

Syllabus for MA 361 - Elementary Modern Algebra I - Spring 2012

Time and Place (Lectures): 10:00-10:50 MWF, CB 347.

Instructor: Dr. Alberto Corso, POT 701, 257-3167, alberto.corso@uky.edu and www.ms.uky.edu/~corso.

Office Hours: 10:00-11:30 TR in POT 701 or by appointment. You can also consult me by email.

Textbook: *A First Course in Abstract Algebra* (7th edition), by John B. Fraleigh, ISBN 0-201-76390-7.

Material and Exams: Algebra is the study of algebraic systems, that is, sets of elements endowed with certain operations. A familiar example is the set of integers with the operations of addition and multiplication. Algebra is used in almost every branch of mathematics; indeed, it has simplified the study of mathematics by indicating connections between seemingly unrelated topics. In addition the success of the methods of algebra in unraveling the structure of complicated systems has led to its use in many fields outside of mathematics. One aim of this course is to help students learn to write clear and concise proofs, read the mathematical literature, and communicate mathematical ideas effectively, both orally and in writing.

Topics: Introduction to the basic concepts of abstract algebra, with applications: groups (cyclic, symmetric, Lagrange's theorem, quotients, homomorphism theorems); rings (congruences, quotients, polynomials, integral domains, unique factorization); fields (field extensions, constructions with ruler and compass).

Exams: There will be three midterms and a final exam. All exams are cumulative in the sense that students are responsible for all of the material that has been on previous exams. They will count toward the final grade as follows:

1. three midterms (20% each);
2. assignments (20%);
3. final exam (20%).

Your final letter grade will be based on the following table:

A = 90 - 100 B = 80 - 89 C = 65 - 79 D = 55-64 E = 0-54.

Homework: Homework will be collected on a regular basis. To receive credit, homework solutions must be written out neatly and handed in at the beginning of the class on the due date. Homework problems must be worked out without collaboration or copying of solutions.

Attendance Policy: Your presence is required at *every lecture*. Excused absences must be fully documented. No make ups will be given for a test missed as a result of an unexcused absence. Late homework will not be accepted unless the delay is due to an excused absence.