

# Finance (FIN)

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Course information contained within the Bulletin is accurate at the time of publication in August 2023 but is subject to change. For the most up-to-date course information, please refer to the Course Catalog.

## **FIN 0822. Investing for the Future. 4 Credit Hours.**

This class will teach you about seemingly complicated financial topics in a very comprehensible manner that will help you make informed financial decisions to ensure a secure financial future. We begin with identification of common financial problems among the "young, fabulous and broke" and how to avoid them. After thinking about life and financial priorities, we address why thinking about retirement now must be at the top of your list. We examine how to compute your retirement needs and how to get there, primarily with a focus on investing in common stock. You will learn how to think smart about big ticket purchases such as cars, housing, and graduate/professional education. Finally we will make sure you understand how to create a safety net to protect your future. NOTE: This course fulfills the Quantitative Literacy (GQ) requirement for students under GenEd and a Quantitative Reasoning (QA or QB) requirement for students under Core. Students cannot receive credit for this course if they have successfully completed ECE 0822, FIN 0922 or RMI 0822.

**Course Attributes:** GQ

**Repeatability:** This course may not be repeated for additional credits.

## **FIN 0922. Honors Investing for the Future. 4 Credit Hours.**

This class will teach you about seemingly complicated financial topics in an understandable manner that will help you make well-informed "money" decisions to ensure a secure financial future. At the same time, we will use the tools learned to analyze important current events such as the constant dollar (or inflation-adjusted) minimum wage and unfunded pension liabilities. We begin with identification of common financial problems among the "young, fabulous and broke" and how to think about addressing them. After addressing life and financial priorities, you will learn why retirement savings must be at the top of your list. We examine how to compute your retirement needs and how to get there, primarily with a focus on investing in the stock market. You will learn how to think smart about big ticket purchases such as cars, housing, and graduate/professional education. Finally we will make sure you understand how to create a safety net to protect your future. NOTE: This course fulfills the Quantitative Literacy (GQ) requirement for students under GenEd and a Quantitative Reasoning (QA or QB) requirement for students under Core. Students cannot receive credit for this course if they have successfully completed ECE 0822, FIN 0822 or RMI 0822.

**Cohort Restrictions:** Must be enrolled in one of the following Cohorts: SCHONORS, UHONORS, UHONORSTR.

**Course Attributes:** GQ, HO

**Repeatability:** This course may not be repeated for additional credits.

## **FIN 2501. Introduction to Careers in Finance I. 1.5 Credit Hour.**

This is the first 1.5 credit course in a two-course career orientation sequence offered over the fall and spring semesters. The course introduces students to various career paths in finance and prepares them for internships. The discussion of each career path covers general responsibilities, required skills, and desired academic background. The course includes various activities specific to different careers to provide students with a high level "hands-on" experience. The majority of discussed problems require Excel, and students obtain a working knowledge of it through in-class activities. Students also familiarize themselves with professional platforms used in the finance industry including Bloomberg, Capital IQ, and FactSet and learn how to find relevant information on company websites and in the SEC filings. Many classes have guest speakers who describe their own careers and job responsibilities. Note: Prior to fall 2023, the course title was "Finance Fellows I."

**Class Restrictions:** May not be enrolled in one of the following Classes: Junior 60 to 89 Credits, Senior 90 to 119 Credits, Senior/Fifth Year 120+ Credits.

**Repeatability:** This course may not be repeated for additional credits.

## **FIN 2502. Introduction to Careers in Finance II. 1.5 Credit Hour.**

This is the second 1.5 credit course in a two-course career orientation sequence offered over the fall and spring semesters. The course introduces students to various career paths in finance and prepares them for internships. The discussion of each career path covers general responsibilities, required skills, and desired academic background. The course includes various activities specific to different careers to provide students with a high level "hands-on" experience. The majority of discussed problems require Excel, and students obtain a working knowledge of it through in-class activities. Students also familiarize themselves with professional platforms used in the finance industry including Bloomberg, Capital IQ, and FactSet and learn how to find relevant information on company websites and in the SEC filings. Many classes have guest speakers who describe their own careers and job responsibilities. Note: Prior to fall 2023, the course title was "Finance Fellows II."

**Class Restrictions:** May not be enrolled in one of the following Classes: Junior 60 to 89 Credits, Senior 90 to 119 Credits, Senior/Fifth Year 120+ Credits.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 2527. Digital Disruption in Financial Services. 3 Credit Hours.**

The course provides students exposure to the current technological advances reshaping the financial services industry, using research papers, business news articles and guest speakers to highlight topics. The course focuses on blockchain, digital currencies, artificial intelligence, machine learning and the regulatory environment surrounding these innovations. The course requires intensive reading and reflection on the class speaker content. An important deliverable is a team project where students develop a fintech application.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 3101. Financial Management. 3 Credit Hours.**

This course provides a survey of the financial problems associated with the life cycle of a business firm. Topics include: financial analysis and planning, capital budgeting, cost of capital, and the sources and uses of business funds. While the emphasis is on decision making within a corporate environment, the tools taught in this course are just as relevant to other forms of business organization and to personal financial management.

