

# The Department of Mathematics

2017–18–A term

**Course Name** Commutative Algebra

**Course Number** 201.2.2011

**Course web page**

[https://www.math.bgu.ac.il/~amyekut/teaching/2017-18/comm-alg/course\\_page.html](https://www.math.bgu.ac.il/~amyekut/teaching/2017-18/comm-alg/course_page.html)

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

## Abstract

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

### Course topics

#### Course Topics

- .1 Modules: free modules, exact sequences, tensor products, Hom modules, flatness.
- .2 Prime ideals and localization: local rings, Nakayama's Lemma, the spectrum of a ring, dimension and connectedness.
- .3 Noetherian rings: the Hilbert basis theorem, the Artin-Rees lemma, completion, grading.
- .4 Dimension theory: the Hilbert nullstellensatz, Noether normalization, transcendence degree.

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