

## **School of Economics & Finance**

### **Head of School**

Professor D Ulph

### **Degree Programmes**

Postgraduate Diploma:

Analytical Finance  
Environmental History (see School of History)  
Finance  
International Strategy & Economics

M.Litt.:

Environmental History (see School of History)

M.Phil.:

Environmental History (see School of History)

M.Sc.:

Analytical Finance  
Finance  
International Strategy and Economics

### **Programme Requirements**

#### **Analytical Finance**

Postgraduate Diploma:

120 credits consisting of EC5701 - EC5705 and one of: EC5721 - EC5740 EC5606, EC5608

M.Sc.:

120 credits as for the Postgraduate Diploma plus EC5799

#### **Finance**

Postgraduate Diploma:

120 credits consisting of EC5601 – EC5605 and one of: EC5606, EC5608, EC5609 or EC5723. (Students who have taken EC5701 - EC5703 may be exempted from the requirement to take EC5601 - EC5603 at the discretion of the Head of School. They cannot take EC5609.)

M.Sc.:

120 credits as for the Postgraduate Diploma plus EC5699

#### **International Strategy & Economics**

Postgraduate Diploma:

EC5501, EC5502 and EC5503, plus a further 60 credits from EC5504 – EC5509, EC5518

M.Sc.:

120 credits as for the Postgraduate Diploma plus EC5599

### **Modules**

#### **EC5501 Thinking Strategically**

Credits: 20.0

Semester 1

Co-requisites: EC5502 and EC5503

Programme(s): Compulsory module for MSc in International Strategy & Economics

Description: This module develops the analytical underpinning of strategic thinking, illustrated in the context of economics, politics, business and everyday life. Key topics include: game trees, dominance, iterative dominance, backward induction, Nash equilibrium, strategy and voting, auctions, bargaining. The treatment will be supported by examples.

Class Hour: To be arranged.

Teaching: Two lectures, one seminar.

Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

## **Economics & Finance – 5000 Level Modules 2007/08 – November 2007**

### **EC5502 The International Economy**

Credits: 20.0 Semester: 1  
Co-requisites: EC5501 and EC5503  
Programme(s): Compulsory module for MSc in International Strategy & Economics  
Description: This module is an issues-based vehicle for developing analytical skills, as well as a familiarity with central issues of the international economy and their wider ramifications. Topics covered are: the global economy and the basis of trade; international organisations and agreements; international money; developing economies; foreign direct investment and multi-national enterprises.  
Class Hour: To be arranged.  
Teaching: Two lectures, one seminar.  
Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

### **EC5503 Models and Methods in International Strategy and Economics**

Credits: 20.0 Semester: 1  
Co-requisites: EC5501 and EC5502  
Programme(s): Compulsory module for M.Sc in International Strategy & Economics  
Description: This module is skills-based. It uses Microsoft Excel to develop skills in decision modeling. It deals with optimization and covers topics such as linear programming, network flow models, portfolio choice problems and forecasting.  
Class Hour: To be arranged.  
Teaching: Two lectures, one practical class.  
Assessment: Continuous Assessment = 100%

### **EC5504 Growth and Economic Development**

Credits: 20.0 Semester: 2  
Prerequisites: EC5501 - EC5503  
Programme(s): Optional module for M.Sc. in International Strategy & Economics  
Description: This module explores the theory of economic development, including dependency theory, immiserising growth and Prebisch. Problems of export instability, trade liberalisation, the debt crisis, sovereign default, the new international order. The role of theory and institutions in the context of industry and agriculture. The relationship between poverty, income inequality, and economic development.  
Class Hour: To be arranged.  
Teaching: Two lectures, one seminar.  
Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

### **EC5505 Global and Local Issues of the Environment**

Credits: 20.0 Semester: 2  
Prerequisites: EC5501 - EC5503  
Programme(s): Optional module for M.Sc. in International Strategy & Economics and Postgraduate Diploma in Environmental History  
Description: The aim of this module is to introduce basic ideas and methods of environmental economics and policy without assuming an economics background. The geological background and current state of global warming is related to international efforts to control the problem, and efforts by energy lobbies to evade controls and influence public opinion. A variety of topical issues that relate economic, environmental and public policy considerations will be discussed including international trade, tropical deforestation, transport, sustainability, the relationship between economic (material) growth, the environment and human happiness and welfare. Specific problems of developing countries and their relations to the developed world will be studied.  
Class Hour: To be arranged.  
Teaching: Two lectures, one seminar.  
Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

### **EC5506 Entrepreneurship and Business Planning**

## **Economics & Finance – 5000 Level Modules 2007/08 – November 2007**

Credits: 20.0 Semester: 2

Prerequisites: EC5501 - EC5503

Programme(s): Optional module for M.Sc. in International Strategy & Economics

Description: This module involves the analysis of entrepreneurial activity, including risk and uncertainty bearing, co-ordination, arbitraging and innovating, covering both national and international dimensions. The elements of small business planning and strategy, including their applications in global markets, covering approaches of Porter and Minzberg. Small business, including its trans-national form.

