

STATISTICS 582:
Advanced Theory of Statistical Inference
Winter, 2015

Tentative Outline

1. Chapter 4: Efficient Likelihood Estimation and Related Tests, continued

- 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 Inadmissibility
- 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