

# Missing data in observational epidemiologic studies including non-detects

## Facilitators

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## 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: multiple imputation
- dealing with selection bias and lost to follow-up
- analysis of data with measurements below the detection limits
- regression analysis and statistical testing of 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

**1 – 3 July 2025**

## Eligibility

This course is aimed at SSPH+ PhD students, 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 non-mathematical 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 bring your own laptop to the course (R has to be installed.) We will conclude with a question and answer session and an exam.

## Assessment

Written exam

## Credits

**1 ECTS**

Preparation Work: 4 h, Contact: 24 h, Follow Up: 2 h

(1 ECTS corresponds to approx. 30 hours' work)

## Location

Swiss TPH, University of Basel, details will be announced

## Course Fees

IGC Course fees	1 ECTS
SSPH+ IGC PhD and MD Students	30 CHF
Postdocs from SSPH+ partner institutes	30 CHF
External PhD students, external MD Students and Swiss Public Health Doctors in training	300 CHF
Others	800 CHF

## Registration

<https://www.conftool.com/ssph-phd-courses2025/>

## Deadline for Registration

1 June 2025