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Course Information
Math 476: Abstract Algebra I – Section 01, Fall 2017
4 Credits: MWF 2:00 – 3:10p.m. Bridges Room 264

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Textbook: *Abstract Algebra: An Inquiry-Based Approach, by J. Hodge, S. Schlicker and T. Sundstrom* [required]
Office: MacLean 375M   **Office Phone:** (218)477-4011
Office Hours: **Email:** jamesju@mnstate.edu

   MTWH 1:00pm – 1:50pm **Webpage:** web.mnstate.edu/jamesju
   M W   3:10pm – 4:00pm **D2L Login Page:** https://mnstate.ims.mnscu.edu/
   Other times by Appointment

Course Description: Groups, rings and integral domains studied as abstract mathematical systems. Lagrange's theorem, factor groups, homomorphisms, polynomial rings and quotient rings.

Prerequisites: MATH 327: Introduction to Linear Algebra; MATH 311: Introduction to Proof and Abstract Mathematics

Major Content Areas:
- Groups, subgroups, permutation groups, normal subgroups, factor groups, isomorphisms and homomorphisms of groups.
- Rings, integral domains and fields, ideals, factor rings, homomorphisms and isomorphisms of rings.

Student Learning Outcomes: Upon completion of the course, students will be able to do the following:
- Recognize basic algebraic structures.
- Understand morphisms in algebra.
- Appreciate general algebraic structure inherent in familiar systems such as the integers, rational numbers, and polynomials.

Course Requirements: This class may be a bit different from other math content courses that you have taken. This course will focus on using active learning and an "exploratory" or "inquiry based" model. I plan to minimize the amount of time I spend lecturing on course content to allow more time for you to interact with each other and with course content to build understanding. You will be given "preview" activities that will help introduce you to key definitions and theorems. I will give "mini-lectures" on key course content and I will work examples when needed, but the bulk of our time should be spent on in-class activities, discussion, and student presentations.

Instructional Strategies: Small group work, In-class discussions, student presentations, writing assignments, reflective journals, assigned readings, lecture.

Attendance and Academic Expectations: You are expected to attend class regularly and on time and you are expected to actively contribute to activities and discussion during class time. Since it is difficult to fully re-create a cooperative group outside of class time, it will be difficult to make up missed in-class activities. I will allow you to make these activities up only when your absence is excused. If you are more than a few minutes late to class, I reserve the right to penalize your grade on in-class activities (since your group had to complete a portion of it without you). You are also expected to complete all exams, quizzes, preview activities, writing assignments, and to give well prepared presentations as outlined below.

Activities: A significant portion of your course grade will be based on successful completion of specific activities designed to help you learn and practice applying concepts from the course. These activities fall in two categories:

- **"Preview" Activities:** These activities are designed to be completed outside of class time prior to the class meeting when we will discuss the related content. Their purpose is to introduce key definitions and concepts in advance so that more time can be spent developing and exploring content during class time. You can work on these by yourself or cooperatively (but you should each complete your own version to submit). I will not always collect these, but when I do, I will expect them to be completed by the beginning of class on the day that they are due.

- **"In-Class" Activities:** These activities are designed to help you explore and develop an understanding of core course content. My goal is to teach this class using an "inquiry based" approach -- I will spend less time lecturing on course content to allow more time for you to build understanding by interacting with each other and with course content through these activities. "In-Class" activities will usually be collected at the end of class, but I may occasionally allow you to take them home and complete them (or I may carry them over to the next class meeting).

Journals and Writing Assignments: At various times throughout the course, I will assign short, informal writing assignments. Some of these you will complete during class time. Others you will complete outside of class time. You should purchase and use a spiral notebook, composition notebook, or a *small* 3-ring binder that you can use to house these writing assignments. I will expect you to revisit some of your previous writing later in the course, so you should keep all of your writing in one place. I will collect and grade your "journals" periodically, but not necessarily after every individual assignment.

Homework: I will collect homework for grading approximately once each week. You will be told ***at least*** one class meeting in advance which problems you are expected to write up. You may need to complete problems in addition to those assigned in order to master course material. You are encouraged to discuss homework with your classmates (and with me) outside of class during my office hours. However, unless an assignment is specifically given as a group assignment, the final product that you submit should represent your own intellectual efforts. If you make significant use of other resources (print, online, classmates, friends, tutors, etc.), you should clearly cite this in your write-up.

