Principles for Choice of Design and Balanced Sampling

**Date:** Thursday, 19 October 2017 – 2 pm

**Venue:** Seminar Room, Department of Economics and Management

**Speaker:** Matthieu Wilhelm – *Université de Neuchatel*

**Abstract**

The aim of this talk is twofold. First, three theoretical principles are formalized: randomization, overrepresentation and restriction. We develop these principles and give rationale for their use in choosing the sampling design in a systematic way. In the model-assisted framework, knowledge of the population is formalized by modeling the population and the sampling design is chosen accordingly. We show how the principles of overrepresentation and of restriction naturally arise from the modeling of the population. The balanced sampling then appears as a consequence of the modeling. Second, a review of probability balanced sampling is presented through the model-assisted framework. For some basic models, balanced sampling can be shown to be an optimal sampling design. Emphasis is placed on new spatial sampling methods and their related models. An illustrative example shows the advantages of the different methods. Throughout the talk, various examples illustrate how the three principles can be applied in order to improve inference. If time allows, we will briefly discuss the concept of repulsion in sampling theory.