# Introduction into multilevel modelling of clustered data

## Facilitator

**Prof. Martin Röösli**  
Swiss TPH, University of Basel

## Description

Real data are often clustered such as repeated measurements on the same subject or measurements in grouped subjects (e.g. family or school studies). Failure to allow for clustering results in erroneous standard errors and confidence intervals. The aim of the course is to provide participants with an understanding of the basic concepts and general techniques in the analysis of clustered data. Valid analysis methods appropriate for clustered data will be introduced. The course software will be Stata, although R may also be used. Main concepts to be covered include: clustering, random intercept, random slope, linear and logistic random-effects models (multilevel models, mixed models, hierarchical models), robust standard errors, generalized estimating equations (GEE), modelling strategy, model diagnostics.

## Objectives

By the end of the course participants will be able to define the appropriate analysis method for a clustered data set. Participants will be able to perform and evaluate own analyses of clustered data.

## Dates

29 June – 01 July 2022

## Eligibility

The course is aimed at SSPH+ PhD students, clinicians, researchers, public health specialists and other health care professionals who want to perform analyses of data with clustered structures. 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. Basic knowledge of Stata is an advantage. Alternatively, skilled R users are also welcome but have to expect less technical support for their scripts.
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 bring your own laptop to the course (Stata has to be installed.) We will conclude with a workshop discussing your own data.

Assessment
Written exam

Credits
1 ECTS
Preparation Work: 4 h, Contact: 24 h, Follow Up: 2 h
(1 ECTS corresponds to appr. 25-30 hours workload)

Location
University of Basel, details will be announced

Course Fees
SSPH+ PhD Students 30.- CHF (processing fee)
PPHS PhD Students 30.- CHF (processing fee)
External MD/PhD Students 300.- CHF
External Academics 850.- CHF
Other Participants 1250.- CHF
(The cost scheme depends on the Number of ECTS. Per ECTS participants are asked to pay 300.- CHF, 850.- CHF or 1250.-CHF, respectively)

Registration
https://www.conftool.com/ssph-phd-courses2022

Deadline for Registration
29 May 2022