Lecture 4 Outline

1. Newton's Method & Policy Function Iteration.
2. Mapping the LQ/PI model into the LQG model. A trick to enforce L^2.
3. A Lagrangian/Invariant Subspace Approach. Symplectic matrices.
4. The Kalman Filter. The 'separation principle'.
5. Duality between Kalman filtering and LQG control. Least Squares vs. MLE.
6. Muth's example (again).
7. The Kalman filter vs. the Wonham filter. Hidden Markov models.
8. Linear vs. nonlinear filtering. The EM algorithm & extended Kalman filter.
9. Agents as Econometricians. Nonlinear filtering or Robust linear filtering?