# OUTLINE: FINANCIAL ECONOMETRICS

This course provides an introduction to the econometrics used in empirical Finance.

## 1. Financial Assets

Basic financial assets: zero-coupon bond, currency, credit default swap, stock
Markets: over-the-counter, primary and secondary markets, spot vs futures

## 2. Stylized Facts on the Historical Distributions of Interest Rates, Stock Returns and Exchange Rates

Definition and estimation of the distribution, Q-Q plot
Historical Moments and Historical Value-at-Risk
Analysis of default

## 3. Linear Dynamic Analysis of an Asset Return

Notions of white noises
How to detect serial dependence
Autoregressive and ARMA processes
The effect of sampling frequency
Unit root models and the efficient market hypothesis

## 4. ARCH Models

The ARCH(1) model and its extensions
Estimation: pseudo-maximum likelihood and two-step least squares
Volatility persistence
The limitations of ARCH modelling

## 5. Joint Analysis of Returns

Description of a multivariate distribution
Mean-variance efficient portfolio
Multivariate regression model and portfolio management
Vector autoregressive model

## 6. Complements

depending on the year, complements will be given on either multivariate factor models, or on high frequency data

## References:

Ruppert, D.(2004):"*Statistics and Finance*",Springer
Gourieroux, C., and J., Jasiak (2001):" *Financial Econometrics*", Princeton Univ.Press
Campbell, J., Lo, A., and C., McKinlay (1997):"The *Econometrics of Financial Markets*", Princeton Univ. Press.