

## Nondetects and other types of missing data in observational epidemiologic studies

### Description

Missing data are common in real datasets. Most often data are not missing randomly. Also non-participation and loss to follow-up are in fact (not-random) missing data problems, which can severely compromise a study's validity. Another form of not-random missing data are measurement values which are below the detection limit of a measurement device or diagnostic tool, which results in censored observations of low values.

Failure to adequately deal with missing data produces biased results. The aim of the course is to provide participants with an understanding of the basic concepts and general techniques for dealing with missing data. The course software will be R. Main concepts to be covered include: imputation techniques for missing data, dealing with selection bias and lost to follow-up from the perspective of "missing data", censoring of data, analysis of data with measurements below the detection limit, tobit regression and statistical tests with censored data.

### Objectives

By the end of the course participants will be able to adequately deal with missing data. Participants will be able to perform and evaluate own analyses of missing data.

### Dates

**Mon 4 – Wed 6 April 2016**

### Eligibility

The course is aimed at clinicians, researchers, public health specialists and other health care professionals who want to perform epidemiological data analyses. This is an advanced statistical course. Participants should know the principals of linear and logistic regression modelling and practical experience with linear regression analysis is required. Knowledge of the statistical software R is needed (see also PhD course introduction to R).

### Course Structure

This is a statistical methods course. We will follow a nonmathematical approach and focus on the practical application of the techniques on datasets from epidemiology and prevention research. The course consists of interactive lectures and computer practicals. You have to

### PhD Program in Public Health:

Program Coordination Ann Walser  
Academic Lead Prof. Matthias Egger  
Prof. Thomas Abel  
Dr. Nicole Bender

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	bring the own laptop to the course (R has to be installed.) We will conclude with a question and answer session and an exam.								
<b>Assessment</b>	Written exam								
<b>Credits</b>	<b>1 ECTS</b> Preparation Work: 4 h, Contact: 24 h, Follow Up: 2 h 1 ECTS corresponds to appr. 30 hours workload								
<b>Facilitators</b>	<b>Professor Martin Röösl</b> i (Head of the Environmental Exposures and Health Unit, Swiss Tropical and Public Health Institute, CH-Basel) Dr. Jan Hattendorf, Swiss Tropical & Public Health Institute								
<b>Location</b>	<b>Basel</b> , details will be announced								
<b>Course Fees</b>	<table border="0"> <tr> <td>SSPH+ PhD Students</td> <td>0.—</td> </tr> <tr> <td>External MD/PhD Students</td> <td>300.—</td> </tr> <tr> <td>External Academics</td> <td>850.—</td> </tr> <tr> <td>Others</td> <td>1250.—</td> </tr> </table> <p>(The cost scheme depends on the Number of ECTS. Per ECTS participants are asked to pay 300,- CHF, 850,- CHF or 1250,-CHF, respectively)</p>	SSPH+ PhD Students	0.—	External MD/PhD Students	300.—	External Academics	850.—	Others	1250.—
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External MD/PhD Students	300.—								
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<b>Registration</b>	<a href="#">Please register online on our website</a>								
<b>Deadline</b>	<b>4 March 2016</b>								
<b>Max. Attendance</b>	20 (preference is given to SSPH+ PhD Students)								

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