Elective Courses

The following two courses can be used to obtain the 12 credits required as elective courses. The first course, Financial Risk Management, consists of 6 credits and will be held by Prof. Leccadito during the first semester. The second course, Risk Theory, consists of 6 credits and will be held by Prof. Cerchiara during the first semester.

Financial Risk Management

1. A brief taxonomy of risks
   - Risk and Randomness
   - Financial Risk
   - Measurement and Management

2. Basic Concepts in Risk Management
   - Risk Factors and Loss Distributions: General Definitions, Conditional and Unconditional Loss Distribution, Mapping of Risks, Some Examples
   - Risk Measurement: Approaches to Risk Measurement, Value-at-Risk, Other Risk Measures Based on Loss Distributions
   - Losses over Several Periods and Scaling

3. Backtesting And Stress Testing
   - Backtesting VaRs: The Null Hypothesis, Unconditional Coverage Testing, Independence Testing, Conditional Coverage Testing
   - Backtesting Expected Shortfall
   - Backtesting The Entire Distribution
   - Backtesting Only The Left Tail Of The Distribution
   - Stress Testing

4. Credit Risk Management
   - Introduction to Credit Risk Modelling
• A Brief History of Corporate Defaults
• Credit Risk Models
• The Merton Model
• The KMV Model
• Models Based on Credit Migration
• Threshold Models
• CreditRisk+


Risk Theory

Individual approach and collective approach. The moments of the aggregate cost of losses. The risk reserve and its relationships with the cost losses. One year and long time analysis of the risk reserve. The minimum solvency margin required by insurance companies under prevailing regulations (Solvency I and Solvency II). Local GAAP, Solvency and IFRS accounting principles, with special reference to the Technical Provisions. Enterprise Risk Management.