

# FINANCE

## (WH) {FNCE}

**100. Corporate Finance. (C)** Prerequisite(s): ECON 10 or ECON 001 or ECON 002, MATH 104, ACCT 101 and STAT 101. Acct 101 and Stat 101 may be taken concurrently.

This course provides an introduction to the theory, the methods, and the concerns of corporate finance. The concepts developed in FNCE 100 form the foundation for all elective finance courses. The main topics include: 1) the time value of money and capital budgeting techniques; 2) uncertainty and the trade-off between risk and return; 3) security market efficiency; 4) optimal capital structure, and 5) dividend policy decisions. During the fall semester there are honors sections of FNCE 100 offered. The seats in the honors sections are awarded through an application process. Please go to <https://fnce.wharton.upenn.edu/programs/course-applications/> for additional information.

**101. Monetary Economics and the Global Economy. (C)** Prerequisite(s): ECON 10 or ECON 001 and ECON 002 and MATH 104. Students cannot receive credit for both FNCE 101 and ECON 102. WHARTON STUDENTS ARE REQUIRED TO TAKE FNCE101.

This is an intermediate-level course in macroeconomics and the global economy, including topics in monetary and international economics. The goal is to provide a unified framework for understanding macroeconomic events and policy, which govern the global economic environment of business. The course analyzes the determinants and behavior of employment, production, demand and profits; inflation, interest rates, asset prices, and wages; exchange rates and international flows of goods and assets; including the interaction of the real economy with monetary policy and the financial system. The analysis is applied to current events, both in the US and abroad. During the spring semester there are honors sections of FNCE 101 offered. The seats in the honors sections are awarded through an application process. Please go to <https://fnce.wharton.upenn.edu/programs/course-applications/> for additional information.

**203. Advanced Corporate Finance. (C)** Prerequisite(s): FNCE 100, (FNCE 611), FNCE 101, (FNCE 613) STAT 101, and STAT 102. Professor Opp and Professor Galla do not require FNCE 101 as a prerequisite.

The objective of this course is to study the major decision-making areas of managerial finance and some selected topics in financial theory. The course reviews the theory and empirical evidence related to the investment and financing policies of the firm and attempts to develop decision-making ability in these areas. This course serves as an extension of FNCE 100 (FNCE 611). Some areas of financial management not covered in FNCE 100 are covered in FNCE 203. These may include leasing, mergers and acquisitions, corporate reorganizations, financial planning and working capital management, and some other selected topics. Other areas that are covered in FNCE 100 are covered more in depth and more rigorously in FNCE 203. These include investment decision making under uncertainty, cost of capital, capital structure, pricing of selected financial instruments and corporate liabilities, and dividend policy. During the Spring semester, Professor Opp does not allow students to take this course pass/fail.

**205. Investment Management. (C)** Prerequisite(s): The prerequisites for Undergraduates are FNCE 100, and STAT 101-102 (STAT 102 may be taken concurrently with this course. Given that investment management requires one to analyze and deal effectively with uncertainty, a good grounding in statistics is essential, and familiarity with statistics should extend through multiple regression, covariance, and correlation.

This course studies the concepts and evidence relevant to the management of investment portfolios. Topics include diversification, asset allocation, portfolio optimization, factor models, the relation between risk and return, trading, passive (e.g., index-fund) and active (e.g., hedge-fund, long-short) strategies, mutual funds, performance evaluation, long-horizon investing and simulation. The course deals very little with individual security valuation and discretionary investing (i.e., "equity research" or "stock picking").

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**206. (FNCE717) Financial Derivatives. (C)** Prerequisite(s): The following introductory Finance and Statistics courses are recommended but not required. FNCE 101 and STAT 102 are recommended and can be taken concurrently.

The purpose of this course is to provide the student with the necessary skills to value and to employ options, futures, and related financial contracts. In order to provide a useful treatment of these topics in an environment that is changing rather rapidly, it is necessary to stress the fundamentals and to explore the topics at a technical level. The topics that will be covered include the valuation of futures contracts on stock indices, on commodities and Treasury instruments; the valuation of options; empirical evidence; strategies with respect to these assets; dynamic asset allocation strategies, of which portfolio insurance is an example; swaps; and the use (and misuse) of derivatives in the context of corporate applications. One-third of the course will be devoted to futures, a third to options, and a third to their applications. Many of the applications will be sprinkled along with the coverage of futures and options.

**207. Corporate Valuation. (C)** Prerequisite(s): FNCE 100, (FNCE 611) ACCT 101, AND STAT 101 111 OR EQUIVALENT ACCT 101 RECOMMENDED.

The focus of this course is on the valuation of companies. Topics discussed include discounted cash flow techniques and valuation using alternative valuation techniques such as price multiples. Emphasis is on developing the required information for valuation from financial statements and other information sources.

**208. International Corporate Finance. (A)** Prerequisite(s): A thorough knowledge of FNCE 100 (FNCE 611) is assumed.

Analyzes financial problems corporations face that result from operating in an international environment. Major topics include managing exchange risk through hedging and financing, measuring exchange rate exposure, calculating the cost of capital for foreign operations, assessment of sovereign risks, capital budgeting from a project and parent perspective, and international taxation.

