STATISTICS 522:
Advanced Theory of Probability
Winter, 2017

Tentative Outline

The lectures in 522 will cover parts of Shorack's Chapters 6-7, 8, 11- 18.

- Chapter 8.
  - Section 8.5: Applications of the Laws of Large Numbers
  - Section 8.8: Convergence of Series of Independent RV's
- Chapter 7. Independence and Conditional Distributions
  - Section 7.4: Basic Properties of Conditional Expectation
  - Section 7.5: Regular Conditional Probability
- Chapter 9. Convergence in Distribution
  (Characteristic Functions and Determining Classes)
- Chapter 14. Convergence in Law on Metric Spaces
- Chapter 10. Central limit theorems (CLT's)
  - Sections 10.0 - 10.5: CLT's via Characteristic Functions
  - Sections xx - yy: CLT's via Stein's method
- Chapter 11. Infinitely Divisible and Stable Distributions

STATISTICS 523:
Advanced Theory of Probability
Spring, 2013

Tentative Outline

- Chapter 5, continued: Stochastic Processes.
- Chapter 13. Martingales.
- Chapter 12. Brownian motion and Empirical Processes.
- Chapter zz. An introduction to stochastic calculus.