

# COURSE DETAIL

## ALGEBRA II

**Country**

Korea, South

**Host Institution**

Korea University

**Program(s)**

Korea University

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Mathematics

**UCEAP Course Number**

102

**UCEAP Course Suffix****UCEAP Official Title**

ALGEBRA II

**UCEAP Transcript Title**

ALGEBRA II

**UCEAP Quarter Units**

4.50

**UCEAP Semester Units**

3.00

## Course Description

This course focuses on the basic concepts and theorems of Ring Theory and Field Theory, which are about generalized and abstracted properties of the set of integers and the set of rational numbers with respect to the four elementary arithmetic operations. Recommended Prerequisite: MATH321.

The course covers the following topics:

- Homomorphisms and Factor Rings
- Prime and Maximal Ideals
- Introduction to Extension Fields, Vector Spaces
- Algebraic Extensions
- Geometric Constructions
- Finite Fields
- Unique Factorization Domains
- Euclidean Domains
- Isomorphism Theorems, Series of Groups
- Sylow Theorems and its applications
- Automorphism of Fields
- The Isomorphism Extension Theorem
- Splitting Fields, Separable Extensions
- Galois Theory
- Cyclotomic Extensions
- Insolvability of the Quintic

## Language(s) of Instruction

English

## Host Institution Course Number

MATH362

## Host Institution Course Title

ALGEBRA II

## Host Institution Course Details

<https://infodepot.korea.ac.kr/lecture1/lecsubjectPlanView.jsp?year=2023&term=2R...>

**Host Institution Campus**

**Host Institution Faculty**

**Host Institution Degree**

**Host Institution Department**

Mathematics

**Course Last Reviewed**

2023-2024

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