COMPUTER ASSIGNMENT

Write an individual report and submit it via LISAM. **Deadline is Friday 5th November at 23:30**. The grade for the computer assignment is PASS/FAIL.

1. Computer Exercises from Course's book

Do the following applet exercises from the book using R (see Appendix below for useful functions) and write your comments on the results. Explain what you have learned from each exercise.

Exercises: 4.84, 4.117, 4.118, 10.19, 10.21, 11.31, 11.69

2. Imputation techniques

For the course 732A93 you shall read the chapter on the link:

http://www.stat.columbia.edu/~gelman/arm/missing.pdf

and include in your report the answers to the following:

1. Which type of missing mechanism do you prefer to get a good imputation?
2. Say something about simple random imputation and regression imputation of a single variable.
3. Explain shortly what Multiple Imputation is.

Good luck! Lycka till!

APPENDIX: Functions for random variables in R (d,p,q,r)

The functions d,p,q,r allow for a quick calculation of densities, probabilities, quantiles and samples from random variables in R. Below I show examples for the normal distribution, but you have equivalent functions for gamma, beta, T, etc. For a comprehensive list of the available distributions visit the CRAN Task View on probability distributions:

https://cran.r-project.org/web/views/Distributions.html

- dnorm: Calculates densities for a normal distribution, i.e. $f(y)$

```
> dnorm(0,mean=0,sd=1)
[1] 0.3989423
```

- pnorm: Calculates probabilities for a normal distribution, i.e. $F(y)$

```
> pnorm(0,mean=0,sd=1)
[1] 0.5
```

- qnorm: Obtains the quantile q from a normal probability $0 < p < 1$, i.e. $F(q) = p$

```
> qnorm(0.5,mean=0,sd=1)
[1] 0
```

- rnorm: Obtains a random sample from a normal distribution

```
> v = rnorm(10000,mean=0,sd=1)
> hist(v,breaks=50)
```