

# Abstract Algebra

## Math 321-001

Location: Robinson Hall B106	
Time: MW 10:30-11:45pm	
Instructor: Dr. Rebecca Goldin	
Office:	Exploratory Hall, Room 4214
Office Hours:	Mondays & Wednesdays 10-10:30, 11:45-12:15 and by appointment
Phone:	Email is the only way to reach me!
Email:	rgoldin@gmu.edu

### Prerequisite

MATH 290 (or the equivalent) and mathematical maturity.

### Text

Contemporary Abstract Algebra by J. Gallian (9th Edition)

### Course Content

Important topics include (but are not limited to):

- basic set theory, proof methods and techniques. You should already have a basis for these
- from your prerequisite class, of course, but we will refine it further here.
- equivalence relations, functions, and properties of the integers
- groups
- subgroups
- cyclic groups
- finite groups
- permutation groups and Cayley's theorem
- isomorphisms
- cosets and Lagrange's theorem (a counting principle)
- normal subgroups; simple groups; factor groups
- group homomorphisms
- rings
- integral domains
- ideals; factor rings; ring homomorphisms
- Introduction to fields

### Exam Dates

**Exam 1: Tentatively October 10**

**Exam 2: Tentatively November 12**

Exam make-ups are only available under extraordinary circumstances. Please contact me as soon as possible (and before the exam date if this is possible) if you believe your circumstances merit this consideration.

**Final Exam** : Wednesday, December 12, 2018, 10:30am-1:15pm

There are no make up tests allowed unless you have an extremely serious and well-documented excuse. You must see me in advance if at all possible, such as a religious reason. If this is not possible due to the nature of the event, you must provide written documentation, such as a dated and timed letter from a doctor/hospital in the case of medical excuse, a death certificate in the case of a family death, etc. A flat

tire or car trouble is NOT a valid excuse. Oversleeping is not an excuse. Minor medical difficulties such as a headache or flu that does not require being in the doctor's office is not an excuse. A court date to dispute a ticket is not an excuse. If you are not sure if your reason is excusable, and/ or if you can possibly make it to the exam but it's inconvenient, then it is not an excuse.

### **Grading**

Your grade for the course will be calculated based on two exams (worth 15% each), in class participation (10%), homework (worth 30%) and a final exam (30%). I reserve the right at my discretion to increase your grade slightly. However, there is no sympathy for students who do not come to class, do not read in advance, and do not do the homework! Make-up tests are given only in extraordinary situations that require written proof. Partial solutions will be posted online.

### **Homework and In-Class Participation**

Homework consists of reading the text, and doing problems assigned for an in-class discussion and/or for turning in. Homework is graded, however you are encouraged to work with other students on the problem sets (no other resources, just other students!). You must write up your own work individually and without copying from another student's work.

Late homework is accepted up to 1 week late for 1/2 credit, and subsequently not accepted except under extraordinary circumstances. I will post solutions to select problems.

In-class participation consists of attending lectures, having homework ready to discuss whenever we exchange papers and/or have in-class conversations about it, and being prepared for class by having read the text beforehand. Generally speaking, if you come to class and have completed assignments so that you can converse with others, you'll get full-credit for participation. Each student is automatically excused for one absence (on non-exam days) without need for special permission toward the in-class participation grade. Further absences are not excused under any circumstances.

### **Disability statement**

If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Resources at 703.993.2474. All academic accommodations must be arranged through that office.

### **Honor Code**

The University Honor Code is to be followed at all times. Sharing information of any kind about exams or quizzes is prohibited. Any violations will be sent to the Honor Committee and will result in a grade of zero. This also applies to take-home quizzes. See the University Honor Code.

### **Getting Help**

Use each other! Use the Internet! Email your professor! Stop by Office Hours!

### **General Remarks**

Please be considerate of other students.

NO LAPTOPS ARE ALLOWED IN THE CLASSROOM. If you have a specific need, please see me to discuss.

Please get to class on time. If you must arrive late or leave early sit in the back near the door to minimize the distraction.

Please turn off your cell phone before class. Please close your tablets unless you are using them to take notes.