September 25: V. Lakshmibai (Northeastern), "A standard monomial basis for the variety of nilpotent matrices."

We construct a "standard monomial basis" for the coordinate ring of the variety of nilpotent matrices in the space $M(n)$ of n by n matrices (over a field of characteristic 0). For this construction, using a result of Lusztig, we identify the variety of nilpotent matrices with a open subset of a Schubert variety in the affine grassmannian $\widehat{Gr}_n$. We then use the Plücker coordinates on the affine grassmannian $\widehat{Gr}_n$, and construct the required basis as certain monomials in the Plücker coordinates (in the same spirit as that of Hodge's work on the classical Grassmannian).