

## Spring 2015, Course 18.726, Algebraic geometry

MW 1:30–3, Room 36-112

**Instructor:** Roman Bezrukavnikov, office E17-426.

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The goal of the course is to introduce basic objects of today's algebraic geometry: schemes, (quasi)coherent sheaves, their cohomology and operations on them. Time permitting, at the end we will treat in more detail geometry of curves and surfaces and possibly touch upon some more advanced material (chosen from: some birational geometry, étale sheaves, algebraic stacks, derived categories in algebraic geometry).

**Prerequisites.** This is a continuation of course 18.725 from the fall semester. Students who did not take 18.725 but have had had some exposure to algebraic geometry and/or commutative algebra, or else are willing to work hard with new abstract concepts are also welcome to the class: the exposition will be mostly self-contained logically, though familiarity with the 18.725 material should be very helpful.

**Textbook.** I will mostly follow Hartshorne's book "Algebraic geometry" covering chapters 2, 3 with additional material taken from later chapters and appendices and other sources.

**Homework** There will be weekly homework assignments due on Friday by 3pm. You can bring it to my office or e-mail me the solution in any reasonable electronic format (including a *readable* scan of your handwritten paper).

**Course materials** including homeworks will be posted at:

[http : //math.mit.edu/ ~ bezrukav/18\\_726.html](http://math.mit.edu/~bezrukav/18_726.html)

**Office hours.** M 3-4; you are also welcome to stop by my office any time, send me an e-mail in advance if you want to make sure I am available.