
Moulinath Banerjee

University of Michigan

September 10, 2006

1 Instructor information.

Instructor: MOULINATH BANERJEE.

Office: 451, West Hall.

e-mail: moulib@umich.edu

Course web-page: www.stat.lsa.umich.edu/~moulib/stat612.html

Office Hours: Walk-ins or by appointment.

2 Course information.

In what follows I will attempt to describe what one would ideally like to cover for the course, though depending on time constraints we may end up covering a subset of the topics listed below. Let me first list down a set of books and notes that are relevant/potentially relevant.

(1) Stat 612 Notes 0 – 5, on the course webpage. There are some typos here, so be a bit careful when reading. I’ll try to pick out as many as I can.


(3) Elements of Large Sample Theory, Lehmann.

(4) Testing Statistical Hypothesis, Lehmann and Romano.


TOPICS:

(a) Asymptotic Theory for Likelihood Based Inference (emphasizing Parametric Models), Efficiency and Large–Sample Optimality. Some references are: 612 Notes, 0–3, Chapters 11–13 of Lehmann and Romano, Chapter 6 of Lehmann and Casella, Chapter 7 of Lehmann, Chapters 2–4 of Wellner’s lecture notes.

(b) Density Estimation and Nonparametric Regression (Wasserman is a good general reference, but not for (i); also, see Chapter 24 of van der Vaart). Three main topics will be discussed: (i) Isotonic Regression (Stat 612 notes, 4–5). (ii) Kernel Density Estimation (Chapter 6 of Lehmann). (iii) Spline based estimation (Keener’s lecture notes).

(c) Weak Convergence in Metric Spaces. (Billingsley and Keener’s notes)

(d) Resampling Techniques. (Chapter 15 of Lehmann and Romano, Chapter 6 of Lehmann, Keener’s lecture notes, “The Bootstrap and the Jacknife” from Wellner’s lecture notes, Chapter 3 of Wasserman; related books: Efron and Tibshirani’s “An Introduction to the Bootstrap” and Politis, Romano and Wolf’s “Subsampling”)

(e) Empirical Processes and the Functional Delta Method. (Chapters 19 and 20 of van der Vaart; two classics are Shorack and Wellner’s “Empirical Processes with applications to Statistics” and van der Vaart and Wellner’s “Weak Convergence and Empirical Processes”)