Python for Finance

PhD Course (24 hours)

Hands-on in Python & Finance

Instructor: Kevyn Stefanelli | Roma Tre University

Location: Room 13B, Via Silvio D'Amico 77 | Google Maps

Course outline (8 lectures)

L1	Python essentials, Jupyter workflow, control flow, first plots
L2	Research paper structure; stylized facts of returns (Cont, 2001); replication in Python
L3	Asset pricing: CAPM and factor models (Fama–French; Carhart; BAB; QMJ)
L4	Volatility modelling: GARCH; vol-managed PFs (Moreira & Muir; DeMiguel et al.)
L5	Fixed income: PV, pricing, YTM; term structure models (CIR, Vasicek, NS/NSS)
L6	Simulation & risk: MC, bootstrap, (m)VaR, backtesting; ShR testing (Ledoit & Wolf)
L7	Portfolio optimization: EWP, GMVP, Markowitz; constraints;
L8	Student-driven topic: text/sentiment, networks, ML, or agreed advanced applications

What you will build: reproducible research-ready Jupyter notebooks, clean and modular Python code, and empirical results supported by visualizations and quantitative performance metrics.

How the course runs: hands-on lectures with live coding, guided exercises, and in-class discussion of results. Sessions take place **every Monday**, from **15:00 to 18:00**.

Tools & ecosystem: Python, Jupyter Notebook, NumPy, Pandas, Matplotlib, SciPy, Statsmodels.