**Description**

In this course we will cover the basics of biostatistics and the participants will learn how to analyze research data using SPSS. Subjects covered are among others: descriptive statistics; the principles of statistical estimation and testing; cross tabulation and chi-square test; Student t-test, ANOVA and the correspondence with non-parametric counterparts; simple regression and correlation; interpretation of observational data including confouning, selection and measurement bias, multiple testing and sample size calculation.

Every morning we convene for two lectures with discussions. The lecture slides as well as additional lecture materials will be made available electronically, see 'Course Documents'.

The rest of the day all participants work on their own PC’s/laptops using an e-learning module. A personal account for the elearning will be emailed to you a few days before the course starts. The e-learning can be reached at [https://cloud.sowiso.nl](https://cloud.sowiso.nl/). The e-learning contains an option for posing questions electronically while working on the content. Other participants can then see, react to or learn from your question/the answer. Alternatively, you may also ask for assistance via e-mail or telephone (see below).

At the end of the day, *questions can be posed and are discussed* during the question session. All exercises and data are available through the e-learning environment.

For at most 20 participants from outside the LUMC it is possible to work on the e-learning in an office with Internet access. Non-LUMC participants with a non-windows PC (like a Mac) should make sure they obtain and install (an evaluation version of) SPSS before the course. You can find a trial version at <http://www.ibm.com/analytics/us/en/technology/spss/spss-trials.html>.  For non-LUMC participants with a Windows PC, we have a number of USB sticks with the same trial version available. We can not give any support for non-windows PC's.

All LUMC participants should make sure they have access to SPSS and should work on their own PC’s at any location convenient for them.

All participants are requested to install Chrome to use as a browser for the e-learning.

**Qualifications and Goals**

* Study design
* Causality, inclusing Directed Acyclic Graphs (DAGs) and bias
* Descriptive statistics
* Probability calculus
* Hypothesis testing and confidence intervals
* Comparing numerical variables (t-test, ANOVA, Mann-Whitney U test, Kruskall Wallis test)
* Comparing categorical variables (chi-square test)
* Simple linear regression and correlation
* Multiple testing
* Good statistical practise
* Sample size calculation