BST 222 Group Homework #7

Due Tuesday, November 20, in lecture

For this two-week homework assignment, work in assigned groups to develop a set of slides (about 12-14 slides, max of 16, including a cover slide) that summarize your work, findings, and recommendations. Use R programming, including calculations and/or simulations, to study the properties of (exactly two of) point estimation, hypothesis testing, and/or confidence interval estimation for one of the following distributions (your choice!):

(a) Poisson distribution – one group problem including an exact analysis
(b) Poisson distribution – comparing two groups
(c) Exponential distribution (mean or rate) – comparing two groups
(d) The risk difference or odds ratio in 2×2 table analysis
(e) Uniform(0, b) – one group problem to determine the upper boundary
(f) Some other related project that your group proposes and gets David's approval for.

For whichever distribution you choose, use (at least) three different point estimators, (at least) three different hypothesis tests, and/or (at least) three different confidence intervals for your comparisons. (Make up something novel and interesting and worth checking out if appropriate!)

You'll need to begin with a selection of methods to study and criteria for comparing your methods. Then program things up for small to moderate sample sizes and reasonable choice(s) of parameters. Develop a set of graphs and/or tables that summarize your work and include these in your slide set. Your slide set should begin with a short review of the methods you are using and end with a brief summary of your findings and recommendations. No additional papers or code should be turned in.

Grading will be based on the appropriateness and depth of your evaluations, the thoroughness, accuracy, and originality of your slides, and the quality of your slides ("prettiness", readability, teachability). A selection of the strongest slide sets will be invited to present to the class soon after the Thanksgiving holiday, and these groups would receive extra credit. As this is a creative homework with longer time frame involving multiple students, it will be worth 100 points on our homework scale. Only one group member should submit their group's final slide set to Canvas, and all group members will receive the same score. All group members should contribute approximately equally to each submission – if there are any problems, please contact David or a TA.

We can use office hours and e-mail to answer questions and bounce off ideas (or catch us after class). *Don't hesitate to ask us questions! And, have some fun and be thoughtful and creative!*