

**Kommutative Algebra und Algebraische Geometrie**  
(Commutative algebra and algebraic geometry)  
(326.0KA lecture, 326.0UK exercises)

Sommersemester 2020

**Prof. Dr. Franz Winkler**  
**DI Sebastian Falkensteiner**

**Time / Place:** Tue 14:30 -- 16:00 (VL) / HS 11  
                  16:15 -- 17:00 (UE) / HS 11  
                  Fri 10:15 -- 11:45 (VL) / K001A

**first lecture:** March 3

Classical algebraic geometry is the theory of algebraic curves, surfaces, and varieties in higher dimensions. Nowadays, such algebraic varieties are of high importance in computer aided geometric design, computer vision, cryptography, and other areas.

The algebraic theory which allows us to compute with such varieties is called commutative algebra. It is concerned with polynomial equations, polynomial ideals, and polynomial and rational mappings.

Participants in the course are expected to be acquainted with basics in (computer) algebra. Much of the material for this course will be taken from the book

J.R. Sendra, F. Winkler, S. Pérez-Díaz,  
*Rational Algebraic Curves – A Computer Algebra Approach*,  
Springer-Verlag Berlin Heidelberg, 2008 (ISBN 978-3-540-73724-7)

The exercise part consists of homework exercises and a project.

**Webpage:** [www.risc.uni-linz.ac.at/education/courses/ss2020/caag](http://www.risc.uni-linz.ac.at/education/courses/ss2020/caag)