BANKING & FINANCE (BAFI)

BAFI 206. Personal Financial Management with Digital Technology. 1 Unit.
In the digital era, financial technologies have worked its way into our digital wallets and portfolio. Mobile banking services, budgeting and investing apps are inextricably linked with how we conduct our personal finances. While financial literacy deals with underlying finance concepts such as time value of money, compounding, budgeting and investing, financial technologies dictate how we access tools to carry out day-to-day budgeting, investing and consuming. In the digital era, financial technologies, Fintech, serves as an enabler of financial literacy, FinLit. While technology is not a substitute for literacy, Fintech complements literacy. Technology has created a level playing field and has advanced the access to credit and investments. This course will cover four areas: 1. Comparing banking services and costs 2. Digital banking: Using mobile apps and financial technologies for financial management and decision making 3. Personal finance and digital money 4. Risks in the digital era: Identity protection Offered as BAFI 206 and MGMT 206.

BAFI 210. Seminar: Financial Services Industry. 0 - 1.5 Units.
The goal of this course is to prepare students for an alumni-sponsored trip to NYC focused on careers in financial services. Learning goals include: (i) providing career identification, research and preparation skills, with a particular emphasis on financial services, (ii) exposing students to job opportunities in financial services, (iii) allowing students to acquire fundamental business and financial skills, (iv) enabling students to apply skills to actual businesses and real-world cases and projects, (v) building a personal portfolio of experiences to share with prospective employers for each student and (vi) enhancing students' abilities to communicate in a business setting by developing proficiency in PowerPoint and oral presentation skills.

BAFI 335. The Role of Technology in Shaping Finance: Past, Present and Future. 3 Units.
Technology-enabled business models have led the evolution and innovation in finance throughout history. From the birth of the computer to the current fintech era and into the future they will continue to facilitate disintermediation and innovation. These innovations revolutionize how existing firms create and deliver products and services, addresses privacy, regulatory and law-enforcement challenges, provides new gateways for entrepreneurship, and seed opportunities for inclusive growth. These models also increasingly apply technological approaches to the main financial intermediation functions: payments, capital raising, remittances, managing uncertainty and risk, market price discovery, and mediating information asymmetry and incentives. In today's Financial businesses, consumers bank via mobile apps integrated into social media, institutions trade electronically, and robo-advisers make decisions about investment portfolios. This course provides an overview of the history of the impact these models have had and common catalysts to change as well as a deep dive into the current applications to gain understanding of where finance may head in the future. The course will also cover innovations, and what business models for new and traditional financial services firms are likely to succeed. Prereq: Sophomore Standing.

BAFI 341. Money and Banking. 3 Units.
This course emphasizes the importance of financial markets, the nature and role of the financial system, and the linkages between these--money and banking--and the economy. Emphasis is placed on both theoretical and practical constructs, on major innovations and contemporary changes, and the closely intertwined condition of financial and economic systems with monetary and fiscal policy. Offered as BAFI 341 and ECON 341. Prereq: ECON 102 and ECON 103 and Sophomore standing or above.

BAFI 350. Payments Technology. 3 Units.
Payments Technology offers a comprehensive exploration of the various facets of payment systems used in today's financial world. This course aims to provide students with an understanding of both the technical and strategic aspects of payment systems, ranging from traditional swipe transactions to innovative payment solutions. By the end of this course, students will be well-versed in how payment systems operate, the challenges they face, and the ongoing innovations that are shaping the future of payments.

BAFI 351. Financial Data Science: Data Analytics & Machine Learning Fundamentals. 3 Units.
This course equips students with the requisite SQL and Python programming and analytical skills needed to undertake advanced statistical learning procedures on financial datasets. The course begins with an introduction to structured query language (SQL) to ensure students can interact with relational databases commonly used to warehouse financial data. Students will learn how to retrieve, manipulate, and manage financial data from databases such as Wharton Research Data Services (WRDS), SEC Filings, Bloomberg, and Yahoo! Finance. Following the SQL modules, the course transitions into Python-based data preparation, covering extraction, transformation, and loading (ETL) processes, exploratory data analysis, and the generation of summary statistics. Students will develop hands-on experience in handling financial data from various sources and file formats, addressing the unique challenges associated with financial datasets. The course then introduces machine learning techniques relevant to financial modeling, specifically focusing on supervised learning techniques. Students will gain practical experience in model construction and evaluation. A special emphasis is placed on the interpretation of predictive modeling results, assessing model accuracy, and understanding the bias-variance tradeoff inherent in ML modeling. Students should expect to spend 5 to 7 hours per week outside of class meetings completing readings, coding assignments, and data analysis projects. By the end of the course, students will have acquired the SQL, Python programming, and statistical skills necessary to apply machine learning methods to complex financial datasets. Prereq: BAFI 355.

