

Workshop on copula modeling and extreme-value analysis

May 3 – 7, 2010

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Program Overview

May 3

Session 1 (9:00-10:30) *Introduction to copulas:* Definition and basic properties, Fréchet–Hoeffding bounds, classical copula models, probability integral transforms.

Break (10:30-11:00) *Coffee & Questions.*

Session 2 (11:00-12:30) *Measures, concepts and orderings of dependence:* Nonparametric measures of dependence, Kendall's tau, Spearman's rho, Van den Waerden coefficient, basic concepts of dependence, and stochastic orderings.

(12:30) *Lunch*

May 4

Session 3 (9:00-10:30) *Visualization of dependence:* Simulation, rank plots, chi-plots, K-plots, empirical copulas and copula density estimators.

Break (10:30-11:00) *Coffee & Questions.*

Session 4 (11:00-12:30) *Tests of independence and copula model fitting:* Rank-based tests of independence, linear rank statistics, locally optimal tests, independence tests based on the empirical copula process.

[12:30-1:30] *Lunch*

Session 5 (1:30-3:00) *Model fitting:* Rank-based copula parameter estimation, inference functions for margins, pseudo maximum likelihood and method-of-moment estimators, empirical copula, nonparametric copula density estimation.

May 5 Third Annual Conference on Extreme Events in Economic Systems

May 6

Session 6 (9:00-10:30) *Univariate extreme-value theory*: Asymptotics of maxima, max-stability, Fisher-Tippett theorem, threshold exceedances, Pickands-Balkema-de Haan theorem, threshold selection, model fitting and validation.

Break (10:30-11:00) *Coffee & Questions.*

Session 7 (11:00-12:30) *Multivariate extreme-value theory*: Asymptotics of componentwise maxima, extreme-value copulas, Pickands dependence function, rank-based estimation, goodness-of-fit techniques, tests of extremeness.

(12:30) *Lunch*

May 7

Session 8 (9:00-10:30) *Copula model validation*: Critical review of the literature on goodness-of-fit tests for general and specific copula models, procedures based on the parametric bootstrap.

Break (10:30-11:00) *Coffee & Questions.*

Session 9 (11:00-12:30) *Multivariate Archimedean models*: Frailties, simplex distributions, dependence properties, tail behaviour, random number simulation, rank-based inference and testing, non-exchangeable generalizations.

(12:30-1:30) *Lunch.*

Session 10 (1:30-3:00) *Copula models for count data*: Identifiability issues, Carley bounds, measures of association, continuation process, rank-based inference.