

# BU.210 (FINANCE)

## Courses

### BU.210.001. Accounting and Financial Reporting Waiver Exam.

This exam affords students the opportunity to confirm proficiency in Accounting and Financial Reporting. Students who successfully complete the waiver exam will be granted a waiver with replacement for BU.210.620. Please note: Waiver exams may only be taken once per student, in the first or second semester of registration in a new program. The exam will be completed online in Blackboard within the timeframe stipulated listed within this course description. Students will be required to use Remote Proctor for the actual completion of the exam.

### BU.210.620. Accounting and Financial Reporting. 2 Credits.

This course emphasizes the vocabulary, methods, and processes by which business transactions are communicated. Topics include the accounting cycle; basic business transactions involving assets, liabilities, equity, revenues, and expenses; as well as preparation and understanding of financial statements, including balance sheets, statements of income, and cash flows.

### BU.210.650. Financial Statement Analysis. 2 Credits.

Financial Statement Analysis is designed to prepare you to analyze, interpret, and use financial statements effectively, both from a general manager and from an investor perspective. The course will review and extend the topics introduced in Accounting and Financial Reporting with an emphasis on value creation. Specifically, the course will introduce a thorough framework for financial statement analysis, including advanced financial (ratio and cash flow) analysis, financial statement adjustments, and financial forecasting.

**Prerequisite(s):** BU.210.620 OR BU.910.611 OR BU.920.602

### BU.210.680. Cost Measurement and Control. 2 Credits.

This course emphasizes the vocabulary, methods, and processes by which managerial accounting concepts and cost management practices are applied across organizations to improve operational performance and achieve strategic goals. Topics include cost behavior, profit planning, product costing, overhead allocation, cost estimation, costing systems for short-term and long-term decision-making, capital budgeting, variance analysis, responsibility accounting, and performance measurement.

**Prerequisite(s):** BU.210.620 OR BU.910.610 OR BU.920.602

### BU.220.610. The Firm and the Macroeconomy. 2 Credits.

This course explores the workings of an economy from a macroeconomic perspective. Although the course focuses primarily on the United States economy and its relation with the rest of the world, the concepts and tools apply to market economies around the world. Major topics include: the determinants of an economy's output and price level in the long run; money and banks in the long run and short run; the role of interest rates and exchange rates in the U.S. economy and in small, open economies; the causes and nature of the business cycle and inflation; the role of fiscal and monetary policy in stabilizing the economy and ensuring full employment and price stability.

**Prerequisite(s):** BU.220.620 OR BU.920.603 OR BU.930.633

### BU.220.620. Business Microeconomics. 2 Credits.

This is a microeconomics course with emphasis on the application of economic principles and methodologies to private and managerial decision problems. Major topics include consumer choice and market demand, costs and profit maximization, market structures, output/price decisions, and strategic interactions.

**Prerequisite(s):** BU.510.601 OR BU.914.610 OR PH.140.611 OR PH.140.621

### BU.220.720. Financial Econometrics. 2 Credits.

Financial econometrics is the intersection of statistical techniques and finance. It provides a set of empirical tools to analyze historical financial data, model underlying economic mechanisms, and predict future price trends. This course covers both cross-sectional and time-series data. Multivariate regression analysis is developed to study the cross-sectional differences in stock returns of individual firms and associated portfolio models. Applications of these techniques to evaluate the performance of new trading strategies and hedge fund managers are also discussed. Furthermore, time-series models are introduced to model and forecast both time-varying aggregate stock returns and volatility. The course prepares students to conduct empirical research in an academic or business setting. Stata will be used for the class.

**Prerequisite(s):** BU.232.701 AND (BU.510.601 OR BU.914.610)

### BU.230.620. Financial Modeling and Valuation. 2 Credits.

The objective of this course is to introduce students to the current practices in financial modeling and valuation using Excel. Students will learn how to manipulate financial data and how to perform financial analyses using various analytical tools. Using the skills, students will learn how to forecast financial statements and build interactive valuation models for firms. By the end of the course, students will complete an equity research paper. One important aspect of this course is also to introduce students to portfolio modeling, efficient frontiers, and portfolio choice subject to constraints.

**Prerequisite(s):** BU.232.701

### BU.230.710. Quantitative Financial Analysis. 2 Credits.

This course explores the fundamentals of Monte Carlo simulation techniques and their applications in finance. Using MATLAB as the programming platform, this course intends to train students to become familiar with simulation techniques in financial modeling, such as derivative pricing and market risk assessment. This course is taught mostly using hands-on computer exercises, and students are required to bring their laptops to class.