BAFI 355. Corporate Finance. 3 Units.
The basic goals of this course are to familiarize students with the concepts and tools used in financial management at both the corporate and personal levels. They include the notion of present value, securities valuation, risk and return analysis, and other financial analysis techniques. The concepts and techniques are, in turn, used to evaluate and make decisions regarding the firm's investments (capital budgeting) and the cost of capital. Prereq: ACCT 100 or ACCT 101.

BAFI 356. Investments. 3 Units.
This course is about investing in securities. It provides a comprehensive introduction to security analysis and portfolio management. Investing is a rational decision-making process in which the investor seeks to select a package or portfolio of securities that meets a predetermined set of objectives. Descriptive, institutional and quantitative decision-making methods are arranged in a cohesive framework of analysis of interest to the informed investor. Topics include modern portfolio theory, the relation between risk and return, efficient markets, bonds, and options, among others. Prereq: BAFI 355.

BAFI 357. ValuAtion : Financial Modeling Using A.I.. 3 Units.
This course teaches you to value companies and their equity by projecting their future performance and estimating a target stock price using advanced tools, including AI-driven analysis. You will learn to utilize discounted cash flow (DCF) and comparable company analysis and integrate traditional Excel methods with AI technologies like ChatGPT and Microsoft Copilot. Students will learn both manual and AI-driven approaches to financial analysis to ensure a robust understanding of valuation techniques, including discounted cash flow analysis. This course teaches you how to value a company by determining its current financial standing, projecting its future performance and estimating a target stock price in an Excel environment and ChatGPT api. You will learn fundamental tools to help determine if an investment is a rational one, if a stock price is undervalued, overvalued, or appropriately valued. Investment banks, private equity firms, and analysts use these fundamental Excel-based tools and AI based prompt engineering. Prereq: BAFI 355.

BAFI 358. Intermediate Corporate Finance. 3 Units.
This is a rigorous second course in corporate finance (following BAFI 355) designed to lay the analytic foundation for careers in business. The objective is to strengthen students' theoretical and conceptual understanding of several important topics in finance, and to develop their problem-solving skills. Topics covered include economic cash flows and valuation, Long term financial planning and ratios analysis, Growth and external financing, Short term financial planning and Working capital management, Managerial options and valuation, Derivatives, Agency cost and asymmetric information, Capital structure and payout policy. Prereq: BAFI 355

BAFI 359. Cases in Finance. 3 Units.
This course applies the case study method applied to a variety of business situations that teaches students to think on their feet, develop presentation skills and hone business judgment. The objective of the course is to strengthen students' conceptual understanding and problem-solving skills. It is intended to complement the two course sequence in corporate finance (BAFI 355 and BAFI 358) by applying these concepts to real world problems. Topics covered include cash flow estimation and corporate valuation, financial planning and ratio analysis, financing using internal and external sources, capital budgeting and managerial options, capital structure, payout policy, financial strategy, public equity analysis (including initial public offerings), mergers and acquisitions and leveraged buyouts. The course envisages an extensive use of case studies and simulation exercises. Prereq: BAFI 355.

BAFI 360. Independent Study. 1 - 18 Units.
This course is offered for candidates undertaking reading in a field of special interest. Permission of department chair required.

