

**Keynote speaker: Mirjam Moerbeek (Utrecht University)**

**Title: “Sample size calculations”**

**Abstract:**

One of the main steps to be taken in the design of a study is the calculation of sample size. In this presentation I will give a summary of my past, present and future research on this topic, with a focus on cluster randomized trials. With cluster randomized trials, complete clusters such as schools, general practices or neighborhoods are randomized to treatment conditions and all subjects in the same cluster receive the same condition.

The first part of this presentation focused on sample size calculations from a frequentist point of view. It will be shown how to calculate how many clusters and how many subjects per cluster should be included in the trial. These sample sizes can be shown to depend on the intra-class correlation coefficient. An a priori estimate of this model parameter is not always available and various approaches to deal with this will be discussed.

The second part of this presentation focuses on Bayesian sample size calculation. It will be shown how the Bayes factor is used to evaluate informative hypotheses and a criterion for a priori sample size determination is introduced. Furthermore, Bayesian sequential designs are discussed. With such designs, additional subjects are recruited during the course of the study until sufficient support for either informative hypothesis is achieved.