MATH 4107 SYLLABUS

Spring 2023

Course Number:	Math 4107 AU, AG
Course Name:	Abstract Algebra I
Lecture Time:	MWF 12:30–1:20 p.m. Lectures will be recorded and posted to Canvas.
Lecture Room:	Skiles 249
Instructor:	Dr. Christopher Heil Office: Skiles 218D Email Address: `heil@math.gatech.edu`
Office Hours:	M 4:00-5:00 p.m. and W 5:00-6:00 p.m.
Course Web Page:	Canvas and `http://people.math.gatech.edu/~heil/4107/spring23`
Piazza signup:	`piazza.com/gatech/spring2023/math4107auag`
Textbook:	I. N. Herstein, Abstract Algebra, Third Edition Lecture notes posted on the course web page expand on the text
Material:	Chapter 1: Not covered in class except for Section 1.4 Chapter 2: Groups Chapter 3: The Symmetric Group Chapter 4: Ring Theory Chapter 5: Fields (if time permits)
Prerequisites:	Math 2106 (Foundations of Mathematical Proof)
First class:	Monday, January 9, 2023.

Covid.

- Lectures will be given in-person in our designated classroom, but they will also be broadcast live via Zoom, and the lectures will be recorded and made available on Canvas for later viewing. Attendance at lectures is not required: You may choose to come to our classroom for lecture, tune in to the live broadcast, or watch the recorded lectures later. Of course, you'll only be able to ask questions during the lecture using the first two options, but you are welcome to email me with questions anytime.

- Please attempt to maintain social distancing in the classroom.

- *If you get sick.* If you are sick, please respect the other students' health and do not attend class—tune into the Zoom broadcast or watch the recording later instead. The lectures will closely follow the lecture notes, so if you miss a class you should be able to keep up just by reading the lecture notes. Feel free to email me if you're not sure what sections of the lecture notes are being covered in class. Contact me if you are having trouble keeping up with assignments due to illness.

- *If I get sick.* If I get sick, I will post an announcement on Canvas. If I am able to, I will give the lecture virtually over Zoom via Canvas at our usual classtime. If I cannot do that, I will try to record a lecture later and post it to Canvas. In any case, I will try to notify you as soon as possible via Canvas.

- Because of the muffling effect, I am not going to wear a mask myself during lecture. However, I do encourage all students who attend the live lecture to wear a mask.

- If you have not done so, I encourage you to get vaccinated now. Doing so at Tech is easy and free. We know the vaccines are effective protection against Covid-19, and the best way to protect yourself and others. If you are unvaccinated, you are at risk of contracting Covid-19 and infecting others, with potentially severe consequences for you or someone else. Please seek medical advice from your healthcare provider or a member of our Stamps Health Services team led by Dr. Ben Holton, if you have doubts or concerns about getting vaccinated.

Prerequisites. This is a *proof-based* course on groups, rings, and fields. One of the main goals of the prerequisite course (MATH 2106) is to teach you proofs and proof-writing. If you haven't taken that course or an equivalent course where you learned to write proofs, you will find it very difficult to jump into the abstract setting of this course. Unlike calculus, differential equations, etc., there are no *formulas* here, only *concepts*, and the *proofs* of those concepts—the reasons *why* things are true.

Grading. We will have 10 homework assignments and one take-home final exam.

10 Homeworks	20 points each
Final Exam	40 points
TOTAL	240 points

Letter grades will be based on your accumulated points at the end of the semester, according to 90%, 80%, 70%, 60% cutoffs (although I may adjust the cutoffs downward at the end of the semester, depending on class distribution):

216–240	A
192–215	B
168–191	C
144–167	D
0–143	F

At the end of the course, I'll evaluate the class distribution and decide if a curve is needed. I'll only curve *down* from the above cutoffs, not up.

Homeworks and the Final Exam. All assessments will be electronic. Homework assignments will be posted on Canvas, and papers will be submitted electronically through Canvas. A subset of the problems on each assignment will be selected for grading. Homeworks will normally be due on Fridays, starting January 20 or 27, although some weeks there will not be a homework. Late homeworks will not be accepted without advance permission.

Homeworks must be written in clear, complete sentences. You will not receive credit if the grader does not understand your writing.

I encourage you to type your homeworks using TeX or another mathematical typesetting system. I will provide sample TeX files that you can use as templates. Handwritten homeworks are acceptable, but be sure to write only on the *front side* of the page, otherwise bleed-through will be a problem. Use a good scanner to create a pdf file that you can submit through Canvas. Don't try to take pictures of the paper with a phone, it's just not readable.

You are allowed (and encouraged) to work together with other students on the homework, as long as you each *independently* write up your own solutions. You are also allowed (and encouraged) to ask me questions, although you should try to think about the problems before asking. The Final Exam will follow the same format as the homeworks.

Piazza. Piazza is enabled for for class discussion. You can post questions to me or to the class here. Our class signup link is at:

`piazza.com/gatech/spring2023/math4107auag`

Academic Dishonesty All students are expected to comply with the Georgia Tech Honor Code. Any evidence of cheating or other violations of the Georgia Tech Honor Code will be submitted directly to the Dean of Students. The institute honor code is available at

`http://www.honor.gatech.edu`

Accommodations for Students with Disabilities. If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)894-2563 or http://disabilityservices.gatech.edu/ as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.