**209. (FNCE721, REAL209, REAL721) Real Estate Investment: Analysis and Financing. (C)** Prerequisite(s): FNCE 100.

This course provides a broad introduction to real estate with a focus on investment and financing issues. Project evaluation, financing strategies, investment decision making and real estate capital markets are covered. No prior knowledge of the industry is required, but students are expected to rapidly acquire a working knowledge of real estate markets. Classes are conducted in a standard lecture format with discussion required. The course contains cases that help students evaluate the impact of more complex financing and capital market tools used in real estate. There are case studies and two midterms, depending on instructor.

**220. International Banking. (A)** Prerequisite(s): FNCE 100, FNCE 101.

This course focuses on international financial institutions and international banking activities. We will examine how current and historical events are reshaping the industry. We will focus on the basic analytics of managing a bank's exposure to liquidity, credit, market and country risk. In addition, we will consider how to evaluate and compare the risk exposures and performance of individual banks. Throughout the semester we will discuss public policy issues such as international debt crises and regulation.

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**219. International Financial Markets. (C)** Prerequisite(s): FNCE 100, (FNCE 611), FNCE 101,(FNCE 613) STAT 101.

This course focuses on international financial markets and exchange rates. Topics include pricing in the foreign currency and Eurocurrency markets, use of forward exchange for hedging, short-term returns and market efficiency in the international money markets, foreign currency options, international capital asset pricing, pricing of foreign currency bonds, currency swaps, Eurocurrency syndicated loans, foreign currency financing and exposure management.

**230. (BEPP230, REAL230) Urban Fiscal Policy. (A)** Robert Inman. Prerequisite(s): FNCE 101 and ECON 001.

The purpose of this course is to examine the financing of governments in the urban economy. Topics to be covered include the causes and consequences of the urban fiscal crisis, the design of optimal tax and spending policies for local governments, funding of public infrastructures and the workings of the municipal bond market, privatization of government services, and public financial systems for emerging economies. Applications include analyses of recent fiscal crises, local services and taxes as important determinants of real estate prices, the infrastructure crisis, financing and the provision of public education, and fiscal constitutions for new democracies using South Africa as an example.

**235. Fixed Income Securities. (C)** Prerequisite(s): FNCE 100 and STAT 621.

This course covers fixed income securities (including fixed income derivatives) and provides an introduction to the markets in which they are traded, as well as to the tools that are used to value these securities and to assess and manage their risk. Quantitative models play a key role in the valuation and risk management of these securities. As a result, although every effort will be made to introduce the various pricing models and techniques as intuitively as possible and the technical requirements are limited to basic calculus and statistics, the class is by its nature quantitative and will require a steady amount of work. In addition, some computer proficiency will be required for the assignments, although familiarity with a spreadsheet program (such as Microsoft Excel) will suffice.

**238. Capital Markets. (C)** Prerequisite(s): FNCE 100,(FNCE 611), FNCE 101 (FNCE 613).

The objective of this course is to give you a broad understanding of the framework and evolution of U.S. capital markets, the instruments that are traded, the mechanisms that facilitate their trading and issuance, and the motivations of issuers and investors across different asset classes. The course will highlight the problems that capital market participants are seeking to solve, which you can use in your post-Wharton careers to evaluate future market innovations. We will consider design, issuance, and pricing of financial instruments, the arbitrage strategies which keep their prices in-line with one another, and the associated economic and financial stability issues. We will draw from events in the aftermath of the recent financial crisis, which illustrate financing innovations and associated risks, as well as policy responses that can change the nature of these markets.

**239. Behavioral Finance. (C)** Prerequisite(s): FNCE 100, FNCE 101. Recommended: FNCE 205 and FNCE 203.

There is an abundance of evidence suggesting that the standard economic paradigm - rational agents in an efficient market - does not adequately describe behavior in financial markets. In this course, we will survey the evidence and use psychology to guide alternative theories of financial markets. Along the way, we will address the standard argument that smart, profit-seeking agents can correct any distortions caused by irrational investors. Further, we will examine more closely the preferences and trading decisions of individual investors. We will argue that their systematic biases can aggregate into observed market inefficiencies. The second half of the course extends the analysis to corporate decision making. We then explore the evidence for both views in the context of capital structure, investment, dividend, and merger decisions.

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**250. Venture Capital and the Finance of Innovation. (C)** Prerequisite(s): FNCE 100 (FNCE 611) and FNCE 101 (FNCE 613)- (FNCE 101-FNCE 613 may be taken concurrently).

This course covers the finance of technological innovation, with a focus on the valuation tools useful in the venture capital industry. These tools include the "venture capital method," comparables analysis, discounted cash flow analysis, contingent-claims analysis. The primary audience for this course is finance majors interested in careers in venture capital or in R&D-intensive companies in health care or information technology.

**385. ASP FIN-TECH.** Prerequisite(s): A thorough knowledge of FNCE 100 is assumed.

The course exposes students to this fast-growing and exciting intersection between finance (Fin) and technology (Tech) while emphasizing the role data and analytics play. The course is structured around three main FinTech areas: (i) Lending/Banking services, (ii) Clearing (iii) Trading. It provides specific coverage and examples of developments from (1) peer-to-peer lending, (2) blockchain and distributed ledgers, (3) networks and their use in trading, and (4) algo trading and its use of non-standard inputs. In each of these areas, we start by analyzing the marketplace, and the incumbents, and the business case and strategies of the incoming technology-based players, while understanding the role data and analytics play in driving the technology-based services. The course is built around a large number of examples and cases, guest lectures, student presentations, and group projects. Students are thus expected to work in teams and demonstrate a high level of independent learning and initiative.

