Course: Math A4900; Modern Algebra 1

Text: Artin: Algebra, 2nd edition

COURSE LEARNING OUTCOMES:

After completing this course, student should have the skills below with the associated Departmental Learning Outcomes (outlined at the bottom of the page, and labeled a-g). They should be able to:

1. Write clear and rigorous proofs (or disproofs) of mathematical statements utilizing basic proof techniques *(e1, e2, f, g)*
2. Understand basic definitions and properties of groups, rings, fields *(e1, f, g)*
3. State and prove isomorphism theorems, fundamental theorem of finite abelian groups, existence of algebraic closures, and applications *(e1, f, g)*
4. Perform computations within a given group, ring, field *(a, c, d, e1, e2)*
5. Understand applications of algebra to one or more of the following: number theory, geometry, coloring, and game theory (a, c, d)

DEPARTMENTAL LEARNING OUTCOMES:

The mathematics department, in its various courses, aims to teach students to

a) perform numeric and symbolic computations
b) construct and apply symbolic and graphical representations of functions
c) model real-life problems mathematically
d) use technology appropriately to analyze and solve mathematical problems
e) state (e1) and apply (e2) mathematical definitions and theorems
f) prove fundamental theorems
g) construct and present a rigorous mathematical argument