SURV798Z/SURVMETH 895 001: Bayesian Methods

Meeting time and place: Monday, 9:30am-12:00; 1208 Lefrak Hall/ Univ. of Michigan, ISR 4036. We will follow UMD schedule for this course. The first day of class: Monday, January 27, 2014.

Instructor: Partha Lahiri, Joint Program in Survey Methodology, University of Maryland, College Park; Phone: 301-314-5903; FAX 301-314-7912; Email: plahiri@survey.umd.edu

Office hours: Monday, 9-9:30am and 12:12:30pm or by appointment (please send me an email to make an appointment)

Webpage for the course: Course materials will be posted on http://ctools.umich.edu (you will need a userid and password to enter the site).

Prerequisite: STAT/SURV 410 and STAT/SURV 420 or equivalent. If you are unsure about your qualifications for the course, please contact the instructor.

Non-Degree Students: How to Enroll
http://www.jpsm.umd.edu/graduate/non-degree-students-how-enroll

Text Book

Other readings/websites will be provided as needed.

Additional Reference:

Course Outline: The purpose of the course is to provide a blend of theory, methods, and applications. The course will begin with a review of relevant concepts of classical statistical inference, which is needed to compare different paradigms. Following this, elements of the Bayesian inference and decision theory will be introduced in order to emphasize the advantages and challenges of the Bayesian methods. The course will cover a wide range of topics in Bayesian analysis, including objective priors, model selection, Bayesian computations, high-dimensional problems, Bayesian analysis with missing data and finite population sampling. The course emphasizes data analysis via modern computer methods and R freeware packages that are introduced and used throughout the course.

Grading: Your final course grade will be based upon homework assignments (50%), one midterm (20%), and a final exam (30%). The homework problems will include theoretical and applied questions, mostly from the text. Assignments will be given out as appropriate throughout the semester, and will generally be due one week after they are assigned. Students should try to do their own work on these problems; I am available for questions, of course. The midterm will be in-class (open-book). For data analysis, your write-up must be a careful report of your models, methods, interpretations, and conclusions -- as if you were making a final report to a supervisor who has statistical training, but doesn't want to get bogged down in the details. Include only the relevant parts of your computer output in your report, labeling all plots, variables, and so forth. You need not get too carried away -- always substitute prose for output where possible.