MSc Finance

The following information is applicable for academic year 2017-18

Programme Structure

Week Zero	**Induction Week**			
TERM 1				
Weeks 1 - 10	IB9X60 **Quantitative Methods**	IB9Y80 **Asset Pricing**	IB9Y70 **Corporate Finance**	IB9490 **Investment Management**
Week 11	End of term tests			
TERM 2				
Week 1	**Exam Period** Term 1 Modules			
Weeks 2 - 10	IB9Y60 **Empirical Finance**	**Elective**	**Elective**	**Elective**
TERM 3				
Weeks 1 – 3	**Exam Period** Term 2 Modules			
Weeks 5 - 10	Language course			
& SUMMER				
May - September	IB93F **Dissertation**			

N.B Each module is worth 15 CATS and the Dissertation is worth 60 CATS.

Term 1: ***Core Modules***

IB9Y80: **Asset Pricing** **AP**

This module aims to explore and formalize the fundamental relationships between investors' decision-making in the presence of uncertainty ("risk") and the cross-sectional and inter-temporal properties of prices and returns of financial assets. A key outcome is the construction of a solid and generic theoretical framework for asset pricing which can then be further developed and tailored to facilitate more specific applications.

As such, this module complements the parallel core modules "Corporate Finance" and "Investment Management" in that it provides the theoretical context in which the more applied techniques developed in the latter are anchored. Together, the first-term core modules will equip students with the skills and techniques required to evaluate and conduct research in the area of Financial Economics. Finally, this module lays down the theoretical and methodological foundations on which the more specialised Finance modules are built. Topics covered include:

Illustrative Syllabus: (indicative, may be subject to minor changes)
Markets, Prices, and Returns
Preferences and Choice: Time Value
Modelling Uncertainty, Measuring Risk
Preferences and Choice: Decision-Making in the Presence of Uncertainty
Portfolio Theory: Optimal Asset Allocation
The Price of Risk: Factor Models
State Preference Theory: Arbitrage and the Stochastic Discount Factor
Applications/Extensions: Contingent Claim Pricing, Dynamic Models

Assessment: 2-hour **Exam** (January) counting for 60% of the module mark,
2 **Class Tests** (2 × 10% = 20%), and
Group Project (20%)

IB9Y70: **Corporate Finance** **CF**

The aim of this module is to provide students with an introduction to the principles of Corporate Finance. It will also illustrate how the basic tools and techniques of Modern Finance Theory can be applied to analyse and improve the investment and financing decisions of the firm. Topics covered include:

Illustrative Syllabus: (indicative, may be subject to minor changes)
Capital budgeting
Methods of Financing
Valuing Debt and Equity
Capital Structure
Dividend Policy.

Assessment: 2-hour **Exam** (January) counting for 80% of the module mark, and
2 Class Tests (2 × 10% = 20%).

IB9490: **Investment Management** **IM**

This module is closely linked with the parallel core module IB9Y8 "Asset Pricing". While the latter develops the theoretical framework to understand and analyse the trade-off between risk and return, this module focuses on the operationalization of this framework. This module (together with the other core modules) lays down the theoretical and methodological foundations on which the more advanced (elective) modules (that are available in the Spring term) are built. Topics covered include:

Illustrative Syllabus: (indicative, may be subject to minor changes)

Asset Classes
- Bonds: Valuation, Interest Rates, Yield
- Equity: Valuation, Financial Statements
- Derivatives

Portfolio Management
Mechanics of Trading, Transaction Costs, Market Microstructure
Advanced Investment Strategies
Performance Measurement & Attribution.

Assessment: 2-hour **Exam** (January) counting for 75% of the module mark, and **Class test** (25%).

IB9X60: **Quantitative Methods for Finance** **QMF**

This module aims to provide students with an in-depth understanding of basic probability and distribution theory, statistical estimation and inference, and econometric models with applications to finance. Topics covered include:

Illustrative Syllabus: (indicative, may be subject to minor changes)

Classical Linear Regression Models
Introduction to Maximum Likelihood Estimation
Discrete Choice Models
Models for Panel Data
Introduction to Time-Series Analysis.

Assessment: 2-hour **Exam** (January) counting for 75% of the module mark, and **Group Project** (25%).