Quizzes: I will give quizzes at various times during the course. These quizzes will fall into two categories:

- **Minor Quizzes:** These are short quizzes designed to help you learn and remember key course content – definitions, theorem statements, and "short" applications/computations. I will usually announce these 1 day in advance, but may surprise you once in a while. These quizzes are worth 5 points each. Only your best 15 will count toward your final grade.
- **Major Quizzes:** These quizzes will **always** be announced in advance. They can be thought of as "mini-exams" designed to give you feedback on how well you are understanding course content. These will occur about once every two weeks and will be worth 25 points each.

Note that quizzes may be given individually or as "group quizzes" and some may be administered **online**.

Presentations: Each of you will be expected to give a few short presentations to your peers during class time. These presentations will involve either presenting the solution to an assigned problem or explaining a concept to your peers. You will be graded on both the accuracy of the mathematical content presented and the clarity and effectiveness of your presentation. These presentations will contribute 25 points toward your final grade.

Exams: This course will have ***two exams*** and a ***comprehensive final exam***, as outlined on the course schedule. Be sure to mark the date of each exam on your calendar, especially the final exam. Each exam (including the final exam) will have two components: an "in-class portion" (this will be closed book, closed notes) and a "take home" portion. Expect more details about these as we get closer to our first exam.

The credit given on exam questions will be based on the amount of correct work shown, or, in the case of proofs, on the completeness, correctness, and clarity of your argument(s). In your final grade, each of the two unit exams will be worth 100 points. The final exam is worth 200 points.

Extra Credit: There *may* be a few extra credit assignments during the semester. All extra credit opportunities will be given to the **entire class** and must be handed in by the specified due date. There will be no individual extra credit.

Course Grading Policy: Your final grade in the course will be computed as follows.

Journals and Writing Assignments	50 points
Preview & In Class Activities	150 points
Homework Exercises	150 points
Minor Quizzes	75 points
Major Quizzes	150 points
Presentations	25 points
Exam 1	100 points
Exam 2	100 points
Final Exam:	200 points
Total:	1000 points

I will compute the percentage of the total possible points each student earned during the semester (rounded to the nearest .1%), and will then assign letter grades based on the following scale. I may make slight adjustments to this scale (down, never up), but don't count on this happening.

96.5-100.0%	A+	81.5-86.4%	B	69.0-71.4%	C–
91.5-96.5%	A	79.0-81.4%	B–	66.0-68.9%	D+
89.0-91.4%	A–	76.5-78.9%	C+	60.0-65.9%	D
86.5-88.9%	B+	71.5-76.4%	C	<60.0%	F

Make-up Work: I will only give make-up assignments for *emergencies* or for absences which are officially sanctioned by the University. I will expect written documentation in either of these cases. If you miss an exam and a make-up exam is not warranted, you may replace your grade on **one** missed exam with your *un-scaled* percentage score on that portion of content on the final exam.

Learning Accommodations: Minnesota State University Moorhead is committed to providing equitable access to learning opportunities for all students. Accessibility Resources (AR) is the campus office that collaborates with students who have disabilities to provide and/or arrange accommodations.

- If you have, or think you may have, a disability (e.g. mental health, attentional, learning, chronic health, sensory or physical) please contact the AR at (218) 477-4318 (V) or (800)627.3529 (MRS/TTY) to schedule an appointment for an intake.
- Additional information is available on the AR website: http://www.mnstate.edu/accessibility

If you are registered with the AR and have a current Accommodation Letter, please schedule an appointment to visit with me, during my office hours, to discuss implementation of your accommodations.

Academic Honesty: You are expected to do your own work. You may work with others and get help on assignments, but, unless the assignment is specifically designed as a group assignment, all work that you submit must be your own (or should be appropriately referenced). During exams and quizzes you will not be allowed to receive unauthorized help from others. Cheating and plagiarism are not tolerated in any course at any level. See the MSUM Academic Honesty policy for more information on the possible consequences of cheating.

Emergency Preparedness: As we prepare to start a new academic year and semester, the MSUM Facilities, Grounds & Safety Committee would like everyone to review the Emergency maps as well as the Emergency Preparedness Guide. Even a quick look at this information can make a difference in how you may react/respond in an emergency situation. If you have questions after reviewing this information, please contact Jim Schumann, Director of Public Safety for further clarification. Thank you in advance for taking time to help protect yourself and others.

Building maps showing emergency exit routes, fire extinguisher locations, and fire alarm pull stations are conspicuously located in classrooms, labs, conference rooms, departmental main offices and residence halls. The Emergency Preparedness Guides (flip style booklets) are located with the maps.

Please review the floor plans as well as the guide so you know how to respond in an emergency situation to help protect yourself and others.   If you have questions, please contact Jim Schumann, Director of Public Safety, at james.schumann@mnstate.edu or 218-477-5869. https://www.mnstate.edu/publicsafety/

Thanks, And Let's Have a Great Semester!!