

# Math 332: Abstract Algebra – Group Theory

## Fall 2019 Syllabus

3 credits

<b>Professor Cindy McCabe</b> Office: D354 Science Building Phone: 715-346-2085 Email: <a href="mailto:cmccabe@uwsp.edu">cmccabe@uwsp.edu</a> <a href="http://www.uwsp.edu/mathsci">www.uwsp.edu/mathsci</a>	<b>Office Hours</b> 8:00-8:50am Mondays 10:00-10:50am Tuesdays 2:00-2:50pm Wednesdays 12:00-12:50pm Thursdays <i>or by appointment</i>	<b>Class meets</b> Mon., Tues., Thursday 2:00 – 2:50 pm A210 Science building
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**Text (rental):** *Contemporary Abstract Algebra*, 8<sup>th</sup> Edition, by Joseph Gallian, published by Cengage, ISBN 978-1-133-59970-8. You may be able to purchase an electronic copy at <https://www.vitalsource.com/>. Topics primarily include many of those in Chapters 1 – 11.

**Prerequisites:** Math 213 (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. (Canvas is the replacement for D2L, Desire 2 Learn.) Email is a good way to contact me ([cmccabe@uwsp.edu](mailto: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 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.



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

72 points for (nearly) weekly homework assignments (highest 8 scores, 9 points each)

45 points for sustaining work, done in class or in Canvas (highest 15 scores, 3 points each)

60 points for quizzes, (highest 4 scores, 15 points each)

300 points for three exams, 100 points each (*Thurs. Oct. 3, Tues. Nov. 5, Wed. Dec. 18*)

Total: 477 points for this course

Course Grades at or above	93.3	90	86.7	83.3	80	76.7	73.3	70	66.7	60	%
	445	429	413	397	382	366	350	334	318	286	Points
will receive at least a grade of	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 one low exam score early in the course). I will not use discretionary judgments to lower a student's final grade.

Five regular **quizzes** and three **exams** are listed in the schedule on the last page.

The lowest one of your five regular quiz grades will be dropped at the end of the semester.

Note: The third exam is during the **final exam** time slot, Wednesday, Dec. 18<sup>th</sup>, 2:45 – 4:45pm. It is not fully comprehensive but will include some topics from earlier in the semester. A topics list will be given.

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

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

- 1) Most days, a list of **homework** exercises will be assigned. Full homework assignments will be collected approximately once each week (often on Thursday). This is meant to be formative assessment, so written comments will be given and homework grades (out of 9 points each) will mostly be based on evidence of thoughtful completion of the assignment.
- 2) There will be **other sustaining work** approximately once each week, sometimes done in groups, sometimes submitted in Canvas before class. Some days you will need to prepare text exercises ahead of time. This "sustaining work" will be worth 3 points each time. Your highest 15 scores will be part of your semester grade. This is also meant as formative assessment, so scores will be based on evaluations of *Solid performance – 3 points, Substantial contribution – 2 points, Partial understanding exhibited – 1 point, or No contribution – 0 points.*
- 3) Each homework set, in combination with reading assignments and the 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. This work is extremely important, so make sure you stay on top of it 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.

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. It is the student's responsibility to make prompt arrangements with me for finding out what was missed and for making up any assigned work in the case of an absence. Canvas is also a great resource at these times. If you miss class, check there first for things you need to know. Quizzes and exams 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 office as soon as possible (\* contact info. below \*). Then we can see if an exception is in order.



**Inclusivity Statement:** It is my intent that students from all 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](mailto: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 6<sup>th</sup> floor of Albertson Hall (library), at 715-346-3365, or at [DATC@uwsp.edu](mailto: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.



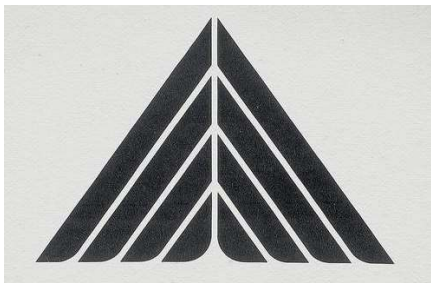
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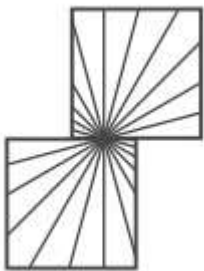
Mercedes



and



Indefinite Loop



BrandCrowd



DesignBump



Woolmark



BP

EXPLORE → MAKE CONNECTIONS → GROW NEW BRAIN