**Prerequisite(s):** BU.232.710 AND BU.232.701

### BU.230.730. Managing Financial Risk. 2 Credits.

The course offers an introduction to financial risk management. Risk management is a complex process of identifying, measuring, and controlling risk exposure. The course will balance theory and practical application. Topics include market and credit risks, liquidity, and operational and legal risks, including volatility modeling, and derivatives as tools for controlling risk. Using modern econometric models, such as ARCH and GARCH, along with widely used quantitative methods (Monte Carlo simulation and Filtered Historical simulation), the course will describe how to measure and control risk exposure towards various types of risks, especially market and credit risk.

**Prerequisite(s):** Prerequisite Requirements Differ by Program: MS BARM (Full-Time): Required: BU.510.601; Recommended: BU.232.710 MS Finance (Full-Time & Part-Time): Required: BU.510.601 AND BU.232.701 AND BU.232.710 All other programs: Required: BU.510.601 AND BU.232.701; Recommended: BU.232.710

**BU.230.750. Financial Crises and Contagion. 2 Credits.**

What and when will the next financial crisis be? No one knows, but the past provides clues. This course takes students through the history of finance in the United States, with a focus on the last 100 years of financial bubbles, manias, and scandals, from the crash of 1929 to the thrift crisis of the 1980s; Enron and other accounting debacles; and the mortgage meltdown known as the Great Recession. Examining the upheavals is key to understanding how the landscape and laws of modern financial markets evolved and where they might be headed.

With the Great Recession of 2007–2012, the United States experienced the biggest economic crisis and ensuing downturn since the crash of 1929 and Great Depression of the 1930s. While every boom-and-bust is unique, all share certain characteristics—most notably, the seemingly inexhaustible ability of humans to forget the lessons of financial history. This forgetfulness comes at great expense to society. This course provides a tour of the country's major boom-and-bust-cycles, with a focus on last century, and particularly the last three decades, when such events became more numerous. After each debacle, laws and rules changed. Executives must know what those changes are and the reasoning behind them, but they also will have a competitive edge in recognizing future crises if they remember and understand the events underpinning those of the past.

**Prerequisite(s):** BU.231.620 OR BU.910.611 OR BU.920.604

**BU.231.620. Corporate Finance. 2 Credits.**

This course is designed to introduce students to the basic, yet fundamental, issues of modern finance. The goal of the course is to provide students with the basic tools needed to successfully complete more advanced finance courses. This course deals primarily with a firm's investment and financing decisions, and its interactions with the capital markets. Students are taught the fundamental principles of financial valuation and analysis, which provide a solid foundation for all other finance courses.

**Prerequisite(s):** BU.210.620 OR BU.234.610

**BU.231.710. Financial Institutions. 2 Credits.**

The financial service industry plays a significant role in the economy and it continues to undergo dramatic changes. Financial institutions (FIs) perform the essential function of channeling funds from savers to users of funds. Financial intermediation is subject to a significant risk as the recent financial crisis vividly illustrated. The risk management of FIs is crucial not only in maximizing shareholders' value, but also in ensuring the stability of the whole financial system. In this course, students will acquire a working knowledge of (a) the function of financial intermediaries in the economy, and how this role has changed in the United States; (b) the sources of risks banks are exposed to (e.g., interest rate risk, market risk, credit risk, liquidity risk, sovereign risk) and how they manage them, and (c) elements of capital regulation.

**Prerequisite(s):** BU.231.620 OR BU.910.611 OR BU.920.604

**BU.231.720. Corporate Governance. 2 Credits.**

The course is mainly about the practical implications of the principal-agent dilemma due to separation of ownership and control. The separation leads to conflicts of interest between the principals (shareholders) and agents (management) that results in increased risk. The value of a firm depends on good corporate governance practices that protects shareholders rights and lowers the cost of capital due to better risk mitigation. The set of good governance practices, rules, and regulations that attract investments and creates jobs, as well as effective environmental and socially responsible considerations promote opportunities for better access to finance and improve firm value. The three main topics in this course are the shareholders; the board; and the management. Topics cover executive compensation practices and policies, boardroom structure and practices, benefits and problems of corporate disclosure and transparency, and the value of the shareholder vote. The course also covers management abuses, takeovers, mergers and acquisitions, and the role of financial institutions and credit rating agencies. We emphasize transparency, accountability, responsibility, and fair and equitable treatment of all shareholders to help implement good corporate governance practices that reduce agency conflicts and reduce risk. Good corporate governance practices is about building the business case rather than simple compliance. A corporate governance scoring project demonstrates how a company's sustainable, socially responsible investing and governance (ESG) standing profile can be rated as an indicator for building investor confidence and ensuring shareholder protection.

