

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

FINA583 Statistical Methods for Risk Management

Course Outline

Instructor: Dr. Mike So
Tel: 2358 7726
Email: immkps@ust.hk

Office: Room 4418

Tutor: Mr. Tommy Wong
Tel: 2358 8543
Email: imtommy@ust.hk

Office: Room 4351

Course description

This course provides an introduction to financial risk management. Topics include how to measure market risks, statistical properties of returns and volatility, volatility modeling, Value at Risk (VaR), RiskMetrics, historical simulation, assessing VaR methods and stress testing. Students will learn how to use Excel spreadsheets to perform risk management tasks. Theories will be illustrated by practical examples in financial markets.

Tentative topics

1. Risk management fundamentals
2. Random variable and probability
3. Stylized facts of financial returns
4. Measures of market risk: volatility and Value at Risk (VaR)
5. Volatility estimation and modeling
6. Computing VaR
7. Correlation modeling
8. Portfolio risk
9. Backtesting
10. Stress testing

References

1. Christoffersen, P.F. (2003). *Elements of Financial Risk Management*, Academic Press.
2. Jorion, P. (2007). *Value at Risk: The New Benchmark for Managing Financial Risk*, McGraw-Hill.