Course Overview
EC3314 is designed to provide insights into the nature of financial markets and how they are used by investors and corporations. The first semester puts emphasis on the equity market and mainly deals with issues in optimal asset allocation, asset pricing theory, market efficiency and market microstructure. Topics that are covered are mean-variance analysis, the Capital Asset Pricing Model (CAPM), as well as factor portfolios and Arbitrage Pricing Theory (APT) and the price formation process.

The second part of the course concentrates on fixed income securities and the uses and applications of derivative financial instruments. It covers pricing of fixed-income securities, futures, options and swaps and hedging.

Learning Outcomes
Upon completion of the course students should
- understand and be able to describe the role of the most fundamental markets and institutions that constitute a modern financial system;
- have a firm grasp of the important tools commonly used in investment analysis;
- demonstrate understanding of various theories of risk-factor pricing, such as the Capital Asset Pricing Model (CAPM) and the Arbitrage Pricing Theory (APT);
- critically evaluate the theory of, and empirical evidence on efficient markets;
- demonstrate knowledge of the price formation process in financial markets;
- demonstrate ability in pricing default-free fixed-income securities;
- be conversant with basic institutional features of derivatives markets, and should be able to demonstrate how derivative instruments are priced and they are used for hedging purposes.

Course Delivery
The course will comprise a two-hour lecture and a one-hour seminar each week. The detailed learning outcomes and reading for each week are outlined below. Additionally, lecture notes will be made available on Moodle. Seminars will be based predominantly upon problem sets that are usually distributed in the previous week’s lecture or made available online on Moodle. Poor attendance in seminars could result in your being given an 'Attendance Fail' (AF) for the entire course and even cost you the academic year.

The lecturer and seminar tutors are available to students for consultation during advertised office hours or by appointment. As this is an intensive course, for your part, you are advised to devote an additional six (6) hours per week of study in this course.
Assessment
During the exam term in the summer there will be a three-hour unseen examination, which contributes 75% to the final mark. The exam will test students' knowledge and understanding of the material covered in the course. These include their ability to manipulate diagrammatic and algebraic versions of the models treated in the course, their ability to apply models to real economic situations and their ability to critically appraise models and their application. The final grade is based on further coursework during term time. In the Autumn Term, an essay/project/case study which may require data analysis will contribute toward 12.5% of the final mark. In the Spring Term, a project/case study requiring data analysis will count toward a further 12.5% of the final mark.

Formative assessment will consist of one midterm test per term. The dates for these are laid out in the current Student Handbook. Standardised feedback on these pieces of work will be provided. Neither piece of work is assessed and therefore none carries a formal weight. However you must complete them in all respects. Failure to do so would lead to the issue of a Formal Warning by the Department, which can ultimately lead to you failing the entire course or the termination of your registration.

Reading
The primary text for the course is;


It will provide most of the required reading and you are strongly advised to purchase your own textbook. Older editions (e.g. up to the 8th) of the book are still valid for use in this class. Other standard texts that you might wish to refer to are listed below. Further required reading for selected topics, and additional material in the form of lecture notes will be made available whenever necessary on Moodle. Students should also attempt to relate the material dealt within the course to actual events in the financial markets, as covered in the business sections of the broadsheets (e.g., Financial Times).

Supplementary textbooks:
- [H] J.C. Hull, Fundamentals of Futures and Options Markets, Pearson International Education

Students who prefer a more technical exposition of the material covered may consider the following alternative:

Supplementary reading:
The reading list below includes a number of textbook chapters and journal articles that complement the required reading and help deepen your understanding of the topic. Contributions marked with an asterisk (*) are available online via JSTOR at http://www.jstor.org/browse - for more information please ask the library staff.

IMPORTANT NOTE: Financial Market Participants and Institutions
Many textbooks contain fairly comprehensive descriptions of participants and institutions in financial markets. Some students will have covered a number of these issues in EC2212 (Financial Markets and Institutions). Students who have not done so will not suffer any disadvantage regarding the course material, as all the salient concepts will be introduced from scratch. However, all students taking the course are strongly encouraged to ensure (through self-study) that they are familiar with the roles and functions of major financial market participants, financial instruments and the arrangements and regulations that constitute a modern financial system. For example, students should have a notion of the main features that distinguish market participants (or the services provided by them) from each other. For textbook treatments of institutional issues see the supplementary reading for Lecture 1.

