

8. **Prior specification for Bayesian Gaussian graphical models**

Proposer: Sofia Massa

Brief Description: The aim of the project is to study different prior specifications for Gaussian graphical models in a Bayesian context. The attention will be restricted to decomposable graphical models. If there will be enough time, a sensitivity analysis will be performed to study the impact of different priors in model selection.

References:

Carvalho, C., Massam, H., West, M., 2007. Simulation of hyper-inverse Wishart distributions in graphical models. *Biometrika* 94, 647-659.

Carvalho, C., Scott, J.G. (2009). Objective Bayesian model selection in Gaussian graphical models, *Biometrika* 96, 497-512.

Dawid, A. P., Lauritzen, S. L., 1993. Hyper-Markov laws in the statistical analysis of decomposable graphical models. *Annals of Statistics* 21, 1272-317.

Giudici, P., Green, P. J., 1999. Decomposable graphical Gaussian model determination. *Biometrika*, 86, 785-801.

Prerequisite courses/knowledge: MS1a *Graphical Models and Inference*. Some background in Bayesian statistics

Level of computing required? Good knowledge of programming in R, if necessary.

Data available? yes, if necessary.