

Mathematics 211A
Fall 2001

Instructor: Professor R. Alperin; Office: Duncan 239; Telephone: 924-5066;
E-mail: alperin@mathcs.sjsu.edu

Text: *Projective Geometry* by P. Samuel, Springer-Verlag

Course: Projective Geometry

The main goal of this course is to introduce the students to the ideas of projective geometry, transformations and relations to conics. This is foundational material useful for the modern study of varieties, for example. Moreover, methods of projective geometry are important in understanding other important geometries and related combinatorial structures, and also algorithms used in computer graphics.

There will be a second semester of this course which will cover the parts of the text not covered in this first semester and also other aspects related to algebraic curves, especially cubic and quartic curves. Curves have been extremely useful in modern aspects of error correcting codes, besides being fascinating geometrical quantities.

Your final grade is based on the point total on two (take home) tests and homework. Homework will be assigned each class. Students must prepare a notebook of homework assignments which will be collected as announced.

Chapter 1: **Projective Spaces**

Sections 1-5, 6-7 (possibly)

Chapter 2: **One Dimensional Projective Geometry**

Sections 1-5, 7, 8

Chapter 4: **Polarity With Respect To A Quadric**

Sections 1-4