Algebraic Geometry I
Math 986 – Fall 2013
Section 001
Syllabus

Instructor: Dr. Jim Brown

Office: Martin O-324

Phone: 864-656-2331

Email: jimlb@clemson.edu

Class Meeting:
MWF: 10:10 - 11:00 Daniel 401

Office Hours: M: 14:00 - 15:00
Th: 10:00 - 11:00
(and by appt. if you don’t want to fight off the ugrads)

Textbook:
Lectures on Algebraic Geometry I and II by G. Harder, ISBN 3-834-81844-5
and 3-834-80432-0

Material: affine and projective varieties, Hilbert’s Nullstellensatz, the Zariski
topology, the sheaf of regular functions, regular and rational maps, dimen-
sion, the Zariski tangent space, the concept of smoothness, degree, the Hilbert
polynomial, blowing up, divisors, line bundles and maps to projective space,
the Riemann-Roch formula for curves. Considerable attention will be paid
to the rich examples of classical algebraic geometry: Grassmannians, flag va-
rieties, curves, Segre and Veronese maps, blow-ups, quadrics, determinantal
varieties. We will also touch on the idea of schemes and of varieties as func-
tors, though these concepts will be developed only as examples, not formally
or precisely.

**Grading:** There will be homework collected roughly every two weeks. You are strongly encouraged to work with others on the homework sets, but you must turn in your own solutions.

The grading scale will be no worse than the following:

$\geq 90\%$  A
$\geq 80\%$  B
$\geq 70\%$  C
$\geq 60\%$  D

This means if your final grade is a 90%, you will receive an A for sure. However, it may be the case that your final grade is an 85% and you receive an A.