Faculty of Eng. & Natural Sci.

MATH546-202201

Commutative Algebra -1

Instructor(s)

Name	Email	Office	Phone	Web	Office Hours
Ayesha Asloob Topaçoğlu	aqureshi@sabanciuniv.edu	FENS-1097	9943	http://myweb.sabanciuniv.edu/aqureshi/	

Course Content

It is an introductory course on commutative algebra, based on the book of M. F. Atiyah and I. G. Macdonald, titled ?Introduction to commutative algebra?. This course aims to cover the following topics. 1. Rings and ideals 2. Rings and Modules of fractions 3. Primary decomposition 4. Integral Dependence and valuations 5. Noether Normalization 6. Chain conditions 7. Noetherian and Artinian rings 8. The Nullstellensatz and Spec of a ring 9. Zariski topology on Spec of a ring 10. Graded rings and modules 11. Dimension theory

Objectives

To understand the basics of commutative ring theory

Recommend or Required Reading

Textbook

Introduction to Commutative Algebra by Michael Atiyah and I. G. Macdonald
Monomial ideals by Jürgen Herzog and Takayuki Hibi
Commutative ring theory by Hideyuki Matsumra

Assessment Methods and Criteria

	Percentage(%)	Number of assessment methods
Final	40	
Midterm	40	1
Exam	20	4

Course Outline

1) Rings and ideals
2) Rinsg and Modules of fractions
3) Primary decompostion
4) Chain conditions
5) Noetherian rings
6) Aritinian rings
7) Graded rings an dmodules
9) Dimension theory
10) Monomial ideals and ideal operations

Course Policies

class participation