**251. The Finance of Buyouts and Acquisitions.** Prerequisite(s): FNCE 100 (FNCE611), FNCE 101 (FNCE 613), Co-Requisite FNCE 203 (FNCE 726) Advanced Corporate Finance or FNCE 207 (FNCE 728) Corporate Valuation. FORMAT: Lectures, cases, and guest speakers. Grading: Class participation, two student projects, two exams.

The course focuses on financial tools, techniques, and best practices used in buyouts (financial buyers) and acquisitions (strategic buyers). While it will touch upon various strategic, organizational, and general management issues, the main lens for studying these transactions will be a financial one. It will explore how different buyers approach the process of finding, evaluating, and analyzing opportunities in the corporate-control market; how they structure deals and how deal structure affects both value creation and value division; how they add value after transaction completion; and how they realize their ultimate objectives (such as enhanced market position or a profitable exit). The course is divided into two broad modules. The first module covers mergers and acquisitions, and the second one studies buyouts by private equity partnerships. During the spring semester this course cannot be taken pass/fail.

**256. Finance Energy. (C)** Professor Erik Gilje. Prerequisite(s): FNCE 203-Advanced Corporate Finance or FNCE 207-Corporate Valuation. Students who receive permission to enroll without the prerequisites are expected to review the relevant topics as necessary to meet the requirements of the class.

The objective of this course is to provide students with detailed knowledge of corporate structures, valuation methods, project finance, risk management practices, corporate governance issues, and geo-political risks in the energy industry. In general, this course seeks to provide students with an overall context for understanding energy issues and risks, and how these might affect financing and investment decisions for both providers of energy and end-users of energy.

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**SM 383. Strategic Equity Finance. (B)** Professor David Musto and Professor David Erickson. Prerequisite(s): FNCE 100 - Corporate Finance.

This course combines lectures and cases, and will go through actual situations where companies need to make strategic decisions on raising equity capital. We will address different phases of a company's life cycle. Through these cases, from the decision-makers perspective, we will explore the different paths that can be taken and consider issues such as investor activism, governance and regulatory and valuation impact. FNCE 383 is a half semester course offered in Q3 during the spring semester.

**397. (FNCE897) Finance In The Middle East & North Africa.** Professor Bulent Gultekin, Finance Department and Professor Michael J.T. McMillen, Penn Law School. Course Format - This course will be taught through cases and lectures. Guest Lecturers - Distinguished practitioners will lecture and conduct case discussions. Our guest lecturers will bring their experience and insights to the classroom.

This is a Wharton Global Modular Course on finance in the Middle East and North Africa. Its objective is to bring students, academics and industry experts together to study financial markets, practice, and institutions in this region.

**399. Supervised Study in Finance.** Prerequisite(s): Senior standing, 3.4 grade point average, and permission of a Finance Department standing faculty member.

Integrates the work of the various courses and familiarizes the student with the tools and techniques of research.

### **603. Basics Of Finance.**

FNCE 603 prepares students for the basic corporate finance class, FNCE 611. It covers the fundamental characteristics of stocks, bonds, and options and net present value. The course will demonstrate how to use Microsoft Excel and a financial calculator to perform these calculations.

Inactive

**611. (FNCE100) Corporate Finance.** Prerequisite(s): ACCT 611/612/613; MGEC 612/611; STAT 613/621 prerequisite or concurrent.

This course serves as an introduction to business finance (corporate financial management and investments) for both non-majors and majors preparing for upper-level course work. The primary objective is to provide the framework, concepts, and tools for analyzing financial decisions based on fundamental principles of modern financial theory. The approach is rigorous and analytical. Topics covered include discounted cash flow techniques; corporate capital budgeting and valuation; investment decisions under uncertainty; capital asset pricing; options; and market efficiency. The course will also analyze corporate financial policy, including capital structure, cost of capital, dividend policy, and related issues. Additional topics will differ according to individual instructors.

**615. Macroeconomics and The Global Economic Environment (Half CU).** Prerequisite(s): FNCE 611 or FNCE 612.

FNCE 615 Introduction To Macroeconomics and The Global Economic Environment (Half Cu) is intended for non-finance majors. It is a half-semester course in macroeconomics, with an emphasis on current events and policy applications. The goal of this course is to provide the foundation needed to recognize and understand broad economic and financial movements in the global economy. Key topics include national income accounting, production and economic growth, employment, business cycles, monetary and fiscal policy, and international finance. By the end of this course, students will be able to evaluate and discuss the global economic environment in which business and financial decisions are made. PLEASE NOTE: This course will not count towards a Finance Major

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### **612. Accelerated Corp Finance.** Q-1 Half Semester course

This course is intended for students with prior knowledge of finance or with strong analytical backgrounds. Together with the pre-term preparation course (FNCE604) the foundation for subsequent courses in corporate finance, corporate valuation, investments, and financial derivatives. Its purpose is to develop a framework for analyzing a firm's investment and financial decisions. This course will start where FNCE604 ends. More precisely, it will provide an introduction to capital budgeting techniques under uncertainty, asset valuation, the operation and efficiency of capital markets, the optimal capital structure and dividend policy of the firm and options. In short, it will cover all the topics of a typical semester-long finance introductory class in six weeks. This course assumes that students are familiar with the material covered in FNCE 604. As a result, it is only available to those students who successfully passed the Finance Placement Exam at the end of the pre-term. This course is not suitable for students new to finance and with limited analytical backgrounds. This course is hard. The pace is fast and it requires a major investment of time and effort outside class.

