

**MATH 5320, INTRODUCTION TO MODERN ALGEBRA II,
SPRING 2014**

Classroom: JWB 208 **Time:** MWF 12:55 – 1:45 PM
Instructor: Domingo Toledo
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Office Hours: Mon 11:50–12:40, Wed 10:45–11:35, or by appointment.
Web-page: <http://www.math.utah.edu/~toledo/5320S14.html>

Prerequisites: Grade “C” or better in Math 5310.

Textbook: Michael Artin, *Algebra*, Second Edition.

Note on the textbook: The bookstore has Herstein rather than Artin as the textbook for this course. This is not correct. You will not need Herstein’s book. But if you do not have Artin’s book, you will need to order it.

Course Description: This is a course on rings and fields. These are two basic structures that appear in many branches of mathematics and contain and unify many interesting examples. The course will be based on chapters 11 to 16 of Artin’s textbook. A quick look at these chapters shows the variety of topics and examples that fall under the general heading of rings and fields: integers, algebraic numbers, polynomial rings, factorization, finite fields, function fields, Galois theory, and many others. Chapters 11, 14, 15 are the most basic, we will cover these in detail, and as much of the others as possible.

The material from Math 5310 will be used frequently. Particularly important will be:

- The concepts associated with groups and homomorphisms: subgroups, kernels, normal subgroups, quotient groups, etc, as in Chapter 2.
- The concepts associated with linear algebra over an arbitrary field: vector spaces, subspaces, quotient spaces, bases, dimension, linear transformations, etc, *over any field*, as in Chapters 3 and 4.

Homework: Homework problems will be assigned each week and collected on Wednesday of the following week. ₁

Midterms: There will be two midterm exams on Wednesday, February 12 and Wednesday, April 2.

Final: Comprehensive final exam on Tuesday, April 29, 1:00 – 3:00 PM.

Grading: Homeworks, drop lowest 2: 30 %
Two Midterm Exams: 40 %
Final exam: 30 %

Important dates: Last day to add classes (without permission code): Sunday January 12. Last day to drop (delete) classes: Wednesday, January 15. Last day to withdraw from classes: Friday, February 28.

ADA: The Americans with Disabilities Act requires that reasonable accommodations be provided for students with physical, cognitive, systemic, learning, and psychiatric disabilities. Please contact me at the beginning of the semester to discuss any such accommodations you may require for this course.