Math 532 - Fall, 2022
Algebraic Geometry I

Instructor: Kalle Karu
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Office hours: TBD.

Lectures: TuTh 2-3:30, West Mall Swing Space, Room 406.

Textbook: There is no required textbook. We will loosely follow the lecture notes by Andreas Gathmann: https://www.mathematik.uni-kl.de/~gathmann/de/alggeom.php

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 be generalized to schemes.

Homework and Exams. Homework will be assigned approximately every two weeks. There will be a total of 5-6 homework sets. The final exam will be a take-home exam similar to a longer and harder homework.

Final Grade. Your final grade will be based on homeworks and the final exam. The final exam is worth twice as much as a homework set.

Other algebraic geometry books. Here is a list of other algebraic geometry books and lecture notes.

- A list of many other online lecture notes:
  http://www.fen.bilkent.edu.tr/~franz/LN/LN-algeo.html
  (The notes by I. Dolgachev and J.S. Milne are very close to our course.)

- *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.

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