Class Hour: To be arranged.

Teaching: Two lectures, one seminar.

Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

### **EC5507 European Economic Integration**

Credits: 20.0 Semester: 2

Prerequisites: EC5501 - EC5503

Programme(s): Optional module for M.Sc. in International Strategy & Economics

Description: The purpose of this module is to examine a number of issues relevant to European economic integration, and to expose students to the techniques and arguments developed in connection with these issues. We will make use of both macroeconomic and microeconomic theory to look at the rationale behind a number of EU policies. Where appropriate, we will also use theory and present empirical evidence in order to evaluate the effectiveness of these policies. Topics covered will include customs union theory, the economic consequences of factor mobility, EU competition policy and the economics of EMU.

Class Hour: To be arranged.

Teaching: Two lectures, one seminar.

Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

### **EC5509 Comparative Economic Systems**

Credits: 20.0 Semester: 2

Prerequisites: EC5501 – EC5503

Programme(s): Optional module for M.Sc. in International Strategy & Economics

Description: This is a cross-disciplinary course in comparative economics focusing on east-west comparisons. It first introduces basic economic principles, explains why free market economies can be efficient, also discusses when they may not be efficient and government intervention is needed. Then the relation between economic performance and cultural background is explored. The second half of the module will focus on fundamental features of major economic powers/systems, namely USA, Europe, Japan, China, Russia, and other regions. The course will examine how and to what extent the economic development in those regions has been shaped by culture and traditions.

Class Hour: To be arranged.

Teaching: Two lectures, one seminar.

Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

### **EC5518 The Economics of Negotiations**

Credits: 20.0 Semester: 2

Prerequisites: EC5501 – EC5503

Programme(s): Optional module for M.Sc. in International Strategy & Economics

Description: This module aims to study situations where two or more parties must negotiate in order to reach a mutually beneficial agreement. It aims to study some of the main factors that determine whether or not parties will strike an agreement, and if so, the nature of that agreement. The role played by factors such as the parties' outside options, their preferences and information on such negotiations will be explored. Understanding and insights will be developed in the context of various analytical models, including bargaining models of union wage formation and bargaining models of the family.

Class Hour: To be arranged.

Teaching: Two lectures, one tutorial.

Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

**EC5599 International Strategy and Economics Dissertation**

Credits: 60.0 Semester: Whole Year  
Programme(s): Compulsory module for M.Sc. in International Strategy & Economics  
Description: A dissertation in the form of an extended essay/project of at least 10 thousand words, but no more than 15 thousand words. Each written under 'light' supervision (three individual supervision meetings, three group supervision meetings), and based on a topic chosen from an assigned lists of potential topics and corresponding readings. Teamwork on dissertations is permitted (up to three students.)  
Class Hour: At times to be arranged with supervisor.  
Teaching: Supervision.  
Assessment: Dissertation = 100%

**EC5601 Investment Analysis**

Credits: 20.0 Semester: 1  
Co-requisites: EC5602, EC5603  
Programme(s): Compulsory module for M.Sc. in Finance  
Description: This module introduces the basic concepts of investment value analysis. The ultimate aim is to provide the student with a standard approach to define, measure and predict value of investments in a world of uncertainty. The standard notion of risk versus return is defined and analytical economic models of how risks and returns are determined and traded in financial markets are applied to solve any investment analysis problem. The usual valuation problems covered in this module involve corporate investments, a wide array of corporate liabilities such as shares and bonds and associated financial contracts such as options.  
Class Hour: To be arranged.  
Teaching: Two lectures, one seminar.  
Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

**EC5602 Financial Modelling**

Credits: 20.0 Semester: 1  
Co-requisites: EC5601, EC5603  
Programme(s): Compulsory module for M.Sc. in Finance  
Description: This module introduces the student to the basic concepts of financial modelling on computers in spreadsheets. The aim is to have the student understand some standard spreadsheet programming techniques that are used repeatedly in a wide range of financial modelling problems. The student should learn how to obtain and create financial data for use in a spreadsheet and then analyse that data via simple mathematical manipulation and statistical analysis. It is important to understand the process by which large models are conceived and then implemented in a spreadsheet model. It is equally important to understand how analysis is effectively reported in a spreadsheet.  
Class Hour: To be arranged.  
Teaching: One lecture, one hour lab work.  
Assessment: Continuous Assessment = 60%, Final Project = 40%