### **613. Macroeconomics and the Global Economic Environment.**

This course is required for all students except those who, having prior training in macroeconomics, money and banking, and stabilization policy at an intermediate or advanced level, can obtain a waiver by passing an examination. The purpose of FNCE 613 is to train the student to think systematically about the current state of the economy and macroeconomic policy, and to be able to evaluate the economic environment within which business and financial decisions are made. The course emphasizes the use of economic theory to understand the workings of financial markets and the operation and impact of government policies. Specifically, the course studies the determinants of the level of national income, employment, investment, interest rates, the supply of money, inflation, exchange rates, and the formulation and operation of stabilization policies.

### **614. Corporate Finance ( Half CU).** Prerequisite(s): ACCT 611/612/613; MGEC 612/611; STAT 613/621 prerequisite or concurrent.

This course serves as an introduction to corporate investments for non-majors. The primary objective is to provide a framework, concepts, and tools for analyzing financial decisions based on fundamental principles of modern financial theory. The approach is rigorous and analytical. Topics covered include discounted cash flow techniques, corporate capital budgeting and valuation, investment decisions under uncertainty, and capital asset pricing. This course will not cover the following topics included in FNCE 611, the full semester Corporate Finance course: market efficiency, corporate financial policy (including capital structure, cost of capital, dividend policy, and related issues), and options. Please Note: This course will not count towards the Finance Major. Format: Primarily lecture. Grading based on problem sets, one or two cases, and a final exam.

### **717. (FNCE206) Financial Derivatives. (C)** Prerequisite(s): The following introductory Finance and Statistics courses are recommended but not required. FNCE 611 or FNCE 612; STAT 613: FNCE 613 may be taken concurrently.

The purpose of this course is to provide the student with the necessary skills to value and to employ options, futures, and related financial contracts. In order to provide a useful treatment of these topics in an environment that is changing rather rapidly, it is necessary to stress the fundamentals and to explore the topics at a technical level. The topics that will be covered include the valuation of futures contracts on stock indices, on commodities and Treasury instruments; the valuation of options, empirical evidence, strategies with respect to these assets, dynamic asset allocation strategies, or which portfolio insurance is an example, swaps, and the use (and misuse) of derivatives in the context of corporate applications. One-third of the course will be devoted to futures, a third to options, and a third to their applications. Many of the applications will be sprinkled along with the coverage of futures and options.



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**719. International Financial Markets. (C)** Prerequisite(s): FNCE 611 or FNCE 612; FNCE613 may be taken concurrently.

FNCE 719 is a course on international financial markets and exchange rates. Topics include pricing in the foreign currency and Eurocurrency markets, use of forward exchange for hedging, short-term returns and market efficiency in the international money markets, foreign currency options, international capital asset pricing, pricing of foreign currency bonds, currency swaps, Eurocurrency syndicated loans, foreign currency financing and exposure management.

**720. Investment Management. (C)** Prerequisite(s): The prerequisites for MBA students are FNCE 611 or FNCE 612; and STAT 613 or STAT 621 Given that investment management requires one to analyze and deal effectively with uncertainty, a good grounding in statistics is essential, and familiarity with statistics should extend through multiple regression, covariance, and correlation.

This course studies the concepts and evidence relevant to the management of investment portfolios. Topics include diversification, asset allocation, portfolio optimization, factor models, the relation between risk and return, trading, passive (e.g., index-fund) and active (e.g., hedge-fund, long-short) strategies, mutual funds, performance evaluation, long-horizon investing and simulation. The course deals very little with individual security valuation and discretionary investing (i.e., "equity research" or "stock picking").

**725. Fixed Income Securities. (A)** Prerequisite(s): FNCE 611 and STAT 621.

This course covers fixed income securities (including fixed income derivatives) and provides an introduction to the markets in which they are traded, as well as to the tools that are used to value these securities and to assess and manage their risk. Quantitative models play a key role in the valuation and risk management of these securities. As a result, although every effort will be made to introduce the various pricing models and techniques as intuitively as possible and the technical requirements are limited to basic calculus and statistics, the class is by its nature quantitative and will require a steady amount of work. In addition, some computer proficiency will be required for the assignments, although familiarity with a spreadsheet program (such as Microsoft Excel) will suffice.

