Additional material on the SYMMYS Lab

Day 2

Pricing at investment horizon Chapter 4

- Full analytical: log-distributions Section 4.1 (Subsection 4.1.1)
- Full numerical: scenario pricing (Monte Carlo/historical). [Apply Exact pricing in Section 4.1 to Monte Carlo scenarios (Section 3.4 (Subsection 3.4.1)) or to historical/reconstructed scenarios (Section 3.3), see also Chapter 4 Table 4.1. See Chapter 19 (Section 19.2 in particular) for the Flexible Probabilities distribution]
- Taylor approximation: theta-delta/vega-gamma; carry-duration-convexity Section 4.3
- Stress-matrix approximation Section 4.4

Multivariate statistics

- Spectral theorem / covariance visualization Section 24.2 (Subsection 24.2.2, Subsection 24.2.3), Section 24.3

Copulas Chapter 22

- Copulas in theory Section 22.1, Section 22.2, Section 22.3
- Copulas in practice: Copula-Marginal Algorithm Section 22.5

Multivariate dynamics

- Multivariate Ornstein-Uhlenbeck process Section 3.2
- Cointegration/Statistical arbitrage Section 3.5 (Subsection 3.5.1)

Linear Factor Models Chapter 11

- Systematic-idiosyncratic vs dominant-residual LFM’s Distributional r-square Section 11.2, Section 11.1 (Subsection 11.1.1)
- Time-series, cross-sectional, statistical/PCA LFM’s Section 11.1 (Subsection 11.1.2, Subsection 11.1.3, Subsection 11.1.4)