**Graduate Course: Statistics with R**

Taught by Boris Mayer & Andrew Ellis

This workshop combines an introduction to R with advanced data analysis techniques. It is primarily aimed at doctoral students who would like to obtain "hands-on" experience with advanced data analysis and at the same time want to acquire basic knowledge of R. Topics in the first part of the workshop are an introduction to the R language, working with packages as well as loading, cleaning, and handling of data using the most recent packages (tidyverse). In the second part, the topics will be exploratory data analysis based on graphics (ggplot2), descriptive statistics as well as first steps in writing your own functions. In the third part, we will deal with different ANOVA and regression-based techniques, including regression diagnostics and model comparison. The final part is reserved for advanced data analyses techniques, such as hierarchical linear models (HLM, lme4) and structural equation modelling (SEM, lavaan).

Participants should bring their own notebook (Windows, Linux or macOS based) with the latest versions of R (http://www.r-project.org) as well as RStudio (an integrated development environment for R, https://www.rstudio.com) installed.

Dates and program (3 mornings + 1 full day):

- January 18th, 2018 (9:00-13:00): Introduction and Data Management
- January 19th, 2018 (9:00-13:00): Exploratory data analysis. Graphics & Descriptives + Own Functions
- February 1st, 2018 (9:00-13:00): General Linear Model: ANOVA and Regression Models
- February 2nd, 2018 (9:00-13:00): Advanced Techniques: HLM and SEM (14:00-17:00): Bring Your Own Data

An online script as well as data used in course examples will be made available in advance

Registration for this course will open in KSL in November 2017