BAFI 361. Empirical Analysis in Finance. 3 Units.
This course is developed based on the feedback received from employers who have hired BS Management (finance) graduates in the past and will likely do so in future. The goal is to enable students to use financial econometrics to effectively analyze financial data. The course will draw on theoretical aspects of BAFI 355 but focus on developing financial analytic skills. The applied nature of the course comes from the use of real, rather than theoretical, data. In other words, in a real-world fashion, through the use of statistical methods to analyze real data, the student can address practical questions of high relevance to the Finance industry. The scope of the data as well as the quantitative methods used in such analysis often requires familiarity with computational environments and statistical packages. As such, another goal of the course is to familiarize the student with at least one such environment. Prereq: BAFI 355 and OPRE 207.

BAFI 362. Advanced Analytics in Credit Risk Management. 3 Units.
The objectives of this course include understanding important quantitative risk models, risk measurement tools and explaining implications for risk management and investment decisions. Data will be used from Bloomberg and other intra-day data sources to estimate models and evaluate results in many areas of finance. At the end of the course students will: (i) understand and apply analytical models to real financial market problems, (ii) be exposed to debt, credit, and derivatives markets and associated career opportunities in applied analytics and (iii) be exposed to bank risk management skills and applications. This course is designed to be focused and intense, while also being very aligned with the best practices in the financial industry today. Microsoft Excel, because of its flexibility, will be the primary source of practical experience, though the course may also incorporate other computer tools/languages. Prereq: OPRE 207 and BAFI 355.

BAFI 364. Real Estate Finance. 3 Units.
This course examines real estate as an asset class and provides students with the fundamentals of real estate finance, focusing on areas such as: investment decision making, financing strategies, investment strategies within residential real estate, commercial real estate valuation, development of new sites, and an overall discussion of the real estate markets. The course contains a mixture of lectures, guest speakers, hand-on case discussions and potential site visits. It serves as a foundational course for students looking to pursue careers in the real estate industry, but it is also open to students who wish to gain a deeper understanding of the real estate investment process. Prereq: BAFI 355.

BAFI 365. Options and Other Derivatives. 3 Units.
This course is designed to introduce students to the theoretical and practical aspects of financial futures, options, and other derivatives. The markets for these instruments have grown enormously and have generated a profusion of innovative products and ideas, not to mention periodic crises. Derivatives have become one of the most important tools of modern finance. The goal is for students to understand the principles of how these important instruments and markets work. Prereq: BAFI 355.

BAFI 403. Corporate Financial Technology. 3 Units.
This course is focused on the many aspects of the development in Financial Technology from recent notable successes to the current edge and thoughts about the future. Topics covered will include "FinTech" Applications, Incubators and Angels, Block Chains, Crypto-currencies, Crowdfunding, and Payment Schemes. Topics can change from semester to semester, in tune with changing technology. Offered as BAFI 403, FNCE 403 and FTEC 403.

BAFI 404. Financial Modeling. 3 Units.
This is a course about financial modeling. It covers a range of topics in the field of financial economics. Each topic is chosen because it lends itself to financial modeling. The primary focus of the course is to relate the theory of finance to practical and usable spreadsheet models that will assist a financial manager with a firm's investment and financing decisions. Spreadsheet models have been the dominant vehicle for finance professionals to practice their trade. This course will utilize Excel and challenge the student to improve their finance and modeling skills. Students will improve their familiarity with financial data analysis through various exercises that incorporate completed models. In summary, the course is designed to increase your practical understanding of core concepts in finance, help you develop hands-on spreadsheet modeling skills, and strengthen your ability to perform financial data analysis within an Excel model. Prereq: MBAC 504 or MBAP 405.

BAFI 420. Health Finance. 3 Units.
Exploration of economic, medical, financial and payment factors in the U.S. healthcare system sets the framework for the study of decisions by providers, insurers, and purchasers in this course. The mix of students from various programs and professions allows wide discussion from multiple viewpoints. Offered as BAFI 420 and HSMC 420. Prereq: (MBAP 402 or MBAC 502 or ACCT 401H) and Master of Healthcare Management students only.

BAFI 428. Financial Strategy and Value Creation. 3 Units.
The intersection between the theory of perfect markets and the reality of market imperfections provides the basis for the exploration of value creation in this course. Opportunities in both product and financial markets are explored using case studies to develop a framework for strategic financial decisions.

