The Hong Kong University of Science and Technology

UG Course Syllabus

[Course Title] Statistical Modeling for Financial Engineering

[Course Code] IEDA4000E

[No. of Credits] 3

[Any pre-/co-requisites] IEDA 2540, MATH 2111

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Course Description

This course provides a comprehensive introduction to statistical modeling techniques in financial engineering. Students will learn to apply statistical tools, such as exploratory data analysis, distributional modeling, maximum likelihood estimation, and statistical inference, to financial datasets. The course also covers advanced methods for financial data modeling, including resampling (Bootstrap), copula models and time-series analysis (ARIMA and GARCH). Practical Python sessions give students hands-on experience analyzing real financial datasets, estimating and validating models, and addressing the challenges of modeling in complex financial markets.

Assessments:

Assessment Task	Contribution to Overall Course grade (%)
Assignments	10%
Mid-Term	25%
Group Project	30%
Final examination	35%

Required Texts and Materials

Statistics and Data Analysis for Financial Engineering 2nd edition, by David Ruppert and David S. Matteson