PhD Program Public Health

Analysis of Data with Measurements Below the Detection Limit

Description	Measurements below the detection limit (nondetects) are a common phenomenon in environmental and medical research. A common approach is to substitute a fraction of the detection limit for each nondetect. However, such substitution results in poor estimates of summary statistics and produces unrealistic standard errors in regression models. The aim of the course is to provide participants with an understanding of the basic concepts in the analysis of data with nondetects. It will be demonstrated how substituting values for nondetects can ruin study results, and what can be done about it. Main concepts to be covered include: estimating summary statistics with nondetects using Kaplan-Meier, ROS and maximum likelihood estimation (MLE), estimation of 95% confidence intervals, plotting data with nondetects (e.g. boxplots, probability plots), statistical tests with nondetects and regression analyses with nondetects. The course software will be R. If not familiar with R, it is strongly recommended to visit the SSPH+ course "Introduction to the Statistical Software R" organized by Jan Hattendorf
Objectives	By the end of the course, participants will know the methods that can be used for analyses with data containing nondetects. They will be able to perform and evaluate own analyses of data with nondetects.
Dates	**6-8 May 2013**
Eligibility	The course is aimed at researchers, public health specialists and health care professionals who want to perform analyses of data with nondetects. This is an advanced statistical course. Participants should be familiar with basic statistical methods.
Course Structure	This is a statistical methods course. We will follow a non-mathematical approach and focus on the practical application of the techniques on datasets from epidemiological research. The course will run over three days with interactive lectures and

PhD Program Management:

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	computer practicals. Participants need to bring a laptop to the course. The statistical software R has to be installed.
Assessment	Active participation in the exercises, exam
Credits	**1 ECTS** Preliminary Work: 4 h, Contact: 21 h, Wrap-Up Work: 5 h 1 ECTS corresponds to appr. 30 hours workload
Facilitators	Prof. Martin Röösli Head of the Unit for Environmental Health Risk Assessment Swiss Tropical and Public Health Institute Socinstrasse 57, 4002 Basel, Switzerland
Location	Basel, details will be announced
Course Fees	SSPH+ PhD Students CHF 0.- Other PhD Students CHF 300.- Other Academics CHF 850.- Others CHF 1250.-
Registration	Online under www.ispm-unibasel.ch
Deadline	**01.04.2013**
Max. Attendance	**20**

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