PROBABILITY

Spring Course

Instructor: **Giovanni Pistone**

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Course description
The course offers an overview of some mathematical topics in Probability. Tools and models that are routinely used in a variety of areas including Statistics, Machine Learning, Econometrics, Mathematical Finance, Economics are rigorously discussed. The main emphasis is on special probability distributions, conditioning, convergence. Students are assumed to know the basics of Matrix Algebra, Multivariate Calculus, Elementary Probability, Measure Theory. The course is equally divided into lectures and exercise sessions.

Topics
- Probability spaces, random variables and their distribution. Expectation. Simulation
- Independence, conditional expectation and conditional distribution. Sufficiency
- Convergence
- Special models: Exponential Family, Multivariate Gaussian, Markov Chain

Grading
There will be homeworks and a (very short) final essay or presentation.
Lecture notes, reading assignment, and references will be communicated in due time.