BST 222 Group Homework #7

Due Thursday, November 16, in lecture

For this two-week homework assignment, work in groups of size 2-4 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 (mean)

(b) Exponential distribution (mean)

(c) Normal (0, 2) distribution (variance, assuming known mean zero)

(d) The risk difference or the odds ratio in 2×2 table analysis.

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 will be 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 on *Tuesday, November 21 (and we’ll have a class vote on “bestness”)*. As this is a creative homework with longer time frame involving multiple students, it will be worth double a regular homework. Only one group member should submit their group’s final slide set to Canvas.

If you need assistance in putting together a group or would be interested in getting someone added to your group, let Michele ([mzemplenyi@g.harvard.edu](mailto:mzemplenyi@g.harvard.edu)) know *by 5:00 PM on Monday, November 6*. 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!* Also: No labs on November 9 and 10 due to the holiday, but David will hold some extra office hours.