

**SURV 798B Sec 0101/SURV 798B SV 01
Spring, 2011**

SMALL AREA ESTIMATION

Meeting time and place:

Friday, 1:30-4:00PM

1208 Lefrak Hall/BLS Conference Room 10/ISR [video course]

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

Webpage for the course: <http://www.jpsm.umd.edu/surv798b>

Homework: 50%

Term Paper: 50%

Course Outline

There is a growing demand to produce reliable estimates of various socio-economic and health characteristics at both national and sub-national levels. However, data availability at the sub-national (small area) level from a survey is often limited by cost and thus analysts must make the best possible use of all available information. The course begins with a history of small-area estimation and different uses of small-area statistics in both public and private sectors. This course provides an introduction to important concepts in small estimation and describes various approaches for estimating different small area parameters. Topics include standard design-based methods, various traditional indirect methods and the state-of-the-art small-area estimation methods that use both Bayesian and empirical best prediction methods. Derivation of formulas will be presented wherever necessary to explain some of the advanced topics. Data analyses using a few real life examples will be presented. R and Brugs will be used throughout the course. The basics of R and Brugs will be taught in the class so no prior experience with R and Brugs is required.

Prerequisites

Knowledge of Master's level estimation theory, multiple linear regression, analysis of variance, and sampling.

Course Materials

From time to time, homework and course notes will be posted on the course website.

Reference Book: Rao, J.N.K. (2003), Small Area Estimation, Wiley.