**Prerequisite(s):** BU.231.620 OR BU.910.611 OR BU.920.604

**BU.231.740. Mergers and Acquisitions. 2 Credits.**

This course explores the incentives for using mergers, acquisitions, divestitures, and alliances as vehicles to achieve corporate strategic objectives. Students address analytical techniques often employed in M&A, negotiation strategies, and valuation, and the evolution of M&A transactions. Also discussed are problems encountered in post-merger integration, and alternative modes of market entry, including joint ventures and internal development.

**Prerequisite(s):** BU.231.620 OR BU.910.611 OR BU.920.604

**BU.231.790. Advanced Corporate Finance. 2 Credits.**

By employing a case study approach, students learn how the theoretical concepts and tools learned in Corporate Finance and other finance classes are applied in solving real-world problems. Through such key concepts as financial forecasting, cost of capital, capital budgeting, optimal capital structure, dividend policy, and firm valuation, students learn the analytical techniques necessary to make rational financial decisions.

**Prerequisite(s):** BU.231.620 OR BU.910.611 OR BU.920.604

**BU.232.610. Computational Finance. 2 Credits.**

Modern financial markets are characterized by the widespread use of ever more powerful computational technology. The solutions to pricing, hedging, and portfolio allocation problems require familiarity with it, and so does effective trading in an age in which accuracy and speed are essential. This course teaches students the fundamentals of coding. The emphasis is on coding for inferential, modeling and simulation purposes. While class instruction will be based on MATLAB, one of the most popular programming platforms in the industry and the common language of choice for all courses in this program, students will also be exposed to other popular programming languages.

**BU.232.620. Linear Econometrics for Finance. 2 Credits.**

Linear Econometrics deals with the estimation of linear economic models. This is a quantitative class requiring strong foundations in multivariate calculus, matrix algebra, probability and statistics as pre-requisites. The course covers linear regression models with both finite-sample and large-sample inference. Topics include the univariate linear regression model, the multivariate linear regression model, regression functional form, conditional heteroskedasticity, weighted least squares, generalized least squares, instrumental variables, stationary and nonstationary time series models and linear panel regression models. Particular emphasis is placed on the notion of causality.

**Prerequisite(s):** BU.510.601 OR BU.920.621

**BU.232.630. Non-Linear Econometrics for Finance. 2 Credits.**

Nonlinear Econometrics introduces advanced econometric tools needed to analyze financial data and build sophisticated nonlinear financial models. This is an advanced class requiring strong foundations in multivariate calculus, matrix algebra, probability and statistics as prerequisites. Linear Econometrics is also a pre-requisite. The course will cover methods of asymptotic (i.e., large-sample) inference in extremum (nonlinear) modeling. Among them, particular emphasis is placed on the generalized method of moments and maximum likelihood estimation. Simulation-based methods, like the simulated method-of-moments and indirect inference, will also be studied.

**Prerequisite(s):** BU.232.620

**BU.232.640. Empirical Finance. 2 Credits.**

This course introduces students to the empirical methods used in financial econometrics. The techniques we study are employed by a wide range of institutions including commercial banks, non-banking financial companies, mutual funds, hedge funds, investment banks, as well as central banks, consulting firms and governments. Applications include the evaluation and backtesting of trading strategies, risk management and hedging, transactional analysis, and applications in regulation and policy making. The course draws on the econometrics sequence taught in the program but the emphasis is on how to use the techniques in actual applications such as event studies, the analysis of short- and long-run stock returns, multi-factor models, and the analysis of credit risk. The course embraces the traditional approaches in financial econometrics as well as predictive modeling from the data sciences and applications in "Big Data" environments. Students will learn about the typical datasets used in financial econometrics and learn how to design, code, and analyze the models used to analyze these datasets.

**Prerequisite(s):** BU.232.620 AND BU.232.630

**BU.232.650. Continuous Time Finance. 2 Credits.**

This course provides a conceptual understanding of the basic ideas in mathematical finance and shows how these ideas are applied to practical situations, through the development and use of financial models. Mathematical abstractions are created which deal with issues including option pricing, risk neutrality, incomplete markets, stochastic volatility, and other responses to the realization of a variety of "unknowns". Topics include Ito calculus, options theory, martingale pricing, exotic options, jump-diffusion processes, and variance gamma models.

