Short Course given by Mhamed Mesfioui, Université du Québec, Canada

Title

Multivariate stochastic orderings and their applications

Abstract

This course is concerned with the integral stochastic orderings. First, univariate versions are introduced and discussed in continuous and discrete situations. Particular attention is paid to the integral stochastic orderings among random vectors. Various properties and characterizations of these orderings are established. The link with the notion of copulas is also examined. Finally, some practical applications of these orderings in actuarial sciences and finance are studied.

Course outline

28 october

9h00--11h30: Univariate integral stochastic orderings in continuous and discrete cases with applications

14h00--16h00: Multivariate integral stochastic orderings in continuous and discrete.

29 october

9h00--11h30: Properties and characterizations multivariate integral stochastic orderings with applications

14h00--16h00: Dependence models and stochastic orderings

References

1. Denuit, M., Genest, Ch., Marceau, E., 1999a. Stochastic bounds on sums of dependent risks. Insurance: Mathematics and Economics 25, 85–104.
2. Denuit, M., Lefèvre, Cl., Mesfioui, M., 1999. Stochastic orderings of convex-type for discrete bivariate risks. Scandinavian Actuarial Journal 1, 32–51.

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4. Dhaene, J., Goovaerts, M.J., 1996. Dependency of risks and stop-loss order. ASTIN Bulletin 26, 201–212.
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6. Mesfioui, M. and Quessy, J.-F., (2005). Bounds on the value-at-risk for the sum of possibly dependent risks, Insurance: mathematics and economics, 37, 135–151.
7. Mesfioui, M. and Quessy, J.-F., (2007). Dependence structure of conditional Archimedean copulas. Journal of Multivariate analysis, 99, 372-385.
8. Mesfioui, M. and Tajar, A., (2005). On the properties of some nonparametric concordance measures in the discrete case, J. Nonparametric Statist, 17, 541–554.
9. Shaked, M., Shanthikumar, J.G., 1994. Stochastic Orders and their Applications. Academic Press, New York.
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