USC Department of Mathematics

Probability & Statistics Seminar

3:30 PM, Friday 14.Nov.08
249 Kaprielian Hall
(Refreshments served at 3 PM)

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Recent Advances in Optimal Experimental Designs

A well-designed study is crucial for the success of any scientific investigation. Despite advances in optimal design theory in the last few decades, applications to find efficient designs in biomedical studies have been sporadic. Part of the reason may be that the theory can be complicated and the optimal design is not easily determined for a specific problem.

I briefly review the mathematical foundation of optimal design and discuss recent development in the field, including applications to find efficient designs for biomedical studies. To promote optimal design ideas in scientific research and facilitate practitioners' access to optimal designs, I present a website that generates a variety of optimal designs for a broad range of models. The user first selects a suitable model from a list of statistical models on the website and an optimality criterion, and then inputs design parameters for his or her problem. The site returns the optimal design and also the efficiency of any user-selected design. This website is free and hopefully it will inform and enable practitioners to implement a more efficient design in their work.