(Tentative) Schedule

<table>
<thead>
<tr>
<th>Lecture Title</th>
<th>Learning Outcomes</th>
<th>Reading</th>
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<tbody>
<tr>
<td>Lecture 1: Introduction – Overview of Financial Markets/Instruments</td>
<td>This lecture will introduce the main topics to be covered in the course and provide an introductory overview of financial markets and financial instruments used by market participants.</td>
<td>Required reading: [BKM] Part 1 (Chapters 1-4)</td>
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<td>Supplementary reading: [GT] Chapter 1, [EG] Chapter 2, [LP] Part 1</td>
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<td>Blake, D., 2000, Financial Market Analysis (2nd ed.), Wiley, Chapter 1, for a UK perspective</td>
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<td>Lecture 2: Basic Tools for Portfolio Analysis</td>
<td>In addition to learning the material covered in the reading and the lecture, students should be able to</td>
<td>Required reading: [BKM] Chapters 5 and 6</td>
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<td>• be familiar with the concept of risk aversion and understand how investors’ preferences over risky portfolios may be expressed in terms of scoring function (a utility function);</td>
<td>Supplementary reading: [GT] Chapter 4, [LP] Chapters 6 and 7</td>
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<td></td>
<td>• demonstrate ability in using statistical tools such as mean, variance, and covariance for simple portfolio analysis;</td>
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<td>Lectures 3-4: Mean Variance Analysis</td>
<td>In addition to learning the material covered in the reading and the lecture, students should be able to</td>
<td>Required reading: [BKM] Chapters 6 and 7</td>
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<td>• understand how portfolio variance can be reduced through diversification and the limits of diversification;</td>
<td>Supplementary reading: [GT] Chapter 5, [LP] Chapters 8 and 9</td>
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<td></td>
<td>• evaluate the trade-off between risk and return, both intuitively and algebraically;</td>
<td>The foundations of modern portfolio theory can be found in:</td>
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<td>• demonstrate how the efficient frontier of risky assets is obtained and how to locate ‘key’ portfolios such as the global minimum-variance portfolio and the tangency portfolio in the mean/standard deviation diagram;</td>
<td>* H.M. Markowitz, 1952, Portfolio Selection, Journal of Finance 7, 77-91.</td>
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<td>Lecture 5: The Capital Asset Pricing Model (CAPM)</td>
<td>• construct a mean-variance efficient portfolio.</td>
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<td>Lecture 6: Factor Models and Arbitrage Pricing Theory (APT)</td>
<td>In addition to learning the material covered in the reading and the lecture, students should</td>
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<td>• understand the difference between mean-variance analysis and the CAPM, in particular regarding the assumptions made in the latter;</td>
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<td>• be able to solve for the required return of common stock using the capital asset pricing model (CAPM);</td>
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<td>• have the ability to interpret the meaning of a stock’s beta;</td>
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<td>• be able to appraise critically the CAPM.</td>
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<td>Lecture 7: Empirical Evidence on Asset Pricing Theories and Market Efficiency</td>
<td>In addition to learning the material covered in the reading and the lecture, students should</td>
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<td>• critically evaluate main empirical evidence on the CAPM and market efficiency;</td>
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<td>• analyse the three versions of the efficient markets hypothesis, and their implications for financial markets;</td>
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<td>• critically assess trading strategies based on technical analysis or fundamental analysis.</td>
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<td>Lecture 8: An overview of</td>
<td>In addition to learning the material covered in the reading and the lecture, students should</td>
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<td>Required reading: [BKM] Chapters 12 and 13</td>
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**Required reading:** [BKM] Chapter 9  
Supplementary reading: [GT] Chapter 5, [LP] Chapter 10  

