

Syllabus

Elementary Modern Algebra I (MA 361)

Fall 2011

Class meetings: MWF 10:00-10:50, CB 341
Instructor: Dr. Bonnie Smith, POT 827, bonnie.smith@uky.edu
Course website: <http://www.ms.uky.edu/~bsmith/MA361>
Office hours: Mon. 2:00-2:50, Tues. 11-11:50, and by appointment
Textbook: *A First Course in Abstract Algebra* (7th edition), John B. Fraleigh

Course Content: We are all familiar with sets of numbers like the integers or the real numbers, and with operations on these sets such as addition and multiplication. In this course we abstract these notions and consider in general sets with one or more operations, and study the algebraic structure of these objects. Abstract algebra is a beautiful subject which is used in many branches of mathematics, and even to study complicated systems which arise in areas outside the field of mathematics. The course will cover most of the material in Chapters 0-4 of the textbook. Much of your work this semester will be formulating and writing down rigorous proofs of facts about the various objects we will encounter. You will need to learn how to work from the precise definitions we will see, to study abstract objects as well as more concrete examples. And, it's likely that you won't always see right away how a proof should go—this is a class where persistence and a little creativity/independent thinking will come in handy.

Assessment: There will be three midterm exams and a final exam (all cumulative), as well as a number of short quizzes. Quizzes will be pop quizzes, and are intended to check for a basic understanding of material covered in the previous class or two. Exams, by contrast, will check for a deeper understanding, and will be largely proof-based. Your two lowest quiz scores will be dropped. No make-ups will be given for a missed quiz or exam due to an unexcused absence; you will receive a score of zero on such a quiz or exam.

There will be weekly written homework assignments due at the end of class each Wednesday—assignments will be posted on the course website. You may turn in *one* homework late without penalty: it must be turned in at the beginning of class Friday, one class after it was due. No credit will be given for additional late homeworks. You are encouraged to discuss the course material and assignments with each other, BUT it is important to complete as much of the homework as possible on your own. If you have tried and are stuck on a proof, ask for a general hint such as “I used the definition of a group and the uniqueness of the identity,” rather than full proof details (or come to office hours). If you are still stuck, and need to have someone show you a solution: once you understand how the proof goes, then, on your own, write it up in your own words. *It is never OK to copy a proof word for word.*

Each week the class will have the opportunity to select one or two homework problems they would like to see presented on Wednesday. I will generally not present these myself, but instead will ask for volunteers. While you are not required to present, everyone is encouraged to volunteer at least once: being able to effectively communicate your ideas to your peers is an important skill, and your classmates will appreciate seeing how a fellow student approached the problem. The “class participation” component of the grade is a measure of how actively you participate in class overall, whether through presenting or contributing to the class discussion generally, and also includes being present and on-task for in-class group work. Your course grade will be computed according to the following rubric:

Exams 1, 2 and 3	15% each
Final Exam	20%
Quizzes	5%
Written Assignments	20%
Class Participation	10%