**EC5603 Financial Markets and Institutions**

Credits: 20.0 Semester: 1  
Co-requisites: EC5601, EC5602  
Programme(s): Compulsory module for M.Sc. in Finance  
Description: This module will consist of lectures covering institutional material on financial markets and institutions in the UK and elsewhere, together with seminars at which students will make presentations on a range of the key issues currently under discussion in the financial sector.  
Class Hour: To be arranged.  
Teaching: Two lectures, one seminar.  
Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

## **Economics & Finance – 5000 Level Modules 2007/08 – November 2007**

### **EC5604 Corporate Finance**

Credits: 20.0 Semester: 2

Prerequisites: EC5601 – EC5603

Co-requisites: EC5605, EC5606 *or* EC5608 *or* EC5723

Programme(s): Compulsory module for M.Sc. in Finance

Description: In this module we investigate the problem of how a collection of corporate liabilities are affected in value by corporate actions. Possible actions include corporate investment decisions, decisions regarding the firm's financial structure, changes in management rules and compensation and changes in the scope, specialisation and legal environment of the corporation's business. As in the prerequisite module, EC5601, we emphasise standard methods for solving problems under economic uncertainty. At the end of this module the student will have a good working knowledge of institutions and the theory and valuation methods used worldwide in major corporations and financial institutions.

Class Hour: To be arranged.

Teaching: Two lectures, one seminar.

Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

### **EC5605 Monetary Policy and International Finance**

Credits: 20.0 Semester: 2

Prerequisites: EC5601 - EC5603

Co-requisites: EC5604, EC5606 *or* EC5608 *or* EC5723

Programme(s): Compulsory module for M.Sc. in Finance

Description: This module covers key issues in international finance. Topics would typically include the international monetary policy framework, international parity conditions, exchange rate determination, the conduct of monetary policy, inflation targeting, and inflation bias.

Class Hour: To be arranged.

Teaching: Two lectures, one tutorial.

Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

### **EC5606 Further Topics in Finance**

Credits: 20.0 Semester: 2

Prerequisites: EC5601 - EC5603 *or* EC5701-EC5703

Co-requisites: EC5604, EC5605 *or* EC5704 - EC5705

Programme(s): Optional module for MSc in Finance or MSc in Analytical Finance.

Description: Three key components: (1) corporate governance; (2) risk management; and (3) financial management. Detailed content may vary year by year, but typically would include: (1) mergers, takeovers, corporate control, governance, financial architecture, risk capital; (2) risk in corporate and international settings; (3) financial planning, methods of lending and borrowing.

Class Hour: To be arranged.

Teaching: Two lectures, one tutorial.

Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

## **Economics & Finance – 5000 Level Modules 2007/08 – November 2007**

### **EC5608 Financial Intermediation**

Credits:	20.0	Semester:	2
Prerequisites:	EC5601 - EC5603 <i>or</i> EC5701 - EC5703		
Co-requisites:	EC5604, EC5605 <i>or</i> EC5704 - EC5705		
Programme(s):	Optional module for M.Sc. in Finance or MSc in Analytical Finance		
Description:	This module will cover the main theoretical issues involved in financial intermediation, from the existence of banks through credit rationing and optimal contracts to bank runs, central banks and regulation. The module will concentrate on analytical models, but there will be some reference to current issues in existing financial systems.		
Class Hour:	To be arranged.		
Teaching:	Lectures		
Assessment:	Continuous Assessment = 60%, 2 Hour Examination = 40%		

### **EC5609 Financial Econometrics**

Credits:	20.0	Semester:	2
Prerequisites:	EC5601 - EC5603		
Co-requisites:	EC5604, EC5605		
Anti-requisite:	EC5703		
Programme(s):	Optional module for M.Sc in Finance		
Description:	This module will introduce the students to the theory and practice of financial econometrics. The module will begin by introducing students to the classical linear regression model and a number of issues regarding its application to real world data. The module will then develop a number of time-series techniques that can be applied to the study of financial economics. Topics covered include: the linear univariate stochastic model, multivariate models, unit root processes and co-integration. By the end of the module students should be able to undertake empirical analysis using financial data.		
Class Hour:	To be arranged.		
Teaching:	Two lectures, one tutorial.		
Assessment:	Continuous Assessment = 60%, 2 Hour Examination = 40%		

