Introduction to abstract algebra – Math 412
University of Hawai‘i at Mānoa
Fall 2016

Meetings: TTh 9:00am–10:15am, Keller 413

Lecturer: Robert Harron

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Office Hours	to be determined

Course website: http://math.hawaii.edu/~rharron/teaching/math412f16/

Textbook: Thomas Hungerford's *Abstract algebra, an introduction, Third edition*

Official description: Introduction to basic algebraic structures. Groups, finite groups, abelian groups, rings, integral domains, fields, factorization, polynomial rings, field extensions, quotient fields. Emphasis on writing instruction. (These topics are covered in the year sequence 412–413.) Pre: 311 and 321; or consent.

Unofficial description: Abstract algebra is the study of the structures that arise from algebraic operations. What? Well, for instance, we will study sets that have operations of addition and multiplication that obey the kinds of properties that usual addition and multiplication of integers obey. This abstraction leads to studying more general number systems that arise in the solutions of problems that don't originally involve such abstraction (for instance, the complex numbers are a natural setting for the study of electronic circuits). In addition to becoming comfortable with the meaning and use of the concepts and objects introduced in this course, our goal will also be to get you comfortable proving things about them. This semester, we will get through the material in chapters 1–7 of the textbook.

Assignments: There will be weekly assignments. Problems will be posted after each lecture, then bundled together and due at a specified time each week. This is a 'writing-intensive' course; accordingly, there will be a few questions per assignment marked (WI) for which you will be expected to write out your solutions clearly and precisely, in the style of 'Mathematical English'. I will help you in developing this skill by commenting on your solutions and returning them for rewrites, if appropriate. I've also prepared a sample of what I mean by Mathematical English. There will also be other questions on the assignment, some of which may also be graded.

Exams: There will be one midterm (take-home) and a final during the usual exam period (Thurs., Dec. 15, 9:45am–11:45am).

Grading scheme:

Homework	50%	Midterm	20%	Final	30%