Math 466

Abstract Algebra

Spring 2009

Instructor: Amanda Beecher **Section:** A3
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Course Website: http://www.dean.usma.edu/departments/math/people/beecher/MA466Spring09.htm
My website: www.dean.usma.edu/math/people/Beecher
Blackboard: https://blackboard.usma.edu/webapps/portal/frameset.jsp

Course Philosophy: This is an introductory course in Modern Algebra. We will focus on the study of group theory, including cyclic groups, permutation groups, dihedral groups, cosets, homomorphisms and factor groups. We will also introduce the notions of rings and fields. This course will have a research project to allow students to explore the subject more thoroughly. The goal of this course is to provide a solid algebraic background that will enable the student to handle confidently either a more advanced undergraduate course, independent study, or a first-year graduate course in algebra.

Class Time: Class will meet A hour (1 days only).

Text: A First Course in Abstract Algebra, by John B. Fraleigh, 7th ed.

Evaluation: Following is the distribution of points for the course:

Requirement	Points	Weight (%)
Homework(10)	500	40%
Project	100	8%
WPR(3)	450	36%
TEE	200	16%
Total	1250	100%

Grades: Let x be your final percentage for the course.

Percentage earned	Grade
$90 \leq x \leq 100$	A
$80 \leq x < 90$	B
$70 \leq x < 80$	C
$65 \leq x < 70$	D

Homework: Homework assignments will generally be given each week and due at the end of the following week. There will be 10 graded homework assignments. I expect to give 12 opportunities, so the two lowest will be dropped and they are slated to be due on:

January 16, 22, 28
February 5, 13, 20, 26
March 6, 27
April 2, 8, 16, 24

Course Project: Each student will submit a project before the end of the semester. We will have two weeks of class time to work on it. It is encouraged that your project be completed before this time, so that you can use this time to work on your honors project. I am currently compiling a list of potential projects and will post it to Blackboard when completed. This is not an exclusive list and any reasonable project request will be approved.

WPRs: The dates for the exams are flexible based on the flow of the course material. Each exam will be given in class and a formal announcement sent out from Blackboard.

Chapter covered	Date of Exam
Chapter I	9 Feb
Chapter II	12 Mar
Chapter III	10 Apr
Chapters I-IV	TEE

Late Submission of Assignments:

A late assignment will receive an automatic grade of zero if the solutions have been posted or assignments returned to your classmates. If a late assignment is turned in before either of these events, then a late penalty will be charged at the time of submission. It is always better to turn work in late than not at all. I will be happy to check all work to provide you feedback, even if it is not for a grade.

Additional Instruction (AI): AI is available whenever I am free and not teaching. If you would like to guarantee a time, then please schedule an appointment. I respond quickest to email. I am free 1st hour on 2-days, 3rd and 4th hour everyday and afternoons. I have course administration meetings on Tuesday afternoon and will often be researching out of my office on Wednesday afternoon. I am fairly flexible with my schedule if I have enough notice.

Communication: I will email the class with any important information that cannot wait until the next class. Visit the MA 466 Blackboard page often for updates, assistance, and solutions. Event grades will be posted on the Cadet Information System (CIS). I will post all course documents and assignments to Blackboard.

Words of Advise:

1. Reading the book is a good idea, whether or not it is formally assigned.
2. Bring your book and notes to class every day. We will be using examples from the text and referring to definitions directly from it.
3. Take notes. It is easy to follow a proof or example in class as we talk through it, but it may be more difficult to recreate it on your own. Notes play a key role in helping you to revisit concepts from class.
4. Work as many problems as possible. I expect to use the end of section problems for most homework assignments and many exam questions.
5. Paul Erdõs believed mathematics is a social activity. He published most of his over 1500 articles in a variety of areas with 511 collaborators. I too, believe much can be gained from working problems in groups. Be careful that all can recreate the solution and not just follow the steps of someone else.
6. Creating mathematical proofs is a hard endeavor, so work hard and be patient.

Helpful Websites:

Topic	**Website**
Writing Mathematical Proofs	http://math.berkeley.edu/∼hutching/teach/113/proofs.pdf
General Resources for Abstract Algebra	http://www.d.umn.edu/∼jgallian/
Introduction to Group Theory	http://members.tripod.com/∼dogschool/
Abstract Algebra Online	http://www.math.niu.edu/∼beachy/aaol/
Math Archives	http://archives.math.utk.edu/topics/abstractAlgebra.html

This schedule is flexible and will be adjusted as necessary.