UNIVERSITÀ DEGLI STUDI DI PADOVA
DIPARTIMENTO DI SCIENZE STATISTICHE

UNIVERSITÀ DEGLI STUDI DI PADOVA

PhD COURSE IN STATISTICS
Department of Statistical Sciences

Specialist Course

MEASUREMENT ERROR

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Aula Cucconi

September 15-16, 2014

Schedule

Monday, September 15	**10.30 – 12.30**
	14.30 – 16.30
Tuesday, September 16	**10.30 – 12.30**
	14.30 – 16.30

http://www.stat.unipd.it/fare-ricerca/corsi2014

Measurement Error

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Measurement error occurs in statistical analysis, when variables cannot be observed exactly. Measurement error and misclassification, which can be seen as measurement error for discrete variables, can lead to serious problems in the correctness of the statistical analysis. Resulting estimates can be biased and the inference is possibly incorrect.
In the first part of the lecture, an introduction to problems induced measurement error and misclassification is given. Then methods for taking into account measurement error in the statistical analysis are presented. A focus is on the SIMEX (simulation extrapolation) approach, which is a general computer intensive method, and on Bayesian strategies on measurement error modelling.
Examples form epidemiology, where the effect of exposure measurement error is a relevant issue, will be discussed.

Literature:

Raymond J. Carroll, David Ruppert, Leonard A. Stefanski and Ciprian Crainiceanu: Measurement Error in Nonlinear Models: A Modern Perspective, Chapman & Hall 2006

John P. Buonaccorsi. Measurement Error: Models, Methods, and Applications (Chapman & Hall/CRC Interdisciplinary Statistics), 2010

Lederer W and *Küchenhoff* H. A short introduction to the simex and mcsimex. *R-NEWS*, 06(4):26 - 31, 2006. http://cran.r-project.org/doc/Rnews/Rnews_2006-4.pdf