Bemidji State University

MATH 6350: Advanced Abstract Algebra

A. COURSE DESCRIPTION

   Credits: 3
   Lecture Hours/Week: 0
   Lab Hours/Week: 0
   OJT Hours/Week: *
   Prerequisites: None
   Corequisites: None
   MnTC Goals: None

   Designed to deepen the algebraic background of students through the study of elementary number theory and modular arithmetic; the development of the rational, real and complex number systems; and an introduction to rings, integral domains and fields. Prerequisites: MATH 5310 or equivalent.

B. COURSE EFFECTIVE DATES: 01/08/2021 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

   1. Euclidean algorithm, modular arithmetic and congruences
   2. Rings, integral domains and fields
   3. Number systems
   4. Polynomial rings and factorization
   5. Field extensions

D. LEARNING OUTCOMES (General)

   1. develop an understanding of the fundamental concepts and methods of abstract algebra.
   2. learn to analyze problems, discern structure and pattern and make conjectures in algebraic contexts.
   3. apply creative and analytic thinking to develop clear and valid algebraic proofs.
   4. communicate mathematical ideas and understanding effectively.
   5. develop an appreciation for the beauty and diversity of algebraic structures.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

   None

F. LEARNER OUTCOMES ASSESSMENT

   As noted on course syllabus

G. SPECIAL INFORMATION

   None noted