

Kolloquium „Statistische Methoden in der empirischen Forschung“

Wann: 29. Januar 2013, 17:00 – 18:30 Uhr

Wo: Landwirtschaftlich-Gärtnerische Fakultät der HU, Hörsaal 2, 2. Etage,
Invalidenstr. 42, 10115 Berlin

Monika Jelizarow (mit Ulrich Mansmann, Ludwig-Maximilians Universität München)

Global tests for ordinally scaled data – on test statistics and when (not) to permute

In the past decade, global tests have become a popular tool for the statistical analysis of gene expression or metabolomic data when the primary objective is to test gene sets rather than individual genes for association with some clinical outcome. Less attention has been constrained to the development of such tools for nominal and ordinal data, although especially the latter can often be grouped into sets that might be of more interest to the researcher than the results of a standard univariate analysis.

Motivated by recent work on global tests for multiple endpoints underlying a multivariate discrete distribution (Agresti and Klingenberg, 2005; Klingenberg et al., 2009), the aim of this talk is to provide two-sample global test statistics that are sensitive towards marginal inhomogeneity in potentially high-dimensional ordinal data. Particular emphasis is put on the discussion of the validity of permutation-based inference when the true interest lies in marginal distributions. We investigate the proposed global test statistics and illustrate some limitations of the popular permutation procedure. We apply our methodology to data collected based on the International Classification of Functioning, Disability and Health (ICF).