

# Short course on Missing Data

Do you need to analyze incomplete data sets and are you looking for practical tools to handle missing data in your analyses?

**When?** Three full days: May 29, 30 and 31, 2017, 9 am to 12.15 pm and 1.15 pm to 4.30 pm

**Where?** Ghent University, Faculty of Science, Site Sterre, Krijgslaan 281, building S9, Ghent

## Course description?

Missing data (i.e. data that were intended to be collected, but were not) form an **important problem** in many statistical data analyses. Many statistical software packages include by default only the subjects without missing data in the analysis. This seemingly simple solution is problematic for the following two reasons.

First, in many cases, **subjects without missing data form a selective subgroup**. Statistical results obtained for that group may not generalize to the intended study population.

Second, this makes **inefficient use of the observed data** by discarding information from subjects whose data was only partially missing.

The goal of this course is to **develop an understanding of the fundamental problems** caused by missing data **and some possible solutions**. We will see how overly simplistic methods of correction for missing data (such as single imputation and last-value-carried-forward) may fail. We then **provide methods for valid analysis** under more general conditions including likelihood-based model estimation, weighting and multiple imputation.

We will emphasize the **distinction between** data missing completely at random (**MCAR**), missing at random (**MAR**) or missing not at random (**MNAR**) and illustrate their implications in standard analyses.

In addition, considerable attention will be given to the relative **advantages and limitations of the different** missing data **approaches**.



**Lecturer?** Dr. Ineke van Gremberghe is post-doctoral fellow at Ghent University. She obtained a master degree in Biotechnology, a PhD in Biology and a master degree in Statistical Data Analysis at Ghent University. She works as FLAMES coordinator and statistical consultant for Stat-Gent Crescendo. She has experience in statistical data analysis of different types of data (data visualisation, linear mixed models, causal mediation analysis, multivariate methods) and in R programming.

**Course prerequisites?** Participants are expected to be familiar with basic statistical data analysis and linear regression analysis.

**Enrolling?** [www.ipvw-ices.UGent.be](http://www.ipvw-ices.UGent.be) > English > Statistics 2016-2017 > Module 10 – Missing Data > Enrol  
Enrolling is possible up until Tuesday May 23, 2017

