Informatics tools for Risk Management (coordinator: E. Vannucci)

Course Description:

Informatics has a key role for many applications of Risk Management since in many cases these topics are not fully tractable in an analytic way and numerical procedures have to be implemented. We give an introduction to the use of common quantitative softwares (Excel, Matlab essencially) for basic applications with particular interest in for evaluation in stochastic scenarios. Montecarlo simulation and finite difference method are presented in detail both in one and in more dimensions. A survey of the use of financial databases is proposed.

Objectives:

- Skills: capability of creating numerical procedures for evaluation with stochastic models.
- Knowledge: use of Montecarlo simulation and finite difference scheme in Risk evaluation and management.
- Attitudes: the role of informatics tools in topics which are not fully analytically tractable.

Main Contents:

1. Introduction to Excel for basic applications in Risk Management
2. Excel for stochastic scenarios: Montecarlo simulations
3. Finite difference methods on excel
4. Introduction to MatLab
5. Risk Management applications with MatLab
6. An introduction to Financial data analysis
7. A survey on common financial databases