

**Algebraic Geometry 2 (Geometria Algebraica 2) - 2016-2017**  
**C. Novelli**  
**University of Padova, Italy**  
**Faculty of di Mathematics, Physics and Natural Sciences**

It is open to students of the **Mathematics Master's Degree (Laurea Magistrale)**, and of the **Erasmus Master Mundus ALGANT program**.

**When:** From February 28th to May 31th

**Where:** TBA

**Total number of hours:** about 48 (6 credits).

**Examination:** seminar.

**Program**

Introduction to affine and projective varieties. Morphisms, rational maps and birational maps. Singularities and resolution of singularities. Blow-ups. Rational curves and divisors on varieties. Intersection of curves and divisors. Ampleness and cones of curves. Surfaces: Cone Theorem, birational classification and Minimal Model Program. Higher dimensional varieties: Cone Theorem, Contraction Theorem, Extremal Rays, contractions associated with extremal rays, introduction to Minimal Model Program and Minimal Models.

**Prerequisites** Basics on topology and commutative algebra. The course can be followed independently, but students attending Algebraic Geometry 1 will benefit most.

**References**

(1) Arnaud Beauville, Complex Algebraic Surfaces (Second Edition), London Mathematical Society, Student Text 34, Cambridge University Press, Cambridge, 1996.

(2) Olivier Debarre, Higher-Dimensional Algebraic Geometry, Universitext, Springer-Verlag, New York, 2001.

(3) János Kollár Shigefumi Mori, Birational Geometry of Algebraic Varieties, Cambridge Tracts in Mathematics 134, Cambridge University Press, Cambridge, 1998.

(4) Kenji Matsuki, Introduction to the Mori Program, Universitext, Springer-Verlag, New York, 2002.

(-) Further material will be available in the moodle page of the course.