

YILDIZ TECHNICAL UNIVERSITY

MAT 5120

ADVANCED ALGEBRA

2020-2021 SPRING

**Instructor:** Assoc. Prof. Emre Kolotoğlu

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**Office:** E-2036

**Textbook:** D. S. Dummit and R. M. Foote, Abstract Algebra, 3rd Edition, Wiley, 2004.

**Course Website:** <http://avesis.yildiz.edu.tr/kolot/dokumanlar>

**Course Content:**

• PART I - GROUP THEORY

- Ch.1 Introduction to Groups
- Ch.2 Subgroups
- Ch.3 Quotient Groups and Homomorphisms
- Ch.4 Group Actions
- Ch.5 Direct and Semidirect Products and Abelian Groups
- Ch.6 Further Topics in Group Theory

• PART II - RING THEORY

- Ch.7 Introduction to Rings
- Ch.8 Euclidean Domains, Principal Ideal Domains and Unique Factorization Domains
- Ch.9 Polynomial Rings

• PART IV - FIELD THEORY AND GALOIS THEORY

- Ch.13 Field Theory

**Homework Assignments:** There will be some homework assignments throughout the semester. For homework assignments and due dates, check the course website regularly.

**Exams:** There will be one midterm exam and one final exam. The exam dates will be announced later.

**Grading:**

- Homework Assignments 30%
- Midterm exam 30%
- Final Exam 40%

**Note:** The instructor has the right to make reasonable changes in this syllabus.