

Algebraic Structures I - Math 360 (3 credits) – Fall 2021

Instructor: Dr. Brent Hancock

Office Location: Samuelson 218B

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Class times: MWF 1:00-1:50pm, Samuelson 149

Office hours: Wed & Fri 2:00-2:50 pm, or by appointment (email to set up a time)

- Office hour visits: Plan ahead and bring your prior work so I can best assist you 😊

Course Resources:

- Access to Canvas online at <http://canvas.cwu.edu> (this is where I will post course handouts, assignments, readings, grades, policies, announcements etc. so it is important that you log on regularly).

Course Description:

This course introduces students to selected topics in abstract algebra. In this course, students will apply fundamental concepts and algorithms in algebraic structures to solve problems and prove certain results. Students will form conjectures and collaboratively explore those conjectures by generating examples/counterexamples and formal proof. Learner objectives, outcomes and skills will likely include, but may not be limited to:

- Solving problems and proving results related to common groups and subgroups (finite, cyclic, abelian, etc.)
- Investigating visual representations of groups and solving problems related to such representations
- Investigating the functional and structural relationships among and between groups and other algebraic structures
- Proving fundamental algebraic results involving cosets, normal subgroups, and isomorphisms
- Applying group theoretic results to high school algebra problems and/or context

What the main course assessments look like at a glance (more details on the next page):

- Weekly homework sets
- Daily participation (individual and collaborative) in class
- Weekly written reflections (completed online in Canvas).
- 2 “midterm” exams and a comprehensive final exam

Important Dates:

- **Final Exam:** Wednesday December 8 from 12:00-2:00 pm. All students must take the final exam at the scheduled time and date.
- **Thanksgiving Holiday** – no class will be held Wed Nov 24-Fri Nov 26.

Important policies:

- No late work is accepted without *prior arrangements* made with me due to extenuating circumstances.
- Don't cheat, and don't plagiarize. Respect the CWU Student Conduct Code (<http://app.leg.wa.gov/WAC/default.aspx?cite=106-125>)
- I follow CWU's policies and recommendations for academic misconduct.

COURSE ASSESSMENT DETAILS**Homework sets:**

So that you can practice the essential skills, procedures, and proofs in the course, there will be homework sets collected approximately once per week. The due date of each homework set will be indicated as each set is assigned (as well as on Canvas). Some problems on the homework sets will include further practice of skills developed during class, while others will ask you to explore and prove new results that build on the existing ideas discussed during class. Students are encouraged to work together on homework sets, but each student must submit their own writeup.

Weekly Written Reflections:

Students will complete weekly written reflections pertaining to outside readings, applications to K-12 algebra topics or teaching K-12 algebra in light of concepts from Math 360, or other related topics. Each reflection will be completed online in Canvas; the assignment will be located in the corresponding module for that week in Canvas (I will organize the course according to weekly modules).

Midterm Exams and Final Exam:

We will have two "midterm" exams in this class. The official exam dates will be announced in class well before the exam is scheduled to occur. Each exam will have an in-class portion, and one or more of the exams may additionally have a take-home portion (to be announced ahead of time). We will also have a cumulative final exam covering all the material from this course. You may wish to bring a calculator to each exam, but please note that *you will not be allowed to use your cell phone as a calculator* during exams.

Participation:

You are expected to actively participate during class in a variety of ways. For example, you are expected to contribute meaningfully to small-group discussions, ask questions, present solutions, and share your individual and small-group ideas and questions during whole-class discussions. I may periodically assign short "daily" exercises (separate from the homework sets described above) to help guide our discussions/investigations in the following class. In such cases, students are expected to complete these exercises before the next class and be ready to present their

solutions. Students are expected to arrive to class on time and to not leave class early (unannounced).

****Important Note about Exams and HW**

Please note that there will be no makeup exams or HW assignments. Exceptions will only be granted if you miss an exam due to a *verifiable and documented* medical emergency or other university-authorized absence and have given me *appropriate advance notice*. Please consult the University student handbook for details on what is considered to be a University-authorized absence, and provide me with a written request ASAP (i.e. before the drop deadline) if you think you will have a conflict with any test dates.

COURSE GRADE CALCULATION

Weight	Assessment category (grading scale)
20%	Homework Sets
10%	Weekly Written Reflections
40%	“Midterm” Exams (2)
25%	Final Exam
5%	Attendance and Participation

Letter grades will be assigned as follows:

A- 90.0 - 92.9%	A 93.0 - 100%	
B- 80.0 - 82.9%	B 83.0 - 86.9%	B+ 87.0-89.9 %
C- 70.0 - 72.9%	C 73.0 – 76.9%	C+ 77.0 - 79.9%
D 60.0 - 69.9%		
F 0 - 59.9%		

CWU COVID-Related Policies

In accordance with Proclamation 21.14.1, CWU has chosen to make vaccinations a priority this fall. We believe a fully vaccinated community is the best way to protect our individual and collective health and safety. **Proof of full vaccination against COVID-19 will be required by October 18, 2021** for all employees and students. Medical and/or religious accommodation requests will be considered (by authorized university staff). **All employees and students are required to wear masks while indoors.**

CWU Face Covering Policy 2021

Cloth face coverings must be worn indoors by all CWU students, employees, and visitors. The mask must cover mouth and nose, fitting as snugly as possible against the sides of the face. Students not wearing a mask will be asked to put one on; if they refuse, students will be asked to leave the classroom and building.

Accommodations for students with disabilities:

Students who need accommodation of their disabilities should contact me privately to discuss specific accommodations for which they have received authorization. If you need accommodation due to a disability, please register with Disability Support Services in Hogue 126. They may also be reached via email at (DS@cwu.edu).

Respect, inclusivity, and diversity:

In my classroom, diversity and individual differences are respected, appreciated, and recognized as a source of strength. Students in this class are encouraged and expected to speak up and participate during class meetings, **and** to carefully and respectfully listen to each other. So that everyone feels comfortable participating, every member of this class **must** show respect for every other member of this class. Be good to each other.

Cell phone policy:

I will not allow cell phones or similar devices to be used during exams. This includes using your phone as a calculator. During exams, please keep all phones out of sight and silent. If I see anyone using a cell phone during an exam, I may assign that student a zero on that exam.

Changes to the syllabus:

I reserve the right to make modifications to this syllabus at any time. In the event of such changes, I will notify the class and upload a revised syllabus on Canvas.