

PhD School in Statistics

Specialist course on

SMALL AREA ESTIMATION

by

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From July 13 to July 17, 2009

10.00 – 12.00

14.30 – 16.30

Aula Cucconi

Topics

- Basic elements of survey sampling
- Introduction to small area estimation
- Direct and Indirect estimators in domain estimation
- Model-based approaches to small area estimation
- Area-level and unit-level models
- Empirical best linear unbiased prediction (Point estimation, Mean squared error estimation, Confidence intervals)
- Hierarchical Bayes and empirical Bayes methods in small area estimation
- Time series and cross-sectional approaches to small area estimation
- Measurement error models in small area estimation

Text: Lectures will be based on the book "Small Area Estimation, by J.N.K. Rao, 2003, Wiley". The authors has written a number of research papers and review papers on a number of topics described above. Often lectures will be drawn from research conducted by the instructor and other researchers in the field. Two recent review articles by the instructor that include a set of useful references on small area estimation are

- (i) Datta, G.S. Model-based small area estimation. To appear in *Handbook of Statistics* edited by D. Pfeiffermann and C.R. Rao, 2008.
- (ii) Datta, G.S. and Ghosh, M. (2008). Small area shrinkage estimation.