

MATH 202 Algebra III

Instructor: Jesse Leo Kass

Spring 2023

Course Description

Module theory: Submodules, quotient modules, module homomorphisms, generators of modules, direct sums, free modules, torsion modules, modules over PIDs, and applications to rational and Jordan canonical forms. Field theory: field extensions, algebraic and transcendental extensions, splitting fields, algebraic closures, separable and normal extensions, the Galois theory, finite fields, Galois theory of polynomials.

Textbooks

We will use David S. Dummit, Richard M. Foote, *Abstract Algebra*.

Homework

Homework will be assigned on a regular basis.

Exams

The Registrar's has scheduled the final exam for Wednesday, June 14 7:30–10:30 p.m. There will also be a midterm on May 15 during class.

Meeting times

Class meets 11:40–1:15 pm Monday, Wednesday in McHenry 1270. Office hours are Monday, Wednesday 3:45 - 4:45 pm in McHenry 4174.

Policy on electronic devices in the classroom

What happens in the classroom, stays in the classroom. Please do not record.

Course requirements and grading

We will discuss the specifics of homework and presentations during the first week of class. Think about whether you'd like in-person presentations of homework solutions?

Collaboration Policy

With each week's homework, you must turn in a one paragraph description of all the resources you used on that homework. You must mention any person you talked to about the problems, any book you looked at, any online resource (Wikipedia, Chegg,...) that you used. A sample paragraph is

On this week's homework, I worked on the problem set collaboratively with Gauss and Grothendieck. We found an Alex Jones video (<http://youtube.blah.com>) that gave a really clear explanation of excellent rings. We compared our solutions against a solution key that we found on the /commutativealgebra/ board of 4chan (<http://blah.blah.edu>). We also got really stuck on Problem 5, and so we went to Chegg.com and paid an online tutor ("Zariski") \$50 to solve the problem for us.

This paragraph is required even if you work entirely on your own and only reference the course textbook. You could just write something like: "This week I did not work with any other students and relied entirely on course notes, Atiyah and MacDonald's book, and Dummit and Foote's book."

It is acceptable to use any and all resources that you would like (including Alex Jones videos and Chegg), but failure to include this paragraph may result in a reduced grade and may raise honor code concerns.

Academic integrity

Cheating will not be tolerated. Honor code violations will be addressed according to university guidelines.

Accesibility

If you are a student with a disability who requires accommodations to achieve equal access in this course, please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me privately during my office hours or by email, preferably within the first two weeks of the quarter. You can contact the DRC by phone at 831-459-2089 or by email at drc@ucsc.edu.