



PURE MATHEMATICS 315 "ABSTRACT ALGEBRA"

Calendar Description: H(3-1T)

Integers: division algorithm, prime factorization. Groups: permutations, Lagrange's theorem. Rings: congruences, polynomials.

Prerequisite: Mathematics 211 or 221.

Suggested Text: "Introduction to Abstract Algebra," by W.K. Nicholson, PWS-Kent, 1993.

Syllabus

<u>Topics</u>	<u>Number of hours</u>
Section 1.1 Induction	1
Section 1.2, 0.4 Divisibility and Prime Factorization	2
Section 1.3 Integers Modulo n	2
Section 1.4 Permutations	2
Section 2.1 Binary Operations	1
Section 2.2 Groups	1
Section 2.3 Subgroups	2
Section 2.4 Cyclic Groups	2
Section 2.5 Isomorphisms	2
Section 2.6 Cosets and Lagrange's Theorem	1
Section 2.8 Normal Subgroups	1
Section 2.9 Factor Groups	2
Section 2.10 Homomorphisms	2
Section 3.1 Examples and Basic Properties of Rings	1
Section 3.2 Integral Domains and Fields	2
Section 3.3 Ideals and Factor Rings	2
Section 3.4 Homomorphisms	2
Section 4.1 Polynomials	2
Section 4.2 Factorization of Polynomials over a Field	2
Section 4.3 Factor Rings of Polynomials over a Field	2
TOTAL HOURS	34

* * * * *