

Math 622: Numerical Algebraic Geometry
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Syllabus of Math 622

The course covered the following topics and material around the topics.

1. Basic correspondence, including the Nullstellensatz, between affine and projective algebraic sets and ideals;
2. the irreducible/primary decomposition;
3. local theory of algebraic sets;
4. sheaf cohomology and coherent algebraic sets; projection formula;
5. basic examples such as ruled surfaces and their very ample line bundles;
6. numerical solution of polynomial systems; and
7. numerical manipulation of irreducible algebraic sets.