the course, you are welcome to fill out the online course evaluation.

Accommodations: Students who wish to request an accommodation may do so by registering with the Access and Accommodation Center (AACE). Students may only be accommodated if the instructor receives an email with the notification of approved accommodations from AACE. Note: Accommodations are not retroactive and will be applicable following the date in which they are received.

Other Important dates:

Martin Luther King Holiday (no classes)	Jan. 19 (Monday), 2026
Spring Break (no classes)	March 16–22, 2026
Last Day of Classes	April 27 (Monday), 2026

Changes: This course syllabus provides a general plan for the course; deviations may be necessary.

Course URL: `https://math.gsu.edu/yyao/2026Sp/math4(6)441.html`
Relevant information (homework assignments, etc.) will be posted there as the course progresses.

Welcome aboard!