**726. Advanced Corporate Finance. (C)** Prerequisite(s): FNCE 611 or FNCE 612; FNCE 613.

The objective of this course is to study the major decision-making areas of managerial finance and some selected topics in financial theory. The course reviews the theory and empirical evidence related to the investment and financing policies of the firm and attempts to develop decision-making ability in these areas. This course serves as an extension of FNCE 611. Some areas of financial management not covered in FNCE 611 are covered in FNCE 726. These may include leasing, mergers and acquisitions, corporate reorganizations, financial planning, and working capital management, and some other selected topics. Other areas that are covered in FNCE 611 are covered more in depth and more rigorously in FNCE 726. These include investment decision making under uncertainty, cost of capital, capital structure, pricing of selected financial instruments and corporate liabilities, and dividend policy.

**728. Corporate Valuation. (C)** Prerequisite(s): Minimum of normal first-year courses in accounting, economics, statistics, and FNCE 611 or 612; FNCE 613 (further coursework in financial accounting such as ACCT 742 is very useful).

The focus of this course is on the valuation of companies. Topics discussed include discounted cash flow techniques and valuation using alternative valuation techniques such as price multiples. Emphasis is on developing the required information for valuation from financial statements and other information sources.

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**730. (BEPP773, REAL730) Urban Fiscal Policy. (A)** Dr. Robert Inman. Prerequisite(s): MGEC 621, FNCE 611. Lectures. There is a mid-term and final exam.

The purpose of this course is to examine the financing of governments in the urban economy. Topics to be covered include the causes and consequences of the urban fiscal crisis, the design of optimal tax and spending policies for local governments, funding of public infrastructures and the workings of the municipal bond market, privatization of government services, and public financial systems for emerging economies. Applications include analyses of recent fiscal crises, local services and taxes as important determinants of real estate prices, the infrastructure crisis, financing and the provision of public education, and fiscal constitutions for new democracies using South Africa as an example.

**731. International Corporate Finance. (A)** Prerequisite(s): FNCE 611 or 612 - A thorough knowledge of Corporate Finance is assumed.

This course analyzes financial problems corporations face that result from operating in an international environment. Major topics covered are corporate strategy and the decision to invest abroad, international portfolio diversification, managing exchange risk, taxation issues, cost of capital and financial structure in the multinational firm, and sources of financing. Departmental Website: <https://fnce.wharton.upenn.edu/> Registration: Registration for MBA electives is handled through the MBA Course Auction. For questions about core courses or MBA electives that don't appear in the course auction please contact the MBA Program Office. Non-MBAs interested in graduate classes must work through the academic department and the MBA Program Office.

**732. International Banking. (A)** Prerequisite(s): FNCE 611 or 612; FNCE 613. One, but not both, can be taken concurrently.

This course focuses on international financial institutions and international banking activities. We will examine how current and historical events are reshaping the industry. We will focus on the basic analytics of managing a bank's exposure to liquidity, credit, market and country risk. In addition, we will consider how to evaluate and compare the risk exposures and performance of individual banks. Throughout the semester we will discuss public policy issues such as international debt crises and regulation.

**751. The Finance of Buyouts and Acquisitions.** Prerequisite(s): Pre-Requisites FNCE 611 and FNCE 613 (Or 612) - CO-Requisites FNCE 726 or FNCE 728 may be taken concurrently.

The focus of this course is on buying (or acquiring controlling stakes in) firms. The main topics to be covered are mergers and friendly acquisitions, hostile takeovers and buyouts. Using case studies, the course surveys the drivers of success in the transactions. While issues regarding motive and strategy will be discussed, financial theory would be the main lens used to view these control acquiring transactions. This will allow students to (1) evaluate transactions through valuation approaches and (2) structure deals employing financial innovation as a response to legal framework and economic frictions. This course should be of interest to students interested in pursuing careers as private equity investors, advisors in investment banking and corporate managers that deal with these issues. This course assumes familiarity with valuation analysis. During the spring semester students are not permitted to take this course pass fail.



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**738. (FNCE238) Capital Markets. (C)** Prerequisite(s): FNCE 611 or 612; FNCE 613.

The objective of this course is to give you a broad understanding of the instruments traded in modern financial markets, the mechanisms that facilitate their trading and issuance, as well as, the motivations of issuers and investors across different asset classes. The course will balance functional and institutional perspectives by highlighting the problems capital markets participants are seeking to solve, as well as, the existing assets and markets which have arisen to accomplish these goals. We will consider design, issuance, and pricing of financial instruments, the arbitrage strategies which keep their prices in-line with one another, and the associated economic and financial stability issues. The course is taught in lecture format, and illustrates key concepts by drawing on a collection of case studies and visits from industry experts.

**739. Behavioral Finance. (C)** Prerequisite(s): FNCE 611 or 612; FNCE 613. Recommended: FNCE 720 and FNCE 726.

There is an abundance of evidence suggesting that the standard economic paradigm - rational agents in an efficient market - does not adequately describe behavior in financial markets. In this course, we will survey the evidence and use psychology to guide alternative theories of financial markets. Along the way, we will address the standard argument that smart, profit-seeking agents can correct any distortions caused by irrational investors. Further, we will examine more closely the preferences and trading decisions of individual investors. We will argue that their systematic biases can aggregate into observed market inefficiencies. The second half of the course extends the analysis to corporate decision making. We then explore the evidence for both views in the context of capital structure, investment, dividend, and merger decisions.

**750. Venture Capital and the Finance of Innovation. (C)** Prerequisite(s): FNCE 611 and FNCE 613 - FNCE 613 may be taken concurrently.

