Math 532 - Term 1, 2014-2015
Algebraic Geometry I

Time and Location: MWF 12-1, Room MATH 103.

Instructor: Kalle Karu
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Textbook: There is no required textbook. We will follow the lecture notes by Andreas Gathmann: http://www.mathematik.uni-kl.de/~gathmann/class/alggeom-2002/main.pdf.

Course description. This course covers the basic theory of algebraic varieties. We will start with varieties in affine and projective spaces, define the sheaf of regular functions on such varieties and study morphisms between varieties. Our goal is to define and work with abstract varieties, which can then easily be generalized to schemes.

Homework and Exams. Homework will be assigned regularly. There will be no exams, but there will be a final project.

Final Grade. Your final grade will be based on homework and the final project.

Other algebraic geometry books. Here is a list of other algebraic geometry books and lecture notes. The first three are very similar in spirit to the material in Andreas Gathmann's lecture notes.

- *Algebraic Geometry Course Notes* by J.S Milne,
  http://www.jmilne.org/math/CourseNotes/ag.html.

- A list of many other online lecture notes:
  http://www.fen.bilkent.edu.tr/~franz/LN/LN-algeo.html.

- *The Red Book of Varieties and Schemes* by David Mumford.

- *Basic Algebraic Geometry* by I. Shafarevich.

- *Algebraic Geometry: A First Course* by J. Harris.

- *Algebraic Geometry* by R. Hartshorne.