

Math 332: Abstract Algebra – Group Theory

Fall 2021 Syllabus

3 credits

Professor Cindy McCabe Office: B246 Science Building Phone: 715-346-2085 Email: cmccabe@uwsp.edu www.uwsp.edu/mathsci	Office Hours in B246 Sci or in Zoom (check Canvas for link & modality) 10:00-10:50am Mondays 1:00-1:50pm Wednesdays <i>or by appointment</i>	Class meets Tues., Thurs., Friday 10:00 – 10:50 pm A201 Science building
--	--	--

Text (rental): *Contemporary Abstract Algebra*, 8th Edition, by Joseph Gallian, published by Cengage, ISBN 978-1-133-59970-8. Here is a link in case you want to purchase [e-book access](https://www.vitalsource.com/) for a limited time from <https://www.vitalsource.com/>. Topics primarily include many of those in Chapters 1 – 11.

Prerequisites: Math 230 (Introduction to Linear Algebra) and Math 300 (Introduction to Proof)

Course Goals: Students will

- 1) gain an understanding of introductory topics of group theory, including cyclic groups, groups of symmetries, permutation groups, normal subgroups, isomorphisms, homomorphisms, and the Fundamental Theorem of Finite Abelian Groups.
- 2) improve in their ability to think about abstract objects, to write mathematical proofs, and to communicate mathematical ideas verbally.
- 3) develop self-confidence in problem solving and proof-writing.

These goals align with the Program Learning Outcomes of the Department of Mathematical Sciences. For example:

- 1) Patterns – Students can recognize, characterize, and generalize patterns using mathematical language.
- 2) Communication – Students can accurately interpret, clearly write, and orally express mathematical concepts in a variety of settings. This includes mathematical terminology, mathematical theorems, and mathematical proofs.

Communication: Announcements, homework assignments, grade information, and other course information will be in Canvas. To access Canvas, go to <https://www.uwsp.edu>, choose Canvas from the “Logins” dropdown menu, and use your regular campus login ID and password. Email is a good way to contact me (cmccabe@uwsp.edu).

There are times when I will send the class an **email using your UWSP address**. Please check for those.

Support is available: Ask questions as they occur to you. Come to see me before or after class, stop by during my office hours or join via Zoom, or schedule an appointment with me for another time. *One of the great parts of my job is working with conscientious students!* Talking with others about your work also helps you understand concepts or helps you understand what questions to ask, so try talking with other students, professors, etc.



EXPLORE → MAKE CONNECTIONS → GROW NEW BRAIN

Unless specified otherwise, the use of **calculators** (including most graphing calculators) will be permitted during quizzes and the final exam. *However, any calculator, phone, smartwatch, or other device with any connectivity must be stowed away, silenced, and not used during the exam and quizzes.*

Evaluation: Final course grades will be determined by the following:

- 60 points for biweekly homework assignments (highest 6 scores of 7, 10 points each)
- 100 points for sustaining work, done in class or in Canvas (highest 25 scores, 4 points each)
- 75 points for quizzes, (highest 5 scores of 6, 15 points each)
- 35 points for special assignments such as proof re-writes and reflections
- 90 points for the final exam (*Wed. Dec. 15, 12:30-2:30pm*)

Total: 360 points for this course

Course Grades at or above	93.3 336	90 324	86.7 312	83.3 300	80 288	76.7 276	73.3 264	70 252	66.7 240	60 216	% Points
will have at least a grade	A	A -	B +	B	B -	C +	C	C -	D +	D	

I reserve the right to exercise discretion in raising a student's grade if the final weighted average does not appear to reflect the quality of a student's work (for example, because of low performance one week due to illness). I will not use discretionary judgments to lower a student's final grade.

