MATH 307-01 Abstract Algebra
SPRING 2023

Instructor: Eric Swartz
Pronouns: he/him/his
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Office: Jones 133
Office Hours: TR 11–12:30 PM, 2–2:30 PM
Course Homepage: We will use **Blackboard** as our course homepage.
Important dates: February 3 (Add/drop deadline), March 27 (Withdraw deadline)

Content: Groups, rings, fields, isomorphisms; polynomials. Additional topics chosen from group theory and ring theory, as time permits.

Textbook: *Algebra: Notes from the Underground* by Paolo Aluffi.
We will cover Chapters 1–5, 8, parts of 10, 11, and parts of 12.

Grading:

Homework:	40%
In-Class Participation:	25%
Midterm:	10%
Final:	25%

Final letter grades are assigned using the scale: A 93–100, A- 90–92, B+ 87–89, B 83–86, B- 80–82, C+ 77–79, C 73–76, C- 70–72, D+ 67–69, D 63–66, D- 60–62, F <60
This scale is not rigid! Lower cutoffs are often used.

In-Class Participation: A sizable amount of class time will *not* be spent on lectures. Instead, students will spend this time working on problems (often in groups) and sometimes presenting solutions to the class.
When solutions are presented at the board by others, students are expected to be actively involved. Students are encouraged and expected to be critical *in a respectful manner* of the arguments they are presented. For example, rather than stating, "That's wrong," (etc.), a student should ask a question of the presenter, such as, "Can you explain line xx?" or "How can you conclude A from B?" Pictures of (or notes for) presentations done in class will be posted on Blackboard, so students are encouraged to pay active attention to the argument (as opposed to copying down notes word-for-word).
Presenting material in front of others naturally can be stressful. Moreover, *everyone* makes mistakes sometimes, and (while students are expected to have thought carefully about what they are presenting) it is inevitable that mistakes or omissions will be made in class presentations. Mistakes are often as useful (or even more so!) than correct answers, as long as they are made in a respectful environment. Furthermore, not everyone views a topic from the same perspective, so questions should also be answered from a similarly respectful perspective! In some

circumstances, I am willing to review some work ahead of time. The goal, however, is to foster a collaborative and supportive environment in the classroom.
Participation grades are based on faithful attendance of lecture, actively working and participating during group activities, and presentations of material to the class. Attendance and discussion one-on-one with me during office hours will also be looked on favorably and are an alternative option for students who experience anxiety. Students who have not participated as often or recently will be given the first opportunity to present (if they are so inclined). The participation grade will (necessarily) be somewhat subjective in the eyes of the instructor, but I *want* everyone to get a perfect (or near perfect) participation score!

Homework Overview: Homework will be assigned during each lecture. The definitive list of assigned homework will be posted on Blackboard. You are strongly encouraged to do all or most of each assignment before the next Tuesday/Thursday. However, correctness is even more critical than promptness. Incorrect proofs will be returned for you to repair, and you will not receive a grade from me until they're completely correct. The final due date for each problem is two weeks after the problem is assigned, unless otherwise noted. Your final homework grade will be based on the number of *completely correct* proofs handed in on time, *regardless of how many incorrect versions you turned in previously.* Partial credit may be given in some circumstances, but most problems will be scored as either 0 or 1!
Don't wait until the day before a problem is due to make your first attempt!
Especially early in the semester, as you are getting used to writing proofs, problems may take multiple tries to get completely correct! Turn in an attempt as soon as possible after it's assigned so that you can get feedback. Late homework will only be accepted under truly extraordinary circumstances (e.g., major surgery). In order to be counted correct, a proof must be written in clear, correct English.
While you may discuss the problems with your classmates (and you are in fact encouraged to do so!), copying someone else's work is strictly prohibited and will result in scores of zero for *everyone* involved. In particular, you may not use another student's final work as a "model," and you may not allow other students to study your final work. Everyone must hand in final proofs separately. Needless to say, copying or adapting a proof from another source (e.g., book or internet) is strictly prohibited as well. **In particular, The use or incorporation of any AI-generated content (such as from ChatGPT) in assignments is not allowed. Submitted work may be reviewed, as needed, for AI-generated content.**

LaTeX: Your homework assignments must be typeset using LaTeX. Being able to use this software is a useful skill to have, and the programs are available for free, if you so choose.
You may also use the online editor available at `https://www.overleaf.com/`. Simply sign up for free, start a new project, and paste the text from "sample.tex" into the source side.
It is easy to google commands/techniques that you don't know, but a list of common symbols is available at `http://cklixx.people.wm.edu/TeX-symbol.pdf`

Homework Policy: PDF files are to be emailed directly to me at easwartz@wm.edu. You should name the file you are turning in starting with "LastnameFirstname" in the filename; for example, `SwartzEric_HWJan26.pdf`. (Name the file whatever you want, but *always* start with "LastnameFirstname"!) **You should combine HW from different assignments into a single file that you turn in on a given day, and you should either omit or mark as graded/correct problems that you have already gotten correct.** HW that is turned in

by 11 AM ET on a given weekday will be graded that day (or very shortly thereafter). HW turned in at other times may not be graded until the next "batch" (but may be graded sooner, if possible). If HW is due on a given date, I will accept it if it is turned in by 11:59 PM ET that day (but I might not grade it until the next day's "batch"). **Try to turn in HW by 11 AM ET on weekdays if you can!**

Exam Dates: There will be a midterm on Thursday, March 9. The final exam will be comprehensive and will take place Thursday, May 11, from 9 AM – 12 PM.

ADA Accommodation: William & Mary accommodates students with disabilities in accordance with federal laws and university policy. Any student who feels they may need an accommodation based on the impact of a learning, psychiatric, physical, or chronic health diagnosis should contact Student Accessibility Services staff at 757-221-2512 or at sas@wm.edu to determine if accommodations are warranted and to obtain an official letter of accommodation. For more information, please see `https://www.wm.edu/sas`

Honor Code: Students are expected to uphold the honor code in this class. Any suspected infraction will be reported. Rest assured, I am older and more experienced than you are. **I will catch you if you cheat!**

Mental and Physical Well Being: William & Mary recognizes that students juggle different responsibilities and can face challenges that make learning difficult. There are many resources available at W&M to help students navigate physical/medical, emotional/psychological, material/accessibility concerns. Asking for help is a sign of courage and strength.
If you or someone you know is experiencing any of these challenges, we encourage you to reach out to the following offices:

- For psychological/emotional stress, please consider reaching out to the W&M Counseling Center (757-221-3620), 240 Gooch Dr. 2nd floor, `https://www.wm.edu/offices/wellness/counselingcenter/`. Services are free and confidential.
- For physical/medical concerns please consider reaching out to the W&M Health Center at `https://www.wm.edu/offices/wellness/healthcenter/` or 757-221-4386, 240 Gooch Drive.
- If you or someone you know is in need of additional supports or resources, please contact the Dean of Students by submitting a care report (`https://www.wm.edu/offices/deanofstudents/services/caresupportservices/index.php`), by phone at 757-221-2510, or by email at deanofstudents@wm.edu.

As your professor, I also ask you to reach out to me if you are facing challenges inside or outside the classroom; I will guide you as best I can to appropriate resources on campus.