



The University of Chicago
Department of Statistics

FIRST YEAR PHD PRESENTATION

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**Comparison of Treatments
and Data-Dependent Allocation for Circular Data**

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110 Eckhart Hall, 5734 S. University Avenue

ABSTRACT

Circular data is a natural outcome in many biomedical studies, e.g. some measurements in ophthalmologic studies, degrees of rotation of hand or waist, etc. With reference to a real data set on astigmatism induced in two types of cataract surgeries we carry out some two-sample testing problems including the Behren-Fisher type of test in the circular set up. Response-adaptive designs are used in phase III clinical trials to allocate a larger proportion of patients to the better treatment. There is no available work on response-adaptive designs for circular data. Here we provide some response-adaptive designs where the responses are of circular nature, first an ad-hoc allocation design, and then an optimal design. Detailed simulation study and the analysis of the data set including redesigning the cataract surgery data are carried out.

Information about building access for persons with disabilities may be obtained in advance by calling Sandra Romero at 773.702-0541 or by email (sandra@galton.uchicago.edu).