1-day course: "Applied mediation analysis"

Teacher: Assoc. Prof. T. Lange (Section of Biostatistics, University of Copenhagen & Center for Statistical Science, Peking University).
Location: RERF Auditorium
Time: The 26^h of April 2016, 9.00am to 4.00pm.

Abstract:
Within the fields of epidemiology, interventions research and social sciences researchers are often faced with the challenge of decomposing the effect of an exposure into different causal pathways working through defined mediator variables. The goal of such analyses, so-called mediation analyses, is often to understand the mechanisms of the system or to suggest possible interventions. Mediation type analyses were introduced in the early 80'ties (key reference is Baron & Kenny (1986)). However, these analyses lacked a theoretical foundation and were only applicable in specific settings. The theoretical framework for mediation analyses and extension to any sampling setting were established during the following 20 years (eg. Lange et al (2011) introduced mediation in a survival setting). Recently these theoretical insights have been implemented in easy to use software. In this one day course I will cover:

1. The intuitive concepts in mediation analyses as well as mediation analyses in linear models.
2. The theoretical foundations of mediation analyses (counter factual based).
3. Natural Effects Models (mediation analysis understood and performed as regressions).
4. The medflex package to R, which implements natural effects models.
5. A brief overview of other software implementations of mediation analysis.

Detailed time schedule:

9.00 – 9.45: Basic idea and intuitive concepts of mediation analyses. Techniques for doing mediation analysis in linear models.

10.00 – 11.00: Mediation exercises (bring own laptop). Any statistical software package can be used for these exercises. The computer should also have Excel or similar installed.

11.15 - 12.00: A formal counterfactual setup for mediation analysis. Will present precise definitions of mediated effect measures and a discussion of required assumptions.

12.00 – 13.00: Lunch.

13.00 – 13.45: Natural effect models (ie. How to do mediation analyses as regression analyses) and their implementation in medflex.

14.00 – 14.45: Mediation case studies all using natural effects models and the medflex package. Smaller exercises included (no need for specific software).

15.00 – 16.00: Overview of alternative software implementations and their differences.