MATH 467/568
Algebraic Structures   (3 units)

Course Outline

Topics	# of Weeks
Review: Definition of a Field in Section 3.3, Extension Fields and Irreducibility (Sections 4.3 and 4.4) and the Dimension of a Vector Space (Appendix A.7).	1.0
Chapter 6 – Fields: (Sections 1, 2, 3, 4, 5) Algebraic Extensions, Geometric Constructions, Splitting fields and Finite Fields.	3.5
Chapter 7 – Structure of Groups: (Sections 1, 2, 3, 4, 5, 6, 7) - See remarks below. Automorphisms, Isomorphism Theorems, the Class Equation, Sylow's Theorems, Finite Abelian Groups (Cover Quickly), Solvable Groups, Simple Groups (Cover Quickly).	4.5
Chapter 8 – Galois Theory: (Sections 1, 2, 3, 4) Galois Groups, Solvability by Radicals.	3.0
Chapter 9 – Unique Factorization: (Sections 1, 2) Principal Ideal, Domains and Unique Factorization, Domains.	1.0
Exams	1.0

Textbook: <u>Abstract Algebra, 3rd Edition</u> by John Beachy and William Blair

Remarks: Section 7.5 — State the Fundamental Theorem of Finite Abelian Groups without proof and go over a few examples.
Section 7.7 — Show only that the groups S_n ($n \geq 5$) are not solvable and the groups A_n ($n \geq 5$) are simple.

Adopted: September, 2007