Term 2 ***Core Modules***

IB9Y60: **Empirical Finance** **EF**

The broad aims of this module are to provide students with an understanding of the theory and practice of financial econometrics, and to provide the tools for the empirical analysis of financial time series and their application. Topics include:

Illustrative Syllabus: (indicative, may be subject to minor changes)

Introduction of the Statistical Framework for
    the Empirical Modelling of Financial Time Series
Stationary Processes
Non-Stationary Processes
Non-Linear Models, including Models of Time-Varying Risk,
    with Applications in Risk Management.
Applications will include …
    Empirical Testing of Asset Pricing Models such as CAPM,
    Portfolio Allocation,
    Forecasting,
    Yield Curve Modelling, and
    Non-Linear Adjustment in Foreign Exchange Markets
Efficient Market Hypothesis (EMH).

Assessment: 2-hour **Exam** (April) counting for 80% of the module mark, and
2 **Class Tests** (2 × 10% = 20%).

Term 2 ***Elective Modules***

Note: *Students must choose TWO modules from the list of available electives. The following list is indicative only, minor changes are possible. Further information and confirmation of available electives will be provided at the end of Term 1.*

Electives (brief list, details on following pages):

IB9CR0:	Alternative Investments	AI
IB9Y10:	Banks & Financial Institutions	BFI
IB9Y20:	Behavioural Finance	BF
IB9CS0:	Big Data Analytics	BDA
IB8X70:	Derivative Securities	DS
IB9T00:	Empirical Applications in Macro Financial and Energy Economics	EAMFEE
IB9Y9A:	Financial Reporting and Financial Statement Analysis	FRSA
IB95R0:	Financial Risk Management	FRM
IB9X80:	Fixed Income & Credit Risk	FICR
IB9670:	International Financial Markets	IFM(kt)
IB9AG0:	Judgement & Decision Making	JDM
IB9Y30:	Mergers and Acquisitions & Corporate Control	MACC
IB9EL0:	Practice of Investment Management	POIM

IB9CR0: **Alternative Investments** **AI**

This module will provide students with all the insights needed to make well-informed decisions with regard to today's complex investment management environment. Subjects covered will include:

Illustrative Syllabus:
(indicative, may be subject to minor changes)
The Differences between Hedge Funds and Mutual Funds
The main Hedge Fund Databases and Indices
The Most Typical Hedge Fund Investment Strategies
The Statistical Properties of Hedge Fund Returns
Hedge Fund Performance so Far and its Drivers
The role Hedge Funds may Play in an Investment Portfolio
Introduction to Private Equity

Assessment: 3-hour **Exam** (Term 3: April/May) counting for 75% of the module mark, and **Group Presentation** (25%).

IB9Y10: **Banks & Financial Institutions** **BFI**

The main objective of this module is to consider the theory and practice of banking in the 21st Century; specifically to highlight the facilitation role of banks as intermediaries between borrowers and lenders, and as providers of liquidity. We will discuss ways in which banks can diversify their activities e.g. international trade, wholesale banking, off-balance sheet banking, or securitisation. We describe the international payments system, the inter-bank markets, and the Eurocurrency markets. The module compares and contrasts the banking systems, including regulatory regimes, in the UK, US, Europe and Japan. We review the key features of the Basel I & II agreements on capital adequacy, critically assess the proposals in the Basel III agreement, and examine the possible causes of bank failure. Topics covered will include …

Illustrative Syllabus:
(indicative, may be subject to minor changes)
Banks as Financial Intermediaries and as Providers of Liquidity
Competitive Issues in Global Banking
Banking in the UK, Europe, US and Japan
Inter-Bank Markets and the Euro-Markets
Credit Risk, Settlement Risk, Liquidity Risk, Operational Risk, Political Risk
(Interest-Rate Risk, Exchange-Rate Risk)
Asset-Liability Management (e.g. Duration Gap Analysis)
Banking Supervision and the Role of the Central Bank
Capital Adequacy Agreements: Basel (1988), Basel II, III
Bank Failures

Assessment: 2-hour **Exam** (term 3: April/May) counting for 80% of the module mark, and **Class Test** (20%)

IB9Y20: **Behavioural Finance** **BF**

Psychologists working in the area of behavioural decision-making have produced much evidence against the adequacy of neoclassical economics. Behavioural finance comprises financial analysis which relaxes some of these assumptions. It is a paradigm where financial markets are studied using models that are less narrow than those based on von Neumann-Morgenstern expected utility theory and arbitrage assumptions. Topics covered include:

Illustrative Syllabus: (indicative, may be subject to minor changes)
Market Efficiency
Prospect Theory
Loss aversion
The Impact of Knightian Uncertainty
Limits to Arbitrage
Overconfidence in Financial Markets
Herding and Asset Bubbles
Paradoxes and Anomalies
The Disposition Effect
Investor Sentiments

Assessment: 2-hour **Exam** in Term 3 (April/May) counting for 70% of the module mark, and Individual **Coursework** (30%).

