

The design of an experiment has implications on costs as well as on the inferential precision when conclusions are drawn from the experiment. An improved design may yield an experiment with fewer experimental units without sacrificing precision, or conversely, increase the precision with constant number of experimental units. The aim of optimal design is to find an experimental design that is optimal with respect to a specific inferential goal. In this talk, I will introduce the theory of optimal design of experiments and give some applications we have been working with.