This course covers the finance of technological innovation, with a focus on the valuation tools useful in the venture capital industry. These tools include the "venture capital method," comparables analysis, discounted cash flow analysis, contingent-claims analysis, and real options. The primary audience for this course is finance majors interested in careers in venture capital or in R&D-intensive companies in health care or information technology.

**754. Impact Investing.** Christopher Geczy, Ph.D.. Prerequisite(s): Prerequisites This course has no specific prerequisites, but given its wide-ranging subject matter, students will benefit from completion of any of the following Wharton courses: FNCE 613 Macroeconomics and the Global Economic Environment; FNCE 720 Investment Management; FNCE 738 Capital Markets; and FNCE 895 Private Equity. Coursework or practical experience in microeconomics, development economics, international philanthropy, Non-Governmental Organizations, financial risk management and political risk analysis will also be useful.

This course explores Impact Investing, a discipline that seeks to generate social benefits as well as financial returns. From tiny beginnings, the Impact Investment space has expanded and now commands significant attention from policymakers, wealthy and public-spirited individuals, academia and, not least, the world's largest asset managers and philanthropic foundations. Evangelists believe it may be the key to freeing the world from poverty. Skeptics think it will remain confined to the boutique. Regardless, Impact Investing is becoming a distinct career specialization for finance professionals despite the diverse skillset each must have and the uncertainty of the new field's growth.

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**756. Finance Energy. (C)** Professor Erik Giljie. Prerequisite(s): The prerequisites for the course are FNCE 726-Advanced Corporate Finance or FNCE 728-Corporate Valuation. Students who receive permission to enroll without the prerequisites are expected to review the relevant topics as necessary to meet the requirements of the class.

The objective of this course is to provide students with detailed knowledge of corporate structures, valuation methods, project finance, risk management practices, corporate governance issues, and geo-political risks in the energy industry. In general, this course seeks to provide students with an overall context for understanding energy issues and risks, and how these might affect financing and investment decisions for both providers of energy and end-users of energy.

**883. Strategic Equity Finance. (B)** Professor David Musto and Professor David Erickson. Prerequisite(s): FNCE 611 - Corporate Finance.

This course combines lectures and cases, and will go through actual situations where companies need to make strategic decisions on raising equity capital. We will address different phases of a company's life cycle. Through these cases, from the decision-makers perspective, we will explore the different paths that can be taken and consider issues such as investor activism, governance and regulatory and valuation impact. FNCE 883 is a half semester course offered in Q3 of the spring semester.

**895. (FNCE395) Private Equity.** Prerequisite(s): FNCE 726 and FNCE 751 or permission from the instructor.

This course will be a survey of the private equity asset class. Its objective is to provide an understanding of the concepts, agents, and institutions involved in the late stage corporate private equity market in the U.S. and around the globe. It will examine the buyout market and the activities of buyout funds from the differing perspectives of private equity investors, private equity fund sponsors, and managers of the portfolio companies. The course will be taught almost entirely with cases. Distinguished Wharton alumni in the private equity industry will be our guest speakers for many of the cases based on transactions they concluded. While this course is primarily intended for graduate students, admission may be granted to a limited number of interested undergraduate students. PLEASE NOTE: this course may be recorded for live or subsequent distribution, display, broadcast, or commercialization in any media, including video, audio, or electronic media. For additional information, see the course syllabus or contact the department.

**884. ASP - Advanced Topics in Private Equity.** Professor Bilge Yilmaz (yilmaz@wharton.upenn.edu) and Fellow David Bard. Prerequisite(s): Successful completion of core finance requirements, FNCE 611 and FNCE 613, as well as FNCE 726 or FNCE 751; special permission can also be requested based on relevant professional experience.

This course will address a variety of applied topics in private equity (PE), with a focus on growth and later-stage buyout transactions (venture capital is not explicitly addressed in this course), and a primarily U.S.-centric view that should be largely applicable in other markets. In addition, the course will focus on the transaction stage of PE investing i.e., the art of the deal and mostly leave aside deal sourcing, portfolio management and investor relations. The goal of this course is to educate students about the substance, process and mechanics of PE investing, through the lens of the investment professionals, counterparties and advisors that drive transactions to completion. Course topics will address the entire deal process, and will include the following: Commercial Diligence (incl. financial modeling); Debt Financing; Accounting Diligence; Sales & Purchase Agreements; Comps Analysis; and Other Advisory Work. Throughout the course, students will learn about each element of the deal process through in-class lectures, while concurrently apply those learnings to a real-time mock deal, and preparing deal materials that mirror a real private equity transaction. The in-class lectures will cover both conceptual frameworks and real-world examples.

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**885. FIN-TECH.** Prerequisite(s): A thorough knowledge of FNCE 611 is assumed.

The course exposes students to this fast-growing and exciting intersection between finance (Fin) and technology (Tech) while emphasizing the role data and analytics play. The course is structured around three main FinTech areas: (i) Lending/Banking services, (ii) Clearing (iii) Trading. It provides specific coverage and examples of developments from (1) peer-to-peer lending, (2) blockchain and distributed ledgers, (3) networks and their use in trading, and (4) algo trading and its use of non-standard inputs. In each of these areas, we start by analyzing the marketplace, and the incumbents, and the business case and strategies of the incoming technology-based players, while understanding the role data and analytics play in driving the technology-based services. The course is built around a large number of examples and cases, guest lectures, student presentations, and group projects. Students are thus expected to work in teams and demonstrate a high level of independent learning and initiative.

