Research Methods 2

Week 5: Exercise Sheet 1

Question 1.

Use the method you used last week to generate a sample from a Normal distribution. Set the mean to be 5 and the SD to be 1. This time only generate a sample of size 10 (i.e. type '10' in the box between the word **Generate** and **rows of data**.). How many of these lie between 4 and 6 (i.e. within 1 SD of the mean)? How many would you expect to be between these limits? Repeat the generation of the sample and count again. Do this a few times and comment on the pattern you see. Out of all the samples you generated, how many observations were between 4 and 6?

Question 2.

Repeat question 1 but now generate a sample of 10000. What do you find now? [Do I really have to count all these by hand? Click here]. How many of the sample lie between 3 and 7, i.e. within 2 SDs of the mean.

Question 3.

Repeat question 2 but now set the mean to be 100 and the SD to be 15. How many of the sample fall outside the range 85 to 115? Outside 70 to 130?

Question 4.

A paper states that some serum bilirubin measurements have been analysed using the assumption that the sample comes from a Normal population. From the data in the paper plausible values for the mean and SD of this distribution are 1 mg/I and 0.75 mg/I respectively. Generate a sample of 10000 observations from a Normal population with this mean and variance. What proportion of values you have generated are negative? What does this imply about the assertion in the paper?

End of Exercise Sheet 1