18.726 ALGEBRAIC GEOMETRY

İzzet Coşkun, T-Th 9:30-11:00

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Welcome to 18.726! This course is the second semester of the first year graduate algebraic geometry sequence. The aim of this course is to introduce schemes and sheaf cohomology. The course will develop the basic language and tools of algebraic geometry.

Course webpage: http://www-math.mit.edu/~coskun/18726.html

Venue: MIT room 2-146.

Text: Robin Hartshorne, Algebraic Geometry, Graduate Texts in Mathematics 52, Springer, 1977.

Prerequisites: 18.725 and 18.705. A familiarity with algebraic topology and the theory of complex or differential manifolds helpful. This course is intended for graduate students. Only under very very special circumstances should an undergraduate student take this course. Any undergraduate willing to take the course must see me.

Requirements: There will be weekly homework. The grade will be based entirely on the homework. There will be no midterm or final exams.

Topics: The following is a tentative list of topics that may be covered in the course:

Feb 6	Sheaves
Feb 8	Scheme
Feb 13	Examples of Schemes
Feb 15	Properties of Schemes
Feb 20	MIT Monday
Feb 22	Separated and proper morphisms
Feb 27	Sheaves of modules
Mar 1	Sheaves of modules
Mar 6	Divisors
Mar 8	Divisors
Mar 13	Projective morphisms
Mar 15	Projective morphisms
Mar 20	Differentials
Mar 22	Differentials
Mar 27	Spring Break
Mar 29	Spring Break

Apr 3	Derived functors
Apr 5	Cohomology of sheaves
Apr 10	Cohomology of sheaves
Apr 12	Cech cohomology
Apr 17	Patriots Day
Apr 19	Cohomology of projective space
Apr 24	Serre duality
Apr 26	Serre duality
May 1	Flat morphisms
May 3	Flat morphisms
May 8	Smooth morphisms
May 10	Smooth morphisms
May 15	Zariski's main theorem
May 17	Semi-continuity, cohomology and base change