IB9CS0: **Big Data Analytics** **BDA**

This module outlines key principles and concepts in big data analytics in a computational social science context and covers a range of examples based on big data including detection of societal events, such as elections, riots, disease outbreaks, economic and financial instability, resource shortages, and responses to natural disasters.

The module aims to encourage students to see how digital traces of human activity can be used to anticipate real world events and provides awareness and understanding of collective human behaviour. It passes on knowledge of mining, processing, analysing, and visualising large data sets.

Assessment: **Individual Essay** (3,000 words) counting for 80% of the module mark, and 2 **Coursework Exercises** (2 × 10% = 20%).

IB8X70: **Derivative Securities** **DS**

This module will develop an in-depth understanding of the characteristics of different classes of derivative securities such as forwards and futures, swaps and options; the markets in which these securities are traded; their potential use as instruments for managing risk; methods for valuing these securities; and the application of these methods in other areas of finance. Topics covered include:

Illustrative Syllabus: (indicative, may be subject to minor changes)
Forwards and Futures Markets
Futures Pricing: Using Futures to Hedge Risks
Forward Rates and Interest Rate Derivatives
Options Markets
Strategies Involving Options
Option Pricing in the Binomial Model
Black-Scholes Pricing Formula and the "Greeks"
Measuring and Managing the Risk of Options Portfolios.

Assessment: 2-hour **Exam** (Term 3: April/May) counting for 80% of the module mark, and **Class Test** (20%).

IB9T00: **Empirical Applications of Macro Financial and Energy Economics** **EAMFEE**

The aim of this module is to equip students with the techniques to understand applied research on a variety of topics drawn from macro, finance and energy economics. The module builds on the expertise of the EMF group, combining macroeconomic modelling with analysis of energy markets. Key themes are (1) that both theory and evidence matter, and (2) the linear-Gaussian macro modelling paradigm is ill-suited to the abnormal behaviour of energy and financial markets and policymakers since the Great Recession. The module illustrates by example the importance of applied economic analysis for policy issues. The applied topics analysed are of considerable importance to policymakers, financial markets and business. Topics covered include:

Illustrative Syllabus: (indicative, may be subject to minor changes)
Analysis of the recent behaviour of crude oil price
Monetary and fiscal policy rules including US deficit sustainability
Consumption and income relationship, permanent income hypothesis, long run economic growth
Predicting inflation and real output with money
The relationship between exchange rates and fundamentals
Prediction with output gaps
Pooling experts, inflation and commodity prices
Modelling interest rates in the presence of the zero lower bound
Modelling non-linear dependence in electricity markets

Assessment: **Individual Assignment** counting for 100% of the module mark.

IB9Y9B: **Financial Reporting and Financial Statement Analysis** **FRSA**

This module aims to enable students to interpret financial statements in context and apply appropriate models and techniques for company valuation and related business issues. Also, enable them to gain an understanding of how accounting provides data for corporate finance analysis. Topics covered include:

Illustrative Syllabus: (indicative, may be subject to minor changes)
Cash Flow and Profit as Financial Performance Measures
Reformulating Financial Statements for Valuation Analysis
Ratio Analysis and Forecasting Financial Performance
Cash Flow and Accounting Valuation Models
Earnings Management and Financial Statement Analysis
Credit Analysis and Financial Statements
Financial Reporting Quality and Corporate Governance
Value Relevance of Financial Statements

Assessment: **Individual Project** counting for 80% of the module mark, and **Group Presentation** (20%).

IB95R0: **Financial Risk Management** **FRM**

The module explains the need for financial risk management, the techniques to measure financial risks according to the regulatory framework, and tools for the management of risk exposure. Students will be introduced to quantitative methods of risk measurement and risk management. Topics covered include:

Illustrative Syllabus: (indicative, may be subject to minor changes)
How to Identify Financial Risks
Coherent Risk Measures
Models for Uncertainty
Numerical Tools – Monte Carlo Simulation
Approximations and Factor Reduction
Bayesian Uncertainty – Parameter Risk
The Regulatory Framework of Financial Risk Management

Assessment: 2-hour **Exam** (Term 3: April/May) counting for 80% of the module mark, and **Class Test** (20%).

