

## AFIN305 – Fixed Income & Financial Institutions

Course Title	Fixed income & Financial Institutions				
Course Code	AFIN305				
Course Type	Elective				
Level	BA (Level 1)				
Year / Semester	4th year/Spring				
Teacher's Name	Dr Nicos Koussis / Dr Antonis Michis				
ECTS	6	Lectures / week	3	Laboratories/week	
Course Purpose	<p>This an advanced course in finance focusing on the analysis of fixed income securities and financial institutions. The purpose of the course is to provide an understanding of the characteristics and types of fixed income securities, interest rate and credit risk. We then move on to apply knowledge in the case of financial institutions. We show how the regulatory environment and monetary policy impact the performance of banks and analyze the impact of interest rate uncertainty on the asset and liability management of financial institutions and the effect of credit risk on bank loan portfolios. The course proposes risk management strategies to alleviate these risks.</p>				
Learning Outcomes	<ol style="list-style-type: none"> <li>1. Define the different types and characteristics of fixed income securities</li> <li>2. Describe fixed income markets, issuance and their use by various issuers</li> <li>3. Calculate the prices of fixed income and yields of bonds</li> <li>4. Illustrate the sources of risk and return of bonds</li> <li>5. Calculate various bond durations measures</li> <li>6. Outline the measurement approaches and assessment of credit risk relating to fixed income securities</li> <li>7. Apply arbitrage free framework for the valuation of bonds and calculation of term structure of interest rates</li> <li>8. Distinguish the different types of financial services and the different type of financial institutions.</li> <li>9. Outline the economic environment and monetary policy impact on the performance of financial institutions</li> <li>10. Describe the impact of interest rate uncertainty on the asset and liability management of financial institutions</li> <li>11. Describe the securitization process and use of asset-backed securities</li> <li>12. Calculate duration and convexity for option free bonds.</li> </ol>				

	<p>13. Calculate the duration gap of a Bank and show the impact of a given interest change on the net worth of a Bank.</p> <p>14. Demonstrate interest rate hedging techniques via use of swaps, forwards and options.</p>		
Prerequisites	AFIN101, AFIN102	Co-requisites	None
Course Content	<p>Fixed Income: Defining elements and overview of markets</p> <ul style="list-style-type: none"> <li>• Overview of fixed-income securities</li> <li>• Legal, regulatory and tax considerations</li> <li>• Structure of bond's cash flows</li> <li>• Bonds with contingency provisions</li> <li>• Types of issuers</li> <li>• Bond indenture provisions</li> <li>• Fixed income markets: issuance, trading and funding uses</li> </ul> <p>Introduction to fixed income valuation</p> <ul style="list-style-type: none"> <li>• Bond prices and time value of money</li> <li>• Prices and yields: conventions for quotes and calculations</li> <li>• Price-yield relationships</li> <li>• Risk and return of bonds</li> <li>• Calculation of duration measures of bonds</li> </ul> <p>Fundamentals of credit risk analysis</p> <ul style="list-style-type: none"> <li>• Definition of credit risk and measurement</li> <li>• Spread risk, downgrade risk and liquidity risk</li> <li>• Seniority and credit risk</li> <li>• Sovereign credit risk</li> </ul> <p>Arbitrage free framework for the valuation of bonds and calculation of term structure of interest rates</p> <ul style="list-style-type: none"> <li>• Calculation methods of spot rates and meaning of spot rates</li> <li>• Using the term structure of interest rates for valuing fixed income</li> <li>• Forward rates and present value updating</li> </ul>		

- Market expectation theory, liquidity preference and market segmentation: implications for the term structure of interest rates
- Using forward rates for pricing forward contracts on fixed income
- Swap rate curve, swap spread, Libor/swap curve, TED spread, LIBOR-OIS spread

Introduction to financial markets and institutions and the economic environment:

- Outline basic characteristics of depository Institutions, securities firms and investment banks
- Overview of the financial statements of banks and risks of financial institutions
- Identify the main tools of monetary policy and its interaction with financial institutions (open market operations, REPOS)

Introduction to interest rate uncertainty impact on financial institutions performance:

- Understand the interest rate sensitive assets and liabilities of financial institutions and the risks involved
- Explain the importance of duration and apply immunization strategies that reduce the impact of interest rate uncertainty
- Duration strategies using interest rate futures

Risk Management

- Overview of risks
- VaR and market risk
- Managing interest rate risk with interest rate swaps
- Managing credit risk and credit default swaps and their use for managing credit risk by banks

Financial software modelling with applications in banking

- Using R programming to analyze large financial sets of banking data
- Using R programming to calculate large number of forward rates
- Using R programming to calculate durations and perform immunization
- Using R graphical interface in financial problems

<p>Teaching Methodology</p>	<p>The course is delivered to the students by means of lecturers, conducted with the help of computer presentations and the use of the board.</p> <p>The lecturer provides demonstrations and examples on the use of R programming software in modeling financial problems relating to banking. These demonstrations are discussed in class. Students are then asked to expand on this knowledge by solving problems of interest for the financial industry in group projects and presenting their work in class (e.g, calculating forward rates, valuing bonds and durations and performing sensitivity analysis)</p> <p>Lecture notes and other course material like spreadsheets and R programs examples are available to students through the e-learning platform.</p>
<p>Bibliography</p>	<p>(a) Saunders, A. Financial Institutions Management: A Risk Management Perspective, McGraw-Hill Education / Asia; 7 edition (16 Dec. 2010)</p> <p>Luenberger, Investment Science, Oxford University Press,2014</p> <p>CFA Program Curriculum 2020 Level I-III, Wiley</p> <p>(b) References:</p> <p>Saunders, A. Financial Institutions Management: A modern perspective, 3rd edition, 2002</p> <p>Hull, J. Risk Management and Financial Institutions, Prentice Hall, 2007.</p>
<p>Assessment</p>	<p>(a) <u>Methods:</u> Students will be assessed with course work that involves written and computer based assignments, a group project, a midterm and a final test. The course involves both explaining concepts and numerical problems and developing computer skills for handling data and financial modeling using software.</p> <p>Relating to the group project, the students are allocated in teams (max of 3 person) to work on a specific banking related project involving the use of software. Each team presents their work in class. Part of grade is allocated in the presentation and part on the handed project.</p> <p>(b) <u>Criteria:</u> Assessment criteria are available in each written assignment, group project and in the midterm or in the final exam</p> <p>(c) <u>Weights:</u></p> <ul style="list-style-type: none"> <li>• Assignments (including computer based) 10%</li> <li>• Group project 10% <ul style="list-style-type: none"> <li>• Midterm 20%</li> </ul> </li> <li>• Final Exam 60%</li> </ul>



Language	English language
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