**Required reading:** [BKM] Chapters 8 and 10  
Supplementary reading: [GT] Chapter 6, [LP] Chapter 11

**Required reading:** [BKM] Chapters 11 and 13  
Supplementary reading: [GT] Chapters 5 and 6, [LP] Chapter 12  

**Required reading:** [BKM] Chapters 12 and 13
| Behavioral Finance | • understand the limits to EMH and in particular to arbitrage;  
• be able to identify mechanisms, rational and/or behavioural, that can account for several anomalies;  
• have thoroughly reviewed Bayes' theorem and its application. | A. Shleifer, “Are markets efficient?”, WJS, December 2000 (available on moodle).  
Supplementary reading:  
| Lecture 9: Adverse Selection in Financial Markets | In addition to learning the material covered in the reading and the lecture, students should  
• demonstrate ability in analysing a limit order book;  
• understand how adverse selection gives rise to a bid-ask spread;  
• be able to compute security prices in the simplified Glosten-Milgrom model. | Required reading:  
W. Bagehot, 1971, The Only Game in Town, Financial Analysts Journal 27, 12-14 & 22, available through the RHUL library Metalib:  
Supplementary reading:  
L.R. Glosten and P.R. Milgrom, 1985, Bid, ask, and transaction prices in a specialist market with heterogeneously informed traders, Journal of Financial Economics 14, 71-100, available through RHUL library Metalib:  
http://dx.doi.org/10.1016/0304-405X(85)90044-3 |
| Lecture 1: Fixed-Income Securities: An Overview | In addition to learning the material covered in the reading and the lecture, students should be able to  
• demonstrate familiarity with the main sources of debt financing;  
• evaluate the various bond features, as well as the risks they may entail;  
• demonstrate ability in applying discounting methods to derive the yield to maturity of a bond, and how to use the yield to maturity. | Required reading: [BKM] Chapter 14  
Supplementary reading: [GT] Chapter 2 |
| Lectures 2-3: Bond Pricing and the Term Structure of Interest Rates | In addition to learning the material covered in the reading and the lecture, students should be able to  
• demonstrate how spot and forward rates are derived;  
• evaluate the theories of the term structure;  
• price default-free bonds. | Required reading: [BKM] Chapter 15  
Supplementary reading: [EG] Chapter 20, [LP] Chapter 13 |
| Lectures 4: The Management of | In addition to learning the material covered in the reading and the lecture, students should be able to | Required reading: [BKM] Chapter 16  
Supplementary reading: [GT] Chapter 22, [LP] Chapter 14 |
### Bond Portfolios
- analyse how interest rate risk affects bond portfolios;
- demonstrate knowledge of the concepts of duration and convexity;
- demonstrate how portfolio immunization strategies work.

### Lecture 5: Futures
In addition to learning the material covered in the reading and the lecture, students should be able to
- understand the arrangements contained in forward contracts;
- evaluate the differences between forwards and futures, especially regarding ‘marking to market’ and its implications;
- price a forward contract;
- demonstrate how such instruments can be used for hedging against certain risks.

Required reading: [BKM] Chapter 22
Supplementary reading: [H] Chapters 1, 2, 3 and 5, [GT] Chapter 7, [LP] Chapter 19

### Lecture 6: Options I
In addition to learning the material covered in the reading and the lecture, students should be able to
- understand the rights and obligations of the parties involved in various types of option contracts;
- be familiar with the basic taxonomy used in options analysis;
- demonstrate the payoff structures resulting at an option’s date of expiry;
- evaluate the put-call parity relationship.

Required reading: [BKM] Chapter 20
Supplementary reading: [H] Chapter 8 and 9, [EG] Chapters 7 and 8

### Lectures 7-8: Options II
In addition to learning the material covered in the reading and the lecture, students should be able to
- work out a number of price bounds for options (depending on their type, the time left to expiry, and their strike price);
- demonstrate ability in working out binomial option pricing and the idea of arbitrage with a tracking portfolio;
- to price a plain-vanilla option in a two-period binomial framework;
- create trading positions in options.

Required reading: [BKM] Chapter 21
Supplementary reading: [H] Chapters 10 and 11, [EG] Chapter 8, [LP] Chapter 20

### Lecture 9: Swaps
In addition to learning the material covered in the reading and the lecture, students should be able to
- construct of a plain vanilla swap contract;
- evaluate the various types of interest rate swaps that are available;
- analyse the potential uses of these tools.

Required reading: [BKM] Chapter 23
Supplementary reading: [H] Chapter 7