

## The Department of Mathematics

2018–19–A term

**Course Name** Algebraic Geometry - Schemes (1)

**Course Number** 201.2.0121

**Course web page**

[https://www.math.bgu.ac.il/~amyekut/teaching/2018-19/schemes-1/course\\_page.html](https://www.math.bgu.ac.il/~amyekut/teaching/2018-19/schemes-1/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>

The course will be in **English**. It will continue in the Spring semester, as: Algebraic Geometry - Schemes (2)

Course Topics (tentative, for both semesters; more details in course web site):

- .1 Sheaves on topological spaces.
- .2 Ringed spaces.
- .3 Affine Schemes.
- .4 Schemes.
- .5 Maps of schemes.
- .6 Morphisms to projective space and blow-ups.
- .7 Calculating some invariants.
- .8 The functor of points and moduli spaces.
- .9 Algebraic differential calculus.
- .10 Group schemes and their Lie algebras.

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



## Course topics

- .1 Sheaves on topological spaces
- .2 Affine schemes
- .3 Schemes and morphisms between them.
- .4 Quasi-coherent sheaves
- .5 Separated and proper morphisms.
- .6 Vector bundles and the Picard group of a scheme.
- .7 The functor of points and moduli spaces.
- .8 Morphisms to projective space and blow-ups.
- .9 Smooth morphisms and differential forms.
- .10 Sheaf cohomology.
- .11 Group schemes.