

## The Department of Mathematics

2018–19–B term

**Course Name** Introduction to Commutative Algebra

**Course Number** 201.1.7071

**Course web page**

<https://www.math.bgu.ac.il/en/teaching/spring2019/courses/introduction-to-commutative-algebra>

**Lecturer** Prof. Ilya Tyomkin, <tyomkin@bgu.ac.il>, Office 213

**Office Hours** <https://www.math.bgu.ac.il/en/teaching/hours>

### Abstract

### Requirements and grading<sup>1</sup>

Rings and ideals (revisited and expanded). Modules, exact sequences, tensor products. Noetherian rings and modules over them. Hilbert basis theorem. Finitely generated modules over PID. Hilbert Nullstellensatz. Affine varieties. Prime ideals and localization. Primary decomposition. Discrete valuation rings.

### Course topics

- .1 Rings and ideals (revisited and expanded).
- .2 Modules, exact sequences, tensor products.
- .3 Noetherian rings and modules over them.
- .4 Hilbert's basis theorem.
- .5 Finitely generated modules over PID.
- .6 Hilbert's Nullstellensatz.
- .7 Affine varieties.

---

<sup>1</sup>Information may change during the first two weeks of the term. Please consult the webpage for updates



.8 Prime ideals and localization. Primary decomposition.

.9 Discrete valuation rings.