**Random variables**

1. Search online on what is chi-squared distribution (if you don’t know what it is). Try to figure out what it is and what parameter(s) it has. [Note: in this assignment, you only need to work on one most important parameter.]
2. Generate 10 random samples from a chi-squared distribution (with a random selection of that parameter.)
3. What are the meanings of this parameter?
4. If you mathematics is not good enough to understand the derivations, please use R to figure it out roughly.
5. Use an empirical distribution to represent 1000 random numbers generated from a chi-squared distribution. And demonstrate that your empirical distribution does represent a chi-squared distribution intended.

**The following assignments will be graded.**

1. Design an R procedure to demonstrate that central limit theorem may be correct.
2. (Bonus) As stated in the presentation, the above is not a proof. You are welcome to add a mathematical proof too! It is OK to consult Internet, but please at least type it by yourself, instead of just send me a copy-pasted document. ☺