Homework and In-Class Work: To accomplish the course objectives, you need experience thinking about new topics in some depth, expressing your ideas and conclusions in written form, and talking with others about abstract algebra. Therefore:

- 1) **Homework** assignments will be collected every other week, planned to be Thursdays. This is meant to be formative assessment, so written comments will be given, and homework grades (out of 10 points each) will mostly be based on evidence of your own thoughtful completion of the assignment.
- 2) There will be other **sustaining work** on most class days, often with a group component (no pun intended) to give opportunities to discuss abstract algebra. This "sustaining work" will be worth 4 points each time. Your highest 25 scores will be part of your semester grade out of about 30. This is also meant as formative assessment, so scores will be typically based on evaluations of *Solid performance – 4 points, Substantial contribution with one key part missing – 3 points, Partial understanding exhibited – 2 points, Minimal understanding or completion – 1 point, or No contribution – 0 points.*
- 3) The assigned work, readings, and in-class work we do is intended to be a minimal list of items which you need to understand in order to do well in this course and gain a solid foundation in Group Theory. Please make sure to stay on top of this work and ask questions on whatever you don't understand. The effort you put into your work and into studying your work after completion will have a big impact on your understanding, your grades, and your satisfaction with the course.

I do not anticipate other graded items, but if any arise, they will be announced in class and the course points will be adjusted.



Attendance Policy: Attendance is expected at every class meeting when you are well, but we are all expected to take extra care to not spread germs. If you have a fever or symptoms such as coughing or sneezing, please stay home and email me as soon as you realize that you will not be in class. It is the student's responsibility to make prompt arrangements for finding out what was missed and for making up any assigned work in the case of an absence, but I am very willing to work with you to find solutions. Canvas is also a great resource at these times. If you miss class, check there first for things you need to know. Quizzes and the exam may only be made up in special circumstances, and normally only if arranged with me ahead of time. If a medical emergency occurs, contact the Dean of Students or the Disability & Assistive Technology Center as soon as possible (* contact info. below *). Then we can see if an exception is in order.

We will all be checking the university's COVID website as it is updated throughout the semester:
<https://www.uwsp.edu/coronavirus/Pages/default.aspx>.



Inclusivity Statement: It is my intent that all students from diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity brought by everyone in this class be viewed as a resource, strength, and benefit. It is my intent to present materials and activities that are respectful of diversity. I encourage you to make suggestions to this end. Please let me know ways to improve the effectiveness of the course for you personally, or for other students or student groups.

If you have experienced a bias incident (an act of conduct, speech, or expression to which a bias motive is evident as a contributing factor regardless of whether the act is criminal) at UWSP, you have the right to report it using this [link](#). You may also contact the Dean of Students office directly at dos@uwsp.edu.



UWSP is committed to providing reasonable and appropriate **accommodations** to students with disabilities and temporary impairments. If you have a disability or acquire an impairment or injury during the semester and you need assistance, please contact the * Disability and Assistive Technology Center as soon as possible, on the 6th floor of Albertson Hall (library), at 715-346-3365, or at DATC@uwsp.edu. You may also want to visit <http://www.uwsp.edu/disability/Pages/default.aspx>.

All students are expected to know the UWSP student **responsibilities** found on the Dean of Students webpage. Information on Academic Concerns is available at <https://www.uwsp.edu/dos/Pages/stu-academic.aspx>. Information on Conduct Concerns and on Personal Concerns are also available on the Dean of Students site.

Incompletes: A grade of incomplete may be given when circumstances arise which are beyond the student's control, and which result in the student being unable to complete the course. A grade of incomplete will only be used if the student is passing when the circumstances arise.



EXPLORE → MAKE CONNECTIONS → GROW NEW BRAIN

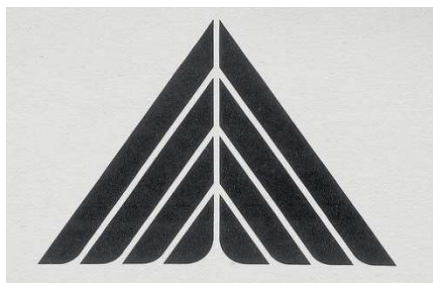
WHAT SYMMETRIES DO YOU SEE?



CBS



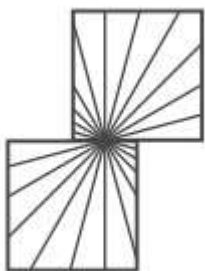
Mercedes



and



Indefinite Loop



BrandCrowd



DesignBump



Woolmark



BP

