

Syllabus

Math 403X/503X

Intermediate Abstract Algebra

Spring 2021 – 3 credits

MWF 2:15pm – 3:05pm Carver Hall 268

Instructor	Dr. Jason McCullough 452 Carver Hall Phone: 4-8150 Email: jmccullo@iastate.edu <- best way to contact me
Online Office Hours	M 10:30-11:30 pm, Tu 1:10pm-2:00pm, Th 2:15pm-3:05 pm or by appointment
Textbooks	(H) Abstract Algebra: An Introduction by Hungerford and (J) Abstract Algebra: Theory and Applications by Judson (This book is freely available online: http://abstract.ups.edu/)

Content

This class is second course in abstract algebra and picks up where Math 301 leaves off. We cover groups, rings, fields, and applications.

Referring to the textbooks, we will cover most of Chapters 6-12, 16 in Hungerford, and Chapters 14-15 in Judson.

Prerequisites: Math 301 or equivalent. In particular, I will assume familiarity with rings and groups, properties of the integers.

Assessment

There will be biweekly homework assignments including one during prep week. While you are encouraged to work with the other students (in a physically distant manner), it is important that you **write up your own solutions independently**. Duplicate solutions will be penalized. It is very important that you do the homework conscientiously and consistently.

For those students enrolled in Math 503, this course requires differentiated assignments and your homework assignments will include extra questions. These will be clearly marked on the assignments.

Homework will be assigned and collected on Canvas. You have 3 options for completing your homework assignments:

1. Type your solutions in Microsoft word. Save and upload a word DOC or PDF file.
2. Use a mobile phone scanning app (like these for [iOS \(Links to an external site.\)](#) or [Android \(Links to an external site.\)](#)) and upload a PDF of your **neatly written solutions**.
3. Type your solutions with LaTeX and upload a PDF. (This might be a good idea if you are contemplating graduate school in mathematics or you just enjoy pretty type setting but be warned: there is a steep learning curve.)

Your lowest 1 homework score will be dropped at the end of the semester.

There are 2 midterm exams and 1 final exam. Dates for the exams are as follows:

Monday, March 1 - Exam 1

Friday, April 9 - Exam 2

Tuesday, May 4 - Final Exam

Learning Outcomes

Upon completion of this course, students...

1. Will be able to construct proofs of basic group theory results.
2. Will be able to describe several examples of groups, rings, and fields.
3. Will understand applications of abstract algebra to other fields, such as coding theory.

Course Websites

Grades and homework will be available via Canvas. There is a tentative schedule below.

Grading scheme

Homework	40%
First Exam	15%
Second Exam	15%
Final Exam	30%

Letter grades will be assigned based on your overall percentage and will be no stricter than a straight-scale (90+ = A, 80+ = B, etc.). If I deem it necessary, I may lower this scale based on homework and exam scores.

Mathematics Department Policy Statements (Academic Misconduct, Accessibility, Religious Accommodations, etc.)

See <https://math.iastate.edu/syllabus-and-class-policies/>

In particular, regarding disability accommodations:

If you have a disability and require accommodations, please contact the instructor early in the semester so that your learning needs may be appropriately met. You will need to provide documentation of your disability to the Student Accessibility Office, located on the main floor of the Student Services Building, Room 1076, 515-294-7220.

Tentative Schedule

Week (week of)	Monday	Wednesday	Friday
1 (January 25)	7.1, 7.2 (H)	7.3,7.4	7.5,8.1
2 (February 1)	8.2	8.3	8.4
3 (February 8)	9.1	9.2	14.1 (J)
4 (February 15)	14.2 (J)	15.1 (J)	15.2 (J)

5 (February 22)	15.3 (J)	9.5 (H)	9.5
6 (March 1)	Exam 1	3.1 (H)	3.2,3.3
7 (March 8)	6.1	6.2	6.3
8 (March 15)	10.1	10.2	10.3
9 (March 22)	10.4	10.5	11.1
10 (March 29)	11.2	11.3	11.4
11 (April 5)	11.5	11.6	Exam 2
12 (April 12)	12.1	12.2	12.3
13 (April 19)	16.1	16.2	16.3
14 (April 26)	Chapter 15	Chapter 15	Review

* if time allows

Covid-19 Health and Safety Requirements

COVID-19 health and safety requirements Students are responsible for abiding by the university's COVID-19 health and safety expectations. All students attending this class in-person are required to follow university policy regarding health, safety, and face coverings:

- Wear a cloth face covering in all university classrooms, laboratories, studios, and other in-person instructional settings and learning spaces. Cloth face coverings are additionally required to be worn indoors in all university buildings, and outdoors when other people are or may be present where physical distancing of at least 6 feet from others is not possible. Students with a documented health or medical condition that prevents them from wearing a cloth face covering should consult with Student Accessibility Services in the Dean of Students Office.

- Ensure that the cloth face covering completely covers the nose and mouth and fits snugly against the side of the face.
- Practice physical distancing to the extent possible.
- Assist in maintaining a clean and sanitary environment.
- Do not attend class if you are sick or experiencing symptoms of COVID-19.
- Do not attend class if you have been told to self-isolate or quarantine by a health official.
- Follow the instructor's guidance with respect to these requirements. Failure to comply constitutes disruptive classroom conduct. Faculty and teaching assistants have the authority to deny a non-compliant student entry into a classroom, laboratory, studio, conference room, office, or other learning space.

Class Decorum and other items

- Please arrive on time and avoid congregating in the hallway.
- Cellphones should be silenced and stowed – not on your desk/lap.
- No food/drink in class (with the possible exception of water bottles).
- Not every class is in-person so please use this opportunity to ask questions!

Iowa State University supports and upholds the First Amendment protection of freedom of speech and the principle of academic freedom in order to foster a learning environment where open inquiry and the vigorous debate of a diversity of ideas are encouraged. Students will not be penalized for the content or viewpoints of their speech as long as student expression in a class context is germane to the subject matter of the class and conveyed in an appropriate manner.