

# Algebra I

MATH 5123, Fall 2019

Meeting times: MWF 8:35AM--9:25AM

Room: SCEN 206

Office Hours: M 10:00 am – 11:00 am

W 10:00 pm – 12:00 noon

and by appointment

Instructor: Prof. Matthew Day

(pronouns he/him/his)

Office: SCEN 421

Email: [matthewd@uark.edu](mailto:matthewd@uark.edu)

Course webpage: <https://matthewd.hosted.uark.edu/5123/>

**Course description (from the course catalog):** What the beginning graduate student should know about algebra: groups, rings, fields, modules, algebras, categories, homological algebra, and Galois Theory. Prerequisite: MATH 3113, and graduate standing in mathematics or statistics, or departmental consent.

**Course Goals:** This semester will cover the basics of group theory and ring theory, including most of chapters I--V of the textbook. This course is preparation for a qualifying exam in the mathematics Ph.D. program.

A student in this course is expected to have seen the basics of abstract algebra in a previous course, and to be comfortable reading and writing mathematical proofs. An 'A' student in this course needs to thoroughly understand the material and connections among it, solve problems requiring imaginative applications of theorems from the course, and show this clearly in writing, working alone.

**Textbook:** *Algebra: Chapter 0*, by Paolo Aluffi. Homework problems and reading assignments will be taken from this textbook. Please let Dr. Day know if you have trouble getting access to the textbook (for example if it is too expensive). Please ask Dr. Day if you would like other references with a different perspective.

**Attendance:** Attendance at lectures is mandatory, and will be recorded. It does not directly factor into the course grade. Please let Dr. Day know if you will not be able to attend a lecture.

**Homework:** Homework will be assigned weekly on Wednesdays and will include reading assignments, and problems that will be collected and graded. Homework will be collected the Friday of the week after it is assigned. You may consult with other students and you may use any references or resources you like, except that you may not refer to the solution of a problem that is essentially the same as the one you are trying to solve. **Copying of homework solutions from any source constitutes academic dishonesty.** Do not turn in a proof that is word-for-word the same as another student's.

**Late homework:** Please make every effort to turn in quality homework at the beginning of class on the day it is due. Homework received the day it is due will not be counted as late. Homework received between 1 and 7 days late will get a 10% late penalty, and the penalty will increase 10% for every week it is late to a maximum of 40%. No homework will be accepted after December 13th.

**Homework advice:** Doing math is largely about problem solving, and you need practice *getting stuck* on hard problems and *getting yourself unstuck*! Please try problems yourself before getting help. Don't read someone else's solution before you try the problem yourself. Don't turn in a rough first draft of a solution; instead turn in a neat second draft. Consider using LaTeX (the typesetting system).

**Exams:** There will be two 50-minute, in-class midterm exams and one non-cumulative final exam. Exam dates will be confirmed two weeks in advance. Tentatively, assume the exams will be Friday, September 27th and Friday, November 1st . The final will be given 8:00am–10:00 am on Wednesday, December 18th, 2019.

**Course Grade:** To compute your course grade percentage, take the following weighted average:

Homework	Test 1	Test 2	Final
25%	25%	25%	25%

Grades will be assigned with an 'A' for 80–100%, 'B' for 60–80%, 'C' for 40–60%, 'D' for 20–40%, and 'F' for 0–20%. At Dr. Day's discretion, the entire classes' grade percentages may be curved uniformly up, but the grading will be no harsher than described here.

**Email and contact:** Email is the best way to contact Dr. Day and Dr. Day promises to respond to emails in a timely fashion. Emails received after 9 pm or on weekends might not get a response until the next weekday. You do not need an appointment to come to regular office hours. If you want to meet with Dr. Day outside of the regular office hours, please send an email to make an appointment.

**Emergency procedures:** Many types of emergencies can occur on campus; instructions for specific emergencies such as severe weather, active shooter, or fire can be found at [emergency.uark.edu](http://emergency.uark.edu).

Severe Weather (Tornado Warning):

- Follow the directions of the instructor or emergency personnel
- Seek shelter in the basement or interior room or hallway on the lowest floor, putting as many walls as possible between you and the outside
- If you are in a multi-story building, and you cannot get to the lowest floor, pick a hallway in the center of the building
- Stay in the center of the room, away from exterior walls, windows, and doors

Violence / Active Shooter (CADD):

- CALL- 9-1-1
- AVOID- If possible, self-evacuate to a safe area outside the building. Follow directions of police officers.
- DENY- Barricade the door with desk, chairs, bookcases or any items. Move to a place inside the room where you are not visible. Turn off the lights and remain quiet. Remain there until told by police it's safe.
- DEFEND- Use chairs, desks, cell phones or whatever is immediately available to distract and/or defend yourself and others from attack.

**Inclement weather policy:** Class will be held if the university is officially open.

**Academic Honesty Policy:** As a core part of its mission, the University of Arkansas provides students with the opportunity to further their educational goals through programs of study and research in an environment that promotes freedom of inquiry and academic responsibility. Accomplishing this mission is only possible when intellectual honesty and individual integrity prevail.

Each University of Arkansas student is required to be familiar with and abide by the University's Academic Integrity Policy which may be found at <http://provost.uark.edu/>. Students with questions about how these policies apply to a particular course or assignment should immediately contact their instructor.

**Disability Accommodations:** University of Arkansas Academic Policy Series 1520.10 requires that students with disabilities are provided reasonable accommodations to ensure their equal access to course content. If you have a documented disability and require accommodations, please contact Dr. Day privately at the beginning of the semester to make arrangements for necessary classroom adjustments. Please note, you must first verify your eligibility for these through the Center for Educational Access (contact 479–575–3104 or visit <http://cea.uark.edu> for more information on registration procedures).