**STATISTICS 582:**
**Advanced Theory of Statistical Inference**
**Winter, 2010**

# Tentative Outline

1. **Chapter 4: Efficient Likelihood Estimation and Related Tests, continued**
    - Consistency of maximum likelihod estimates.
    - The EM algorithm and related methods.
    - Nonparametric and semiparametric MLE.
    - Limit theory for the statistical agnostic: $P \notin \mathcal{P}$.
2. **Chapter 5: Bayes Methods and Elementary Decision Theory**
    - Elementary Decision Theory
    - Structure of the risk body: the finite case
    - The finite case: relations between Bayes minimax, admissibility
    - Posterior distributions
    - Finding Bayes rules
    - Finding Minimax rules
    - Admissibility and Inadmissability
    - Asymptotic theory of Bayes estimators
    - Nonparametric Bayes estimation
3. **Chapter 6: Testing**
    - Neyman - Pearson tests
    - Unbiased tests; Conditional tests; Permutation tests
    - Invariance in testing; Rank methods
    - Local asymptotic theory for testing: more contiguity theory