

DGPEFunded by The Danish Research
Training Council (FUR)**Danish Graduate Programme in Economics**

University of Aarhus • University of Copenhagen

THE DANISH DOCTORAL SCHOOL OF FINANCE

The Danish Graduate Programme in Economics (DGPE), the Danish Doctoral School of Finance and Center for Research in Econometric Analysis of Time Series (CREATES) announce:

Ph.D. course on “Quantitative Risk Management: Modelling Dependence in Market and Credit Risk”

**January 28-31st, 2008
Sandbjerg Manor, Sønderborg**

**Lectured by: Professor Alexander J. McNeil, Heriot-Watt University
Local Organizer: Henning Bunzel, Dept. of Economics, University of Aarhus**

Programme**Monday, January 28**

12.00-12.00 Lunch

13.00–14.30 Introduction to quantitative risk management: financial risk in perspective; loss distributions and risk measures

14.30–15.00 Coffee break

15.00-16.30 Multivariate models for market risk factors: empirical evidence and stylized facts; basic multivariate analysis; normal mixture models; elliptical models; generalized hyperbolic models; estimation and testing

19.00 Dinner, Restaurant ‘OXEN, Sønderborg

Tuesday, January 29

- 09.30-11.00 Capturing extremes and volatility: extremal behaviour of normal mixture distributions; developing multivariate time series models with non-Gaussian innovations
- 11.00 Coffee break
- 12.00 Lunch
- 13.00-14.30 Copulas: basic properties; factor copulas, mixture distributions and conditional independence models; dependence concepts based on copulas; copula families
- 18.00 Dinner, Sandbjerg

Wednesday, January 30

- 09.30-11.00 Use of copulas in risk management: estimation and simulation; use in risk aggregation and stress testing
- 11.00 Coffee break
- 12.00 Lunch
- 13.00-14.30 Introduction to credit risk: exposures, defaults, ratings, LGDs; Merton's model of the default of a single firm; common industry models (CreditMetrics, KMV, CreditRisk+); modelling dependence with factor models; role of copulas in credit models; relation to Bernoulli mixture models
- 19.00 Course dinner, Sandbjerg

Thursday, January 31st,

- 09.30-11.00 Calculating the portfolio loss distribution: large portfolio behaviour and the Basel II regulatory capital formula; Monte Carlo approaches
- 11.00 Coffee break
- 12.00 Lunch
- 13.00-14.30 Calibration of portfolio credit risk models: estimating default correlation; estimating factor models with GLMM (generalized linear mixed modelling) techniques; Bayesian inference