**Prerequisite(s):** BU.232.710

**BU.232.701. Investments. 2 Credits.**

This course offers the financial theory and quantitative tools necessary for understanding how different kinds of financial instruments are priced and used for investment decisions. Rather than delving into the details of current practice, it takes a rigorous and critical view to the process of investing. The aim is to provide the students with a lasting conceptual framework in which to view and analyze investment decisions. Students learn how to value assets given forecasts of future cash flows and the risk characteristics of different asset classes. The focus is mainly on common stocks, but fixed income securities (bonds) and derivative securities (options) are also analyzed. Topics covered include: time value of money, optimal portfolio selection based on mean-variance analysis, economic and statistical models of the relation between risk and return (including the CAPM and multifactor models), term structure of interest rates, no-arbitrage derivative pricing, and market efficiency (including asset pricing anomalies and behavioral finance).

**Prerequisite(s):** (BU.510.601 OR BU.914.610 OR BU.920.621 OR PH.140.611 OR PH.140.621) AND (BU.231.620 OR BU.910.611 OR BU.920.604)

**BU.232.710. Derivatives. 2 Credits.**

This course offers a rich overview of forwards, futures, swaps and options. The course will cover both the actual working of derivatives and the analytical tools needed to effectively understand derivatives. Skills are developed in pricing analysis, use of pricing models, trading, and hedging strategies. The strategies are developed to match specific economic goals, such as portfolio risk reduction.

**Prerequisite(s):** BU.231.620 OR BU.910.611 OR BU.920.604

**BU.232.715. Financial Stability. 2 Credits.**

Financial stability has become an explicit objective of central banks around the world. The design of bank regulatory requirements increasingly focuses on mitigating systemic risk as a source of financial instability. Stress testing has emerged as a major risk management tool for both supervisors and banks. This course introduces the analytical underpinnings of the current methodologies to monitor and manage systemic risks. Key learning tools are in-class workshops and case studies drawn from central bank financial stability reports, rating agencies reports, and IMF financial stability assessments. Students will acquire a detailed knowledge of (a) the role of financial frictions in determining macro-financial linkages; (b) current methodologies of systemic risk measurement; (c) micro- and macro- prudential bank regulation; and (d) the architecture of banking system-wide stress testing exercises.

**Prerequisite(s):** BU.510.601

**BU.232.720. Fixed Income. 2 Credits.**

Fixed Income securities represent the largest market in the world. However, given the complexity and the relative lack of liquidity in this market, we generally do not hear much about Fixed Income. This advanced course focuses on how to navigate the complexity of the global debt market in a practical way. The course covers major markets and instruments including treasuries, fixed income swaps, forwards, futures, term structure theories and risk management techniques. By completing the course, students will learn actionable concepts and tools about some of the major activities on Wall Street in terms of size and opportunities. The course is both theoretical and practical.

**Prerequisite(s):** BU.232.701 AND (BU.231.620 OR BU.910.611 OR BU.920.604)

**BU.232.725. Emerging Markets. 2 Credits.**

What makes emerging financial markets different from those in the US, Western Europe, or Japan? What are the benefits of adding these markets to traditional investment portfolios? Why invest in certain countries versus others? Within a country, which asset class should we invest in - debt or equity? How do hedge funds approach these markets vs. traditional investors? From the practical perspective of a U.S. institutional investor, this course tries to help answer these questions. Through videos, readings, and problem sets, students should develop greater abilities to analyze global macro trends and country fundamentals, master portfolio construction concepts, and implement practical investment strategies.

**Prerequisite(s):** BU.231.620 AND BU.232.701

**BU.232.730. Wealth Management. 2 Credits.**

This course provides strategies for coordinating financial planning for high-net-worth individuals. Students will become skilled at identifying and dealing appropriately with clients' goals, needs, and problems in the areas of investment and investment planning.