BAFI 429. Investment Management. 3 Units.
This course explores the characteristics of financial investments and markets and develops modern techniques of investment analysis and management. The goal is to help students develop a level of analytical skill and institutional knowledge sufficient to make sensible investment decisions. Topics include: an overview of stock, debt and derivative asset markets, practical applications of modern portfolio theory, equilibrium and arbitrage-based approaches to capital market pricing, the debate over market efficiency, the term structure of interest rates, bond portfolio management, and uses of derivative assets in investment portfolios. Prereq or Coreq: MBAC 504 or MBAP 405.

BAFI 430. Derivatives and Risk Management. 3 Units.
This course is intended to give students an understanding of options and futures markets both in theory and practice. The emphasis is on arbitrage and hedging. The course concentrates on listed common stock and index contracts as well as commodity markets. Various theories for trading strategies are studied. Prereq or Coreq: MBAC 504 or MBAP 405.

BAFI 431. Fixed Income Markets and Their Derivatives. 3 Units.
This class is concerned with fixed income securities, interest rate risk management, and credit risk. Fixed income securities account for about two thirds of the market value of all outstanding securities, and hence this topic is important. The course covers the basic products of fixed income markets including treasury and LIBOR products, such as interest rate swaps. Risk management and hedging strategies are covered as well as selected topics in credit risk models and mortgage-backed securities. Prereq: BAFI 430.

BAFI 432. Corporate Risk Management. 3 Units.
This is a risk management course aimed at participants who wish to enhance their understanding of the risks faced by corporate firms, both financial and non-financial, learn techniques to identify and measure these risks, and understand how derivatives and risk management solutions can be used to manage these risks, create value, and advance the strategic goals of the firm. Offered as BAFI 432 and FNCE 432. Prereq: MBAP 405 or MBAC 504 or MBAC 505.

BAFI 433. Quantitative Risk Modeling. 3 Units.
This course is designed to help students learn quantitative models for estimating risk in various financial settings for different types of financial institutions (banks, hedge funds, and others). It is a very hands-on course where students will become familiar with several state-of-the-art quantitative risk models as well as their detailed implementation procedure in the real world. The course uses several in-class Excel exercises to illustrate the models as well as their practical implementation using real financial data. Offered as BAFI 433 and FNCE 433 and FTEC 433 Prereq: MBAC 504 or MBAP 405.

BAFI 434. Financial Analytics and Banking. 3 Units.
This course will cover empirical and analytical aspects of banking, including loan origination, syndication, sales, stress-testing and securitization; capital adequacy, regulation and supervision; methods of measuring and managing value at risk, credit risk, interest rate risk, liquidity risk, and other risk; credit market information, feedback, and signaling. Offered as BAFI 434 and FNCE 434. Prereq or Coreq: MBAC 504 or MBAP 405.

BAFI 435. Empirical Finance. 3 Units.
This course provides an introduction to empirical analysis and research in finance. This involves the management of empirical datasets and the aspects of quantitative applications of finance theory. The goal is to enable the student to deal with the need to analyze complex and large financial and economic datasets that is present in many fields of the financial profession. The scope of the data as well as the quantitative methods used in such analysis often requires familiarity with robust computational environments and statistical packages. As such, another goal of the course is to familiarize the student with at least one such environment. Applications are conducted using real financial and economic data. The course draws on the theoretical aspects of the subjects covered, but mainly focuses on the practical matters required to undertake an empirical analysis of financial topics--e.g., the definition of the research question, the datasets required, the computational needs, and, then, the implementation. The course enables the student to evaluate outstanding financial research as well as to conduct his or her own research. Offered as BAFI 435 and FNCE 435. Prereq or Coreq: MBAC 504 or MBAP 405.