### **EC5699 Finance Dissertation**

Credits:	60.0	Semester:	Whole Year
Prerequisites:	EC5601 - EC5605 and EC5606 <i>or</i> EC5607 <i>or</i> EC5608		
Programme(s):	Compulsory module for M.Sc. in Finance		
Description:	This module will enable students on the M.Sc. in Finance to undertake a sustained project or essay of at least 8,000 words (and no more than 12,000) on a relevant topic. A selection of topics will be identified by members of staff and it is expected that most students will choose one of these topics. Some supervision will be available, notably to agree topics and basic outlines, but students will be expected to work largely on their own initiative. Team work on dissertations is permitted (up to three students).		
Class Hour:	At times to be arranged with supervisor.		
Teaching:	Supervision.		
Assessment:	Dissertation = 100%		

## **Economics & Finance – 5000 Level Modules 2007/08 – November 2007**

### **EC5701 Neoclassical Finance**

Credits: 20.0 Semester: 1

Co-requisites: EC5702, EC5703

Programme(s): Compulsory module for M.Sc. in Analytical Finance

Description: The module provides a practical review of the economic foundations of Finance. It will include the Arbitrage Pricing Theory (APT), the theory of Portfolio Diversification, the Capital Asset Pricing Model (CAPM), and the Efficient Markets Hypothesis. The module will also cover many practical issues such as: the evaluation of long and short-term financial tools; and risk management instruments, including derivatives and hedging.

Class Hour: To be arranged.

Teaching: Lectures and tutorials.

Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

### **EC5702 Optimization in Finance**

Credits: 20.0 Semester: 1

Co-requisites: EC5701, EC5703

Programme(s): Compulsory module for MSc in Analytical Finance

Description: The module provides students with methods for solving optimization problems in Financial Economics. Starting from static constrained optimization problems, which can be encountered in one period financial market models, such as the one underlying the CAPM model, the module builds up to the development of the Hamilton-Jacobi-Bellman theory, which is used to solve optimal asset allocation problems in continuous time market models, based on the Ito-calculus.

Class Hour: To be arranged.

Teaching: Lectures and tutorials.

Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

### **EC5703 Financial Times Series Econometrics**

Credits: 20.0 Semester: 1

Co-requisites: EC5702, EC5703

Anti-requisite: EC5609

Programme(s): Compulsory module for MSc in Analytical Finance

Description: This module is designed to equip students with a thorough understanding of both the theory and practice of time series econometric techniques as applied to financial economics. Topics covered will include: autocorrelation, stationary (univariate) linear time series techniques such as ARMA models and the Box-Jenkins approach; non-linear univariate time series models of volatility such as ARCH, ARCH-M and GARCH processes; unit root processes; unit root processes; vector autoregression (VAR) techniques; cointegration techniques including the Engle-Granger and Johansen methodologies; non-linear techniques such as threshold autoregression and regime switching.

Class Hour: To be arranged.

Teaching: Lectures and tutorials.

Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

## **Economics & Finance – 5000 Level Modules 2007/08 – November 2007**

### **EC5704 Computations in Finance**

Credits: 20.0 Semester: 2

Prerequisites: EC5701 - EC5703

Co-requisites: EC5705

Programme(s): Compulsory module for MSc in Analytical Finance

Description: Many problems in finance cannot be solved directly, in the sense of obtaining a closed form solution. Instead they have to be solved by the use of numerical algorithms implemented on a computer. This module covers such techniques, including: Monte Carlo simulation methods for pricing financial derivatives; finite difference methods to solve partial differential equations such as the Black-Scholes equation; effective methods to compute hedging strategies; and methods for the calibration of financial market models. The implementation of these methods on the computer using the MATLAB software package is a crucial component of the module.

Class Hour: To be arranged.

Teaching: Lectures, tutorials and practical classes.

Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

### **EC5705 Options and Derivatives**

Credits: 20.0 Semester: 2

Prerequisites: EC5701 - EC5703

Co-requisites: EC5704

Programme(s): Compulsory module for MSc in Analytical Finance

Description: This module will cover the properties, pricing, and hedging of futures/forwards, options, swaps and other derivatives traded on financial markets, together with the working mechanism of the derivative markets. The module mainly focuses on the Black-Scholes theory of option pricing which provides analytical and numerical methods to price options and derivatives, but also includes the discussion of more advanced topics, such as stochastic volatility, volatility based products and interest rate theory. While the use of a certain level of mathematical reasoning is unavoidable in derivatives pricing, care will be taken to emphasise intuition.

Class Hour: To be arranged.

Teaching: Lectures and tutorials.

Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

### **EC5721 Microstructure of Financial Markets**

Credits: 20.0 Semester: 2

Prerequisites: EC5701 - EC5703

Co-requisites: EC5704 - EC5705

Programme(s): Optional module for MSc in Analytical Finance

Description: This module is concerned with the study of the process and outcomes of exchanging assets under explicit trading rules. The general focus is on the information implicit in market data, and on the learning process that translates this information into market Prices. Under a broad framework of Markets, Models, Liquidity and Performance, it treats the following topics: Security trading and market makers, inventory based model of trades, quote and order driven markets; sequential trade; information and the price process; noisy rational expectations models; liquidity trading; bid-ask spread; spread decomposition; market stability, transparency, and liquidity; relationships between markets; speculative trade; insider trading; operation of international stock exchanges; trading mechanisms; trading costs; market bubbles and herding behaviour.

Class Hour: To be arranged.

Teaching: Lectures and tutorials.

Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%



## **Economics & Finance – 5000 Level Modules 2007/08 – November 2007**

### **EC5722 Risk Management**

Credits: 20.0 Semester: 2

Prerequisites: EC5701 - EC5703

Co-requisites: EC5704 - EC5705

Programme(s): Optional module for MSc in Analytical Finance

Description: This module provides the student with an introduction to classical techniques in risk and insurance. The implementation of sound quantitative risk models to assess and insure against risk is a vital concern for all financial institutions. The module provides a comprehensive treatment of the theoretical concepts and modeling techniques of quantitative risk management, and provides students with practical tools to solve real world problems. Specific topics covered include: portfolio management, real options, operational risk, credit risk and pension fund modeling.

Class Hour: To be arranged.

Teaching: Lectures and seminars.

Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

### **EC5723 Portfolio Management**

Credits: 20.0 Semester: 2

Prerequisites: EC5701 - EC5703, EC5601 - EC5603

Co-requisites: EC5704 - EC5705, EC5604 - EC5605

Programme(s): Optional module for MSc in Finance or Analytical Finance

Description: This module covers practical aspects of portfolio management and aims to prepare students for roles in global asset management. Topics covered are: mean-variance portfolio theory; portfolio optimization and asset allocation; quadratic programming and determination of the efficient frontier; Value-at-Risk (VaR): linear model, quadratic model, Monte Carlo and historical simulation; risk management of bond portfolios; duration, convexity and cash flow mapping; portfolio performance attribution to currency, country, market, and security selections. Spreadsheet programming is an important part of this module.

Class Hour: To be arranged.

Teaching: Lectures and tutorials.

Assessment: Continuous Assessment = 60%, 2 Hour Examination = 40%

### **EC5799 Dissertation in Analytical Finance**

Credits: 60.0 Semester: Whole Year

Prerequisites: EC5701 - EC5705 and one of: EC5721 - EC5740, EC5606, EC5608

Programme(s): Compulsory module for MSc. in Analytical Finance

Description: This module will enable students on the MSc in Analytical Finance to undertake a sustained theoretical or empirical project, or extended analytical essay, of at least 8,000 words (and no more than 12,000) on a relevant analytical finance topic. A selection of topics (and core readings) will be identified by members of staff, and it is expected that most students will choose one of these topics. Light supervision will be available, notably to agree topics, basic outlines, and check progress, but students will be expected to work largely on their own initiative. Team work on dissertations is permitted (up to three students).

Class Hour: To be arranged.

Teaching: Supervision.

Assessment: Dissertation = 100%

## **Economics & Finance – 5000 Level Modules 2007/08 – November 2007**

### **ID5011 Geographic Information Systems for Environmental Management**

Credits:	15.0	Semester:	1
Prerequisite:	A basic ability in computer skills (Basic word processing, spread sheet analysis) gained through SALTIRE if not demonstrated		
Anti-requisite:	GE5005, ID5010, ID5012		
Programme(s):	Optional module for Environmental Biology MSc, Mathematics & Statistics, Economics, Management and Environmental History Taught Postgraduate Programmes.		
Description:	This module provides an introduction to Geographic Information systems and their use in environmental problem solving. The module will be taught through a series of lectures, tutorials, laboratory classes and individual projects. The module will be assessed through class exercises and the final, short individual project. Students will be introduced to methods of acquiring, storing, analysing and displaying (2D and 3D) spatial digital data using the ArcGIS data package. An introduction to data manipulation and statistical techniques on a variety of environmental examples will be given. The module is taught within the School of Geography & Geosciences but incorporates datasets and analysis techniques used in earth and environmental science, biology, archaeology, and mathematics.		
Class Hour:	To be arranged.		
Teaching:	Lectures, practicals and occasional tutorials.		
Assessment:	Continuous Assessment = 50%, Short Project = 50%		