IB9X80: **Fixed Income & Credit Risk** **FICR**

This module will help students get to grips with the tools for the assessment and management of fixed income and credit risk. Topics covered include:

Illustrative Syllabus: (indicative, may be subject to minor changes)
Bonds and Money-Market Instruments
Bond Prices and Yields
Term Structure of Interest Rates
Martingale Pricing
Continuous-Time Stochastic Processes
Affine Term Structure Models
Credit Risk Management
Structural and Intensity-Based Credit Risk Modelling
Credit Derivatives.

Assessment: 2-hour **Exam** (Term 3: April/May) counting for 70% of the module mark,
Class Test (10%), and
Group Project (20%).

IB9670: **International Financial Markets** **IFM(kt)**

This module aims to provide an advanced survey of the theory and evidence relating to international financial markets, and in particular the foreign exchange market. Topics covered include:

Illustrative Syllabus: (indicative, may be subject to minor changes)
Efficiency of the Foreign Exchange (Forex) Market
Purchasing Power Parity and the Real Exchange Rate
Exchange Rate Determination
Forecasting Exchange Rates
Exchange Rate Models and Economic Value
Official Intervention in the Forex Market
The Microstructure of the Forex Market
Active Management of Forex Portfolios

Assessment: 2-hour **Exam** (Term 3: April/May) counting for 80% of the module mark, and
Class Test (20%).

IB9AG0: **Judgement & Decision Making** **JDM**

This module will provide an introduction to the psychology of human judgement and decision making. This field provides the foundation for understanding the decision-making processes involved in financial markets. It aims to encourage students to see how the insights from this work can understand the origins of rational and irrationality in financial decision makers and financial markets; help improve their own financial decision-making, judgements and predictions; provide a broader understanding of decision-making throughout the finance industry, including strategic and managerial decision-making. Topics covered include:

Illustrative Syllabus: (indicative, may be subject to minor changes)
The Nature of Rationality
Theoretical Perspective on Human Judgement
The Psychology of Value and Utility
Decision-Making under Certainty
Decision-Making under Risk
Judgement
Confidence and Expertise
Decision-Making in Markets, Groups and Society

Assessment: Individual **Essay** counting for 80% of the module mark, and
Group Presentation (20%).

IB9Y30: **Mergers and Acquisitions & Corporate Control** **MACC**

This module is designed to introduce students to the basic issues in mergers and acquisitions from corporate finance point of view. The module will be based on the main research papers in the field. Topics covered will include:

Illustrative Syllabus: (indicative, may be subject to minor changes)
Value Creation in Takeovers
Abnormal Returns
Merger Waves:
- Main Characteristics of Individual Waves, and
- Theoretical Explanations for Cyclical Patterns

Private Equity
Ownership Structure:
- Costs and Benefits of Concentrated versus Dispersed Ownership,
- Empirical Evidence, and
- Law and Finance (Shareholder Protection)

Modelling the Takeover Process

Assessment: 1.5-hour **Exam** (Term 3: April/May) counting for 60% of the module mark, and
2 **Group Assignments** plus **Weekly Coursework** (altogether 40%).

IB9EL0: **Practice of Investment Management** **POIM**

This module aims to give students a realistic experience of the responsibilities involved in managing money for clients. It provides an introduction to practical investment management techniques, building on the work of the modules of the first term. Topics covered include:

Illustrative Syllabus:

(indicative, may be subject to minor changes)
How to Structure a Beta Portfolio
Risk Management from a Practical Perspective:
- Stop Loss Management,
- Macro Risk, and
- Value-at-Risk (VaR) Analysis

Pre and Post Transaction Cost Analysis: Breaking Even in the Real World

Assessment: **Individual Coursework** counting for 60% of the module mark, and **Group Project** (40%).

Term 3 ***Dissertation***

IB93F0:	**Research Methodology and Dissertation**
	The module aims to allow students to synthesise, apply and extend the knowledge they have gained in the taught component of the programme. The identification and investigation of a current research topic will help to develop students' theoretical and practical understanding of current problems in their area, as well as their research and communication skills. Emphasis will be placed on taking a critical approach to the assumptions of prior literature and the methodologies they adopt to address their research question.
Assessment:	**Empirical Project** counting for 15%, **Proposal** 10% and **Dissertation** 75% of the module mark.