MATH 456 – Abstract Algebra I  
Fall 2010  
Syllabus

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Course Description: This course is your introduction to the abstract structures underlying familiar, more specific algebraic structures such as the integers, the real numbers, and sets of matrices or polynomials. We will explore the features these structures share and do not share. This is a 400-level course, which means that I expect you to be ready for senior-level work. Accordingly, I will be more hands-off than I am in a 300-level course. You will present more in class, and my hints during office hours will be fewer and more oblique. We are aiming for greater mathematical independence!

Students will
1. recognize specific examples of various abstract algebraic structures and principles,
2. prove theorems in general algebraic settings,
3. apply general algebraic theorems in specific instances, and
4. understand the fundamental principles underlying the algebra they have been familiar with.

Grading: The following components make up your grade:

1. Homework: Homework write-ups will account for 20% of your final grade. I will only be able to grade 2-5 problems per week due to the size of this class, but I will post my solutions for some of the others. You will be submitting your homework problems via \LaTeX, a mathematical typesetting program. Solutions are due one week after the problems are assigned.

2. Presentations: Presentations in class will be worth 20% of your grade, as well. There will be three kinds of presentations: homework problems, “lectures,” and a more substantial project presentation at the end of the term. I will post my evaluation form on our website so you can see what I’m looking for.
   
   (a) Homework problems: these are self-explanatory. Whoever is responsible for a particular problem will make a presentation of its solution and be prepared to answer questions about it.
   
   (b) Lectures: I will assign topics to individuals to present. Those presentations will be your only lecture on that topic, so be sure to take good notes and ask whatever questions you need to.
   
   (c) Project: These will be like the lectures, but the topics will be more substantial and the presentations longer. This will be a group presentation.

3. Midterms: There will be two Midterms that will each be worth 20% of your grade. Each will have an in-class portion and a take-home portion. The expected dates of the midterms are Wednesday, October 6 and Wednesday, November 10.

4. Final: The final will be worth 20% of your grade, and it will be comprehensive. It is scheduled for Monday, December 13, 2010, 2-5 PM.

Format for Submitting Problems: You will be using \LaTeX to typeset homework solutions. I will post a \LaTeX introduction on my website. For each problem, please include the section, problem number, and page number. You do not have to state the problem, but you are welcome to do so. Our course website has a \LaTeX template you are welcome (but not required) to use for this course.
NOTE: I encourage you to work with other students. However, it is plagiarism to simply copy someone else’s solution and present it as your own. Be very careful not to do this when you type up solutions!

Contacting Me: My office hours, above, are flexible. Those are the times you can be sure to find me in my office (or at least nearby). I am usually there anyway, and you are welcome to come by for help or to ask me questions even if it is not during my office hours. Also, you are welcome to call me at home until 8:00 p.m. I check my e-mail frequently on weekdays and occasionally on weekends. You can also check my web page for information about the course (e.g., homework assignments and due dates, exam dates, etc.). I will post problems and solutions there, too.