BAFI 440. Financial Decisions Modeling and Analytics. 3 Units.
The firm is a nexus of contracts among its various stakeholders (e.g., managers, shareholders, debt holders). In this course, we will examine Valuation, Quantitative Analysis of Real Options, Asymmetric Information, Agency Cost, Incentive Contracts and Performance Metrics, Regulation and Reputation. The takeaway learnings from this course are: (a) Understanding how value can be created or destroyed, (b) Measuring/quantifying value using financial big data, (c) Understanding the links between capital structure and asymmetric information, market reactions and signaling, agency and management incentives, taxes and shareholder, bondholder conflicts, (d) Understanding the links between payout policy and informational content, market reaction, stock returns and signaling, and clientele effects, and (e) design of Performance Metrics. We will download corporate financial data (financial big data) from research databases, and conduct empirical analysis to understand the value implications of financial decisions. Excel/SAS will be used. We will analyze case studies and real-world events. Offered as BAFI 440 and FNCE 440. Prereq: MBAP 405 or (MBAC 504 and MBAC 505).

BAFI 444. Entrepreneurial Finance. 3 Units.
The objective of this course is to introduce students to the issues of financial management and capital formation in new ventures. The course will address issues of estimation of cash requirements, development of pro forma financial plans, firm valuation and the process and tools used in raising debt and equity financing. Bootstrapping, angel investing, venture capital, strategic alliances and initial public offerings will be covered. The emphasis is on the entrepreneur and how he/she can assess financial needs and develop a sensible plan for acquiring financial resources in a manner that is consistent with their financial needs and other strategic goals. Offered as BAFI 444 and FNCE 444. Prereq or Coreq: BAFI 420, MBAC 504, MBAP 405 or Master of Engineering & Management students.

BAFI 450. Mergers and Acquisitions. 3 Units.
This course examines the economic rationale and motivation for the different merger and acquisition and recapitalization activities undertaken by firms and individuals in the U.S. market. Emphasis is on the comparable publicly traded proxy company, comparable "change of control" transaction, and discounted cash flow methods of valuing a firm. The class will also review the different types of debt and equity capital employed to fund mergers and acquisitions and recapitalizations, how senior lenders and equity investors structure their loans and/or investments, and how investors realize the gains through different exit strategies. The legal and tax ramifications of various forms of M&A activity are also discussed. The course gives the student an excellent understanding of the role that senior commercial banks, insurance companies, pension funds, LBO funds, investment banking firms, and venture/growth capital investors play in mergers and acquisitions and will strengthen the students' ability to value a business enterprise. Prereq: MBAC 504 or MBAP 405.

BAFI 460. Investment Strategies. 3 Units.
This course provides a broad survey of some of the main strategies used by hedge funds today. Through exercises and projects, the hedge fund strategies will be presented using real data. Students will learn to use a methodology referred to as "back testing" in order to evaluate hedge fund strategies. The course will also cover institutional details related to short selling, liquidity, margin requirements, risk management, and performance measurement. Since hedge funds today use advanced modeling techniques, the course will require students to analyze and manipulate real data using mathematical modeling. The objective of the course is for students to gain practical knowledge about creating, back-testing, and implementing hedge fund trading strategies. Offered as BAFI 460 and FNCE 460. Prereq: MBAC 504 and MBAC 505.

BAFI 480. Global Banking & Capital Markets. 3 Units.
This course will expose students to Banking and Capital Market Structure, Practices, and Regulations in North America, Europe, as well as Asia. Students will learn about structure of the financial services industry in different parts of the world, the history and evolution of the regulatory frameworks in this industry, and its consequent impact on financial and economic development as well as risk. Several case studies are used to expose students to different issues and questions that arise in the day-to-day jobs of financial managers in this industry. Offered as BAFI 480 and FNCE 480. Prereq: MBAC 504 or MBAP 405.

BAFI 491. Python Programming w Appl in Finance. 3 Units.
There are two parts to this course. (i) In the first part we learn the basics of Python programming language by solving a sequence of rather simple problems each focusing on broadening your knowledge. At each stage we introduce important commands of Python and slowly learn the structure of object oriented programming with Python. The objective is to make you Python literate. (ii) The second part of the class is for you to tackle significant financial problems either in risk management or in corporate finance using the Python language as the primary tool to do the analysis. You will develop a series of financial models in your track and then tackle two major projects which will utilize all the skills developed. Offered as BAFI 491 and FNCE 491. Coreq: BAFI 430.

BAFI 501. Special Problems and Topics. .75 - 18 Units.
This course is offered, with permission, to students undertaking reading in a field of special interest.