**893. Global Monetary and Financial Institutions: Theory and Practice.** Professor Zvi Eckstein; Dean of Arison School of Business and Tiomkin School of Economics. Herzliya, Israel. Prerequisite(s): FNCE 611 or 612; FNCE 613; STAT 613. Requirements: Final examinations (60%-passing grade is required); three out of four assignments done by teams of 3-4 students (30%); active participation in class discussion (10%)

This course aims to provide the future global manager and financial analyst with the knowledge on policies set by central banks, regulators and governments to reach the goals of price and financial stability as well as support of growth and employment. The core of the course connects between the formal and actual goals that central banks follow and the related economic analysis on which the goals and the policies are set. We will explain the economic rationale for the policy prescriptions to reach the goals and how these are implemented using institutional framework in the US, the European Central Bank (ECB), Israel and remarks on other countries. We use data, current events and events of the 2007-2012 financial crisis as a basis for discussion and assignments. All these are aimed at understanding how and why the Federal Reserve of the US (the Fed), The bank of Israel (BOI) and the European Central Bank (ECB) set their policies and how that is related to academic research on these issues.

**896. (WH 215) Finance in Europe.**

This is a short seminar on finance in Europe. Its objective is to bring students, academics and several industry experts together to study financial markets, practice, and institutions in Europe. The course will primarily examine the following areas: 1. Current challenges in European markets and Euro Zone 2. Political economy of European Union 3. Alternative Investments 4. Investment Banking & Cross Border Mergers and Acquisitions. We will cover the above topics by studying the practice and transactions in Europe with a comparison to USA and rest of the world. This is a half unit course and it is designed for Wharton MBAs. Exceptionally motivated undergraduate students are also welcome to take the course.

**911. Financial Economics. (A)** Prerequisite(s): ECON 681 or ECON 701, Matrix Algebra, and Calculus.

The objective of this course is to undertake a rigorous study of the theoretical foundations of modern financial economics. The course will cover the central themes of modern finance including individual investment decisions under uncertainty, stochastic dominance, mean variance theory, capital market equilibrium and asset valuation, arbitrage pricing theory, option pricing, and incomplete markets, and the potential application of these themes. Upon completion of this course, students should acquire a clear understanding of the major theoretical results concerning individuals' consumption and portfolio decisions under uncertainty and their implications for the valuation of securities.

# FINANCE

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**897. (FNCE397, WH 214) Finance In The Middle East & North Africa.** Professor Bulent Gultekin, Finance Department and Professor Michael J.T. McMillen, Penn Law School. Course Format - This course will be taught through cases and lectures. Guest Lecturers - Distinguished practitioners will lecture and conduct case discussions. Our guest lecturers will bring their experience and insights to the classroom.

This is a Wharton Global Modular Course on finance in the Middle East and North Africa. Its objective is to bring students, academics and industry experts together to study financial markets, practice, and institutions in this region.

**912. Corporate Finance and Financial Institutions. (B)** Prerequisite(s): ECON 681 or ECON 701.

This course provides students with an overview of the basic contributions in the modern theory of corporate finance and financial institutions. The course is methodology oriented in that students are required to master necessary technical tools for each topic. The topics covered may include capital structure, distribution policy, financial intermediation, incomplete financial contracting, initial and seasoned public offerings, market for corporate control, product market corporate finance interactions, corporate reorganization and bankruptcy, financing in imperfect markets, security design under adverse selection and moral hazard, and some selected topics.

**921. Introduction to Empirical Methods in Finance. (B)** Prerequisite(s): FNCE 911 (can be taken concurrently), STAT 510 and 511 or equivalent.

This course is an introduction to empirical methods commonly employed in finance. It provides the background for FNCE 934, Empirical Research in Finance. The course is organized around empirical papers with an emphasis on econometric methods. A heavy reliance will be placed on analysis of financial data.

**922. Continuous-Time Financial Economics. (A)** Prerequisite(s): FNCE 911, ECON 701, ECON 703. (Graduate level knowledge of analysis and statistics is highly recommended but not required).

This course covers some advanced material on the theory of financial markets developed over the last two decades. The emphasis is on dynamic asset pricing and consumption choices in a continuous time setting. The articles discussed include many classical papers in the field as well as some of the most recent developments. The lectures will emphasize the concepts and technical tools needed to understand the articles.

**923. Financial Economics Under Imperfect Information. (M)** Prerequisite(s): FNCE 922.

This course covers General equilibrium and rational expectations, foundations of the theory of information; learning from prices in rational expectations equilibrium models, moral hazard, adverse selection, and signalling Bidding theories.

**924. Intertemporal Macroeconomics and Finance. (B)** Prerequisite(s): FNCE 911.

This is a doctoral level course on macroeconomics, with special emphasis on intertemporal choice under uncertainty and topics related to finance. Topics include: optimal consumption and saving, the stochastic growth model, q-theory of investment, (incomplete) risk sharing and asset pricing. The course will cover and apply techniques, including dynamic programming, to solve dynamic optimization problems under uncertainty. Numerical solution methods are also discussed.

