EPFL

FIN-616   **Financial Econometrics II (2020 -2024)**

Rockinger Michael

Cursus	Sem.	Type
Finance		Opt.

Language of teaching	English
Credits	3
Session	
Exam	Written
Workload	90h
Hours	**28**
Courses	28
Number of positions	

Frequency

Every year

Remark

From December to March

Summary

This course has 3 parts - We understand how to use moment based estimations to obtain the parameters for explicit or implicit models. - We learn how to estimate latent parameters in a time series context with the Kalman filter. - Machine learning tools belong in any PhDs toolkit.

Content

Estimation of Financial Models is a key issue.

This course has 3 main parts.

In the first part we will discuss Generalized Method of Moments estimation and associated techniques such as Simulated Method of Moments, Indirect Inference and Minimum Distance Estimation. We will show how GMM nests traditional models such as ML, OLS or IV regression.

In the second part we discuss the Kalman filter and how it can be used to estimate ARMA processes or other time series models with latent state variables. Particle Filters allow obtention of the latent state variables also in non-Gaussian non-linear settings.

In the the third part of the course, we will introduce Machine Learning techniques. Much of our emphasis will be on Supervised Methods such as Lasso regressions, and Random Forests as classification algorithme. We may discuss text processing as an illustration of classification.

For the first and second part, the texbook is:
James Hamilton,
Time Series Analysis,
1995, Princeton University Press.

For the third part, the text book is:
Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani,
An Introducuion to Statistical Learning
2017, Springer Texts in Statistics.

Students may use Matlab, R, or Python for the numerical implementations.