Fundamentals of Mathematical Statistics 2018

Overview
Ch. 2:

Method of moments
  ○ definition
  ○ examples
Maximum likelihood
  ○ definition
  ○ examples

Ch. 3:

background
knowledge

Ch. 4:

Sufficiency
  ○ definition
  ○ Factorization Thm
  + proof (discrete case)
  ○ examples

Exponential families
  ○ definition
  ○ canonical form
  ○ Lemma 4.5.1 + proof
  ○ examples
Ch. 5:
- Bias
  - definition
  - examples
- Bias-variance
decomp. + proof
- UMVU (def.)
- Completeness
  - definition
  - Lemma 5.4.1 (no proof)
- Lehmann-Scheffé
  - proof
  - examples
- Score function
- Fisher information

Ch. 5 cont.:
- CRLB
  - proof
  - examples
  - Lemma 5.6.1

Ch. 6:
- Pivot
  - definition
  - examples
- Equivalence conf. sets & tests
- Two sample test
  - Student
  - Wilcoxon
Ch. 7:

Neyman-Pearson Lemma
  + proof

UMP-test one-sided
  + proof (discrete case)
    ○ examples

UMPU-test
  ○ definition
  ○ Thm 7.5.1 (no proof)
  ○ examples

Ch. 8:

Rao-Blackwell Lemma
  + proof

Ch. 9:

Equivariance
Invariance
UMRU
  ○ definition
  ○ construction
  ○ Basu’s Lemma
  + proof
  ○ examples
Ch. 10:

Risk
  - definition
  - examples

Admissibility
  - definition
  - examples
    (e.g. NP-test)

Minimaxity
  - definition
  - examples
    (e.g. NP-test)

Bayes
  - definition
  - examples
    (e.g. Bayes test)
  - construction

Ch. 11:

Extended Bayes

Lemma 11.1.1 + proof
  - examples

Lemma 11.2.1 + proof

Lemma 11.2.2 + proof

$X \sim \mathcal{N}(\mu, 1), \mu \in \mathbb{R}$
  - (in)admissible estimators of $\mu$
    + proof

Ch. 12:

LS estimator
  - definition

Lemma 12.3.1 + proof
Ch. 13:
Almost sure convergence
Convergence in probability
Convergence in distribution
Stochastic order symbols
CLT
Slutsky’s Thm + proof
Consistency
Asymptotic normality
Asymptotic linearity
$\delta$-technique
Ch. 14:
M-estimator
  o definition
  o examples
Lemma 14.1.1 + proof
Thm 14.2.1 + proof
Thm 14.2.2 + proof
Influence function
  M-estimator
  (without proof)
Asymp. rel. efficiency
  o definition
  o examples
Ch. 14 cont.:

Lemma 14.8.1 (no proof)
  ○ examples

Lemma 14.10.1 (no proof)
  ○ examples