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### 925. Topics In Asset Pricing. (C)

This course will analyze several aspects of liquidity. Mostly, it will concentrate on liquidity as an asset's property of being traded quickly and at low cost, but the notion of availability of cash will also be studied. Particular attention will be devoted to exogenous transaction costs, asymmetric information and search frictions as determinants of asset liquidity and, consequently, price. We will also look at liquidity risk, institutional features arising as response to liquidity problems, and financing constraints. The course will concentrate on theoretical models, but the empirical literature will be referred to throughout.

**926. Empirical Methods in Corporate Finance. (A)** Prerequisite(s): STAT 521 - Students are required to have taken a graduate sequence in Econometrics, you should be comfortable with econometrics at the level of William Green's "Econometric Analysis of Cross-Section and Panel Data".

The course will cover a variety of microeconomic models and methods including panel data models, program evaluation methods [e.g. difference in differences, matching techniques, regression discontinuity design] instrumental variables, duration models, structural estimation [e.g. simulated methods of moments]. The structure of the course consists of lectures, student presentations, and empirical exercises. I will utilize published studies in a variety of fields such as corporate finance, labor economics, and industrial organization to illustrate the various techniques. The goal of the course is to provide students with a working knowledge of various econometric techniques that they can apply in their own research. As such, the emphasis of the course is on applications, not theory.

**927. Selected Topics in Empirical Corporate Finance. (A)** Prerequisite(s): While there are no official prerequisites, it would be very beneficial if you have taken the Financial Institutions (FNCE 912) and Empirical Methods in Corporate Finance (FNCE 926) Ph.D courses. You should be comfortable with the basic concepts covered in those courses.

The general objective of the course is to teach and encourage students to explore interesting research questions in corporate finance. We will work toward this goal by introducing students to several advanced topics in empirical corporate finance and expose students to some current work. An emphasis will be put on the link between empirical and theoretical work, and how to think about research questions critically.

Inactive

**928. Methods In Finance Theory. (B)** PROFESSOR YIRAN JOHN ZHU. Prerequisite(s): Some mathematical sophistication. A familiarity with the basic principles of microeconomics is useful but not required.

This doctoral level course introduces students to game theory and continuous-time methods. Both techniques represent fundamental approaches to organizing, modeling and understanding complex financial phenomena. The game theory half will cover equilibrium concepts, moral hazard, signaling and screening. Highlights include rigorous formulations and analyses of the perfect Bayesian equilibrium concept and the principal-agent relationship. Both ideas are central to theories of corporate finance and financial markets - subjects that the students will be exposed to in the spring. The continuous-time methods half will cover basic stochastic calculus and applications to capital structure, Merton's consumption-portfolio, and problem and optimal contracts.

**932. Corporate Finance. (C)** Prerequisite(s): FNCE 911, FNCE 921, or permission of instructor.

This course covers Advanced theory and empirical investigations; financial decisions of the firm, dividends, capital structure, mergers, and takeovers.

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**933. International Finance. (M)** Prerequisite(s): FNCE 911 (FNCE 922 recommended).

This course provides an understanding of current academic research in the areas of international finance and international macroeconomics. Students will learn the tools for conducting research in this field.

**934. Empirical Methods In Asset Pricing. (A)** Prerequisite(s): FNCE 911 and FNCE 921.

Rigorous treatment of current empirical research in finance. Applications of multivariate and nonlinear methods. Intertemporal and multifactor pricing models. Conditional distributions, and Temporal dependence in asset returns.

**937. Applied Quantitative Methods in Finance. (A)** Prerequisite(s): FNCE 911.

This is an advanced course in quantitative theory applied to macro and finance models. It is intended for doctoral students in finance, economics and related fields. The course focuses on four broad theoretical literatures: (i) firm investment and growth; (ii) corporate, household and sovereign debt; (iii) asset pricing in general equilibrium; and (iv) equilibrium macro models with a financial sector. My approach is to develop and discuss in detail a unified framework that is suited to address most topics, usually covering a few central topics and the core papers. We then discuss the more recent literature, highlighting how authors combine and expand upon the core ideas. This part of the course usually relies on regular student presentations.

**939. Behavioral Finance. (C)** Prerequisite(s): FNCE 911.

There is an abundance of evidence suggesting that the standard economic paradigm-rational agents in an efficient market-does not adequately describe behavior in financial markets. In this course, we will survey the evidence and use psychology to guide alternative theories of financial markets with an eye towards identifying frontiers and opportunities for new research. Along the way, we will address the standard argument that arbitrage will eliminate any distortions caused by irrational investors. Further, we will examine more closely the preferences and trading decisions of individual investors. We will argue that their systematic biases can aggregate into observed market inefficiencies. The second half of the course extends the analysis to corporate decision making. We present the two themes of behavioral corporate finance: rational managers exploiting financial market inefficiencies and managerial decision-making biases. We then explore the evidence for both views in the context of capital structure, investment, dividend, and merger decisions. We emphasize the importance of differentiating the behavioral approach from information models and other more traditional methodology.

Not currently being offered.