19) Title: Model choice for covariance selection models
Supervisor: Professor Steffen Lauritzen

Brief description: Covariance selection models are based on the multivariate Gaussian distribution and determined by restricting fixed elements of the inverse covariance to be zero. As such they are special instances of graphical models. Such models are of interest as parsimonious representations of complex dependence structures, i.e. for pattern recognition and also for describing structural relations between e.g. attitude variables in social science studies.

The task is to give an overview of existing methods and their properties.

Prerequisite: no specific course is required, but some statistical maturity. It will be helpful to take the 4th year course on graphical models in parallel.

Type: This project will be open to a theoretical or simulation approach.

20) Title: Monte-Carlo testing in log-linear models for contingency tables
Supervisor: Steffen Lauritzen

Brief description: The task is to give an overview of existing methods and their properties in terms of efficiency and accuracy, comparing the Monte-Carlo methods to traditional asymptotic methods.

Prerequisite: no specific course is required, but some statistical maturity. It will be helpful to take the 4th year course on graphical models in parallel.

Type: This project will be open to a theoretical or simulation approach