

Math 12640: Advanced Theory of Statistics
Fall 2014

Lectures: Monday 10:10 am–12:00 noon, Wednesday 8:00–9:50 am even weeks, 421 Teaching Building 2

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Office hours: Monday 1:30–2:30 pm or by appointment, 28 Quanzhai

Teaching Assistant: Bochuan Jiang (jiangbochuan30871@163.com, 158-1101-6359)

Office hours: Monday 12:30–1:30 pm, 2516 Science Building 2

Required Texts:

1. *Mathematical Statistics* (2nd ed.), by J. Shao

2. *Asymptotic Statistics*, by A. W. van der Vaart

Supplementary Texts:

1. *Mathematical Statistics: Basic Ideas and Selected Topics*, Vol. I (2nd ed.), by P. J. Bickel and K. A. Doksum

2. *Theory of Point Estimation* (2nd ed.), by E. L. Lehmann and G. Casella

3. *Testing Statistical Hypotheses* (3rd ed.), by E. L. Lehmann and J. P. Romano

4. *Introduction to Empirical Processes and Semiparametric Inference*, by M. R. Kosorok

5. *Weak Convergence and Empirical Processes: With Applications to Statistics*, by A. W. van der Vaart and J. A. Wellner

Topics:

We will approximately cover Chapters 1–4 and 6 of Shao (12 weeks) and Chapters 18–20 and 5 of van der Vaart (4 weeks). The following topics will be covered: fundamentals of statistics, unbiased estimation, point estimation in parametric models, hypothesis testing, asymptotic theory, and an introduction to empirical processes.

Homework:

There will be about 8 homework assignments, due every other Monday starting Week 3. If you missed the class, contact the TA to turn in your homework by the end of the day. No late homework will be accepted.

Exams:

There will be a midterm exam on Saturday, November 15 (Week 9) and a final exam on Thursday, January 8 (Week 17), both closed book. The final will be comprehensive, with an emphasis on materials covered since the midterm.

Grading:

The breakdown of the course grade is as follows: homework 20%, midterm 40%, final 40%.

Web:

Weekly topics, homework assignments, exam statistics, and other important announcements will be posted throughout the semester on the course website at <http://www.math.pku.edu.cn/teachers/linw/12640f14.html>. Please check it regularly.