**Prerequisite(s):** BU.231.620 OR BU.910.611 OR BU.234.610 OR BU.920.604

**BU.232.750. Advanced Portfolio Management. 2 Credits.**

This is an advanced course designed as a comprehensive study of primarily institutional investment analysis and portfolio management. It will approach investment management as a rational decision-making process based on the theoretical foundation and best practice techniques of investments. The course is presented to help understand how the basic theories of managing a portfolio of financial assets within the risk–return framework will be addressed. Due to the increasing globalization in the capital markets, portfolio management has become an international business. Thus, a good understanding of valuation of equities and fixed income securities, options and futures, and other investment instruments within a global setting is necessary to maintain optimal investment in this dynamic environment. The course emphasizes portfolio management as a dynamic process in which the concepts from security analysis are factored into the dynamics of strategic and tactical investment decision-making criteria. The course covers the formulation of appropriate investment portfolio objectives for a key institutional investor, and alternative techniques for achieving them. Determination and allocation of asset classes—including bonds, equities, and alternative investment instruments into efficient portfolios—will be discussed, along with such topics as portfolio optimization, risk management, asset selection and allocation, investment management, monitoring, and revising and rebalancing a portfolio. Finally, criteria for evaluating portfolio performance will be discussed. Students are encouraged to incorporate corporate social responsibility and sustainable investing concepts into class discussions and deliverables.

**Prerequisite(s):** BU.230.620 OR BU.930.634

**BU.232.760. Private Equity. 2 Credits.**

This course explores the private equity industry. It examines the origins and structure of the industry. It considers the investment performance, and the day to day operations of finding investments; negotiating the pricing, financing and structure of the deals; and then improving and exiting the investments.

**Prerequisite(s):** (BU.231.620 OR BU.920.604) AND ( BU.231.790 OR BU.231.740 OR BU.230.620 OR BU.241.740 )

**BU.232.770. Cryptos and Blockchain. 2 Credits.**

This course introduces students to one of the most exciting financial technological innovation in modern time -- the Blockchain. Students will gain a strong understanding of how blocks are created and linked together by cryptography. Within this decentralized peer-to-peer ledger system, students will examine in detail its construction, immutability, and security with a keen focus on the potential benefits and weaknesses of its fundamental structure as applied to businesses and organizations. Moreover, students will learn how companies are applying blockchain technologies in practice. We will review the first use-case of the blockchain – Bitcoins. Additionally, the course will chart the evolution of Bitcoins to Ethereum and the advantages of Ethereum's smart-contract framework. Additionally, we will dive into the growing alternative cryptocurrencies markets. Initial Coin Offerings (ICOs) will be discussed with focus on their potential implications for destabilizing traditional funding sources. The regulatory challenges and current ICO best practices will be reviewed and analyzed. We will be discussing this industry from the perspective of the academic, entrepreneur, investor, and software engineer. The course will be delivered by standard lectures, presentations, case study discussions, assignments, guest speakers, programming exercises in Python, group presentations, and a final comprehensive exam.

**BU.232.780. Student Managed Investment Fund. 1 Credit.****BU.232.790. Advanced Hedge Fund Strategies. 2 Credits.**

This course surveys a broad range of hedge fund and proprietary trading strategies with an emphasis on understanding their fundamental investment process. Students will gain practical knowledge in regards to creating, back-testing, and implementing these strategies. There will be particular focus on the theoretical justification for the existence of inefficiencies or risk premium, and the successful extraction of them. The course will cover the gambit of popular hedge funds strategies, such as Long/Short, Event-Driven (Distressed, Risk Arbitrage), Equity Market Neutral, Statistical Arbitrage, Dedicated Short-Bias, Convertible Arbitrage, Emerging Markets, Fixed Income Arbitrage, Global Macro, Managed Futures, and Multi-Strategy. Particular attention will be placed on understanding the mechanics of the alpha-extraction methodology. An example of the type of question that will be addressed in this course is: What do hedge fund managers strive to capture, and how do they do it? Hidden risks and limitations associated with the implementation of such strategies will be highlighted throughout this course. Upon successful completion of this course, students should gain a firm understanding of the popular hedge fund trading strategies currently employed in the industry. This course is presented from a practitioner's perspective and will assume that students have knowledge of basic financial theory, portfolio construction, arbitrage concepts, return calculations, statistics, and financial instruments and derivative products. The class projects will be highly quantitative and will require that students be able to analyze and manipulate market data using statistical and mathematical modeling techniques.

**Prerequisite(s):** (BU.231.620 OR BU.910.611) AND BU.232.701

**BU.233.730. Entrepreneurial Finance. 2 Credits.**

This course introduces students to identifying, accessing, and evaluating sources of financing for start-ups and expanding technology companies. The approach uses case studies, group interaction, and presentations from experts in the field. Attention will be given to financial theory, risk assessment, valuation options, term sheets, due diligence techniques, and the setting up of financial reports for monitoring progress toward meeting milestones.

**Prerequisite(s):** BU.231.620 OR BU.910.611 OR BU.920.604