

## MATH 595: AFFINE ALGEBRAIC GROUP SCHEMES

WILLIAM J. HABOUSH

This will be a course devoted to affine algebraic groups covering roughly the material in the first eight chapters of T. A. Springer's book, *Linear Algebraic Groups*, Second Edition. This will be supplemented by material from SGA III, specifically the theory of invariant differential operators (the "hyperlgebra") and a computation of the differential operators of a reductive algebraic group based on a paper of mine in the *Seminaire d'Algebre Paul Dubreil* of 1980. I will also discuss finite group schemes and duality. I hope to cover solvable and parabolic groups, root systems, the Weyl group, homogeneous spaces as well as induced bundles on them, particularly line bundles, the Bruhat decomposition and the Borel Weil theorem if time permits.