**Field of Study Restrictions:** Must be enrolled in one of the following Fields of study: Accounting, Actuarial Science, Business Management, Construction Engr Tech, Construction Mgt Tech, Career and Technical Education, Economics, Economics, Entrprnrship & Innovation Mgt, Entrepreneurship, Finance, Financial Planning, Human Resource Management, International Business, Law & Business, Legal Studies, Management Information Systems, Marketing, Real Estate, Risk Management and Insurance, Supply Chain Management, Statistical Sci + Data Analyt, Undeclared-Business & Mngt.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C- in (ECON 1101 or ECON 1901), (ECON 1102 or ECON 1902), (ACCT 2101 or ACCT 2103), and (STAT 2103 (may be taken concurrently), STAT 2903 (may be taken concurrently), STAT 2104 (may be taken concurrently), or MATH 3031 (may be taken concurrently))

**FIN 3102. Financial Management Lab. 1 Credit Hour.**

This online course is for finance majors and minors only. It is designed to provide a more in-depth study and application of topics covered in the FIN 3101/3901 courses, such as time value of money; bond and stock pricing, risk and return, financial analysis and planning, capital budgeting, cost of capital, capital structure. The course will be Excel intensive and focus on problems that require a higher level of critical problem solving skills beyond simple one-step solutions.

**Field of Study Restrictions:** Must be enrolled in one of the following Fields of study: Finance.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101 (may be taken concurrently), FIN 3901 (may be taken concurrently), 'Y' in CRFI01, or 'Y' in CRFI07)

**FIN 3504. Intermediate Corporate Finance. 3 Credit Hours.**

This course covers several areas of corporate financial management such as capital budgeting, capital structure, and firm valuation. Students learn how firms make investment decisions, determine the cost of capital, set the target leverage, and use financial statement forecasting and free cash flows to find the firm's value. Students demonstrate their proficiency in each area through an exam and case analysis using Excel.

**Field of Study Restrictions:** Must be enrolled in one of the following Fields of study: Accounting, Actuarial Science, Business Management, Economics, Economics, Entrprnrship & Innovation Mgt, Entrepreneurship, Finance, Financial Planning, Human Resource Management, International Business, Law & Business, Legal Studies, Management Information Systems, Marketing, Real Estate, Risk Management and Insurance, Supply Chain Management, Statistical Sci + Data Analyt, Undeclared-Business & Mngt.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, 'Y' in CRFI01, or 'Y' in CRFI07)

**FIN 3505. Bank Enterprise Risk Management. 3 Credit Hours.**

This course covers the management of banks and other financial institutions. Topics include the risk-return tradeoffs, regulatory constraints, performance analysis, asset-liability management, and management of liquidity, interest rate, and credit risks.

**Field of Study Restrictions:** Must be enrolled in one of the following Fields of study: Accounting, Actuarial Science, Business Management, Economics, Economics, Entrprnrship & Innovation Mgt, Entrepreneurship, Finance, Financial Planning, Human Resource Management, International Business, Law & Business, Legal Studies, Management Information Systems, Marketing, Real Estate, Risk Management and Insurance, Supply Chain Management, Statistical Sci + Data Analyt, Undeclared-Business & Mngt.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, FIN 3504, 'Y' in CRFI01, 'Y' in CRFI07, or 'Y' in CRFI02)

**FIN 3506. Derivatives and Financial Risk Management. 3 Credit Hours.**

This course introduces students to derivative securities. Students learn how to use, how to price, and how to trade financial derivatives such as futures, options, and swaps. Topics also include speculative and hedging strategies and financial risk management. Although the material of the course is quite quantitative, the focus is on the general principles of derivative pricing and practical use of derivatives rather than on mathematical technicalities.

**Field of Study Restrictions:** Must be enrolled in one of the following Fields of study: Accounting, Actuarial Science, Business Management, Economics, Economics, Entrprnrship & Innovation Mgt, Entrepreneurship, Finance, Financial Planning, Human Resource Management, International Business, Law & Business, Legal Studies, Management Information Systems, Marketing, Real Estate, Risk Management and Insurance, Supply Chain Management, Statistical Sci + Data Analyt, Undeclared-Business & Mngt.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, FIN 3504, 'Y' in CRFI01, 'Y' in CRFI07, or 'Y' in CRFI02)

**FIN 3507. Security Analysis and Portfolio Management. 3 Credit Hours.**

This course covers the main principles of investing in financial assets. Topics include the portfolio theory, asset pricing models, fundamental security analysis, and valuation of equity and fixed income securities. Students also learn how securities are traded in the financial markets and how to evaluate the investment performance.

**Field of Study Restrictions:** Must be enrolled in one of the following Fields of study: Accounting, Actuarial Science, Business Management, Economics, Economics, Entrprnrship & Innovation Mgt, Entrepreneurship, Finance, Financial Planning, Human Resource Management, International Business, Law & Business, Legal Studies, Management Information Systems, Marketing, Real Estate, Risk Management and Insurance, Supply Chain Management, Statistical Sci + Data Analyt, Undeclared-Business & Mngt.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, FIN 3504, 'Y' in CRFI01, 'Y' in CRFI07, or 'Y' in CRFI02)

**FIN 3508. Fixed Income Modeling and Analysis. 3 Credit Hours.**

This course provides a theoretical and applied analysis of the spot markets for fixed income instruments. Topics include: Estimation of zero coupon spot curves, computation of forward rates, day count conventions, valuation of bonds with embedded options, duration and convexity of bond yields, default risk probabilities, interest rate volatility, bond portfolio management strategies, and securitization. Note: Prior to fall 2017, the course title was "Money and Fixed Income Markets."

**Field of Study Restrictions:** Must be enrolled in one of the following Fields of study: Accounting, Actuarial Science, Business Management, Economics, Economics, Entrprnrship & Innovation Mgt, Entrepreneurship, Finance, Financial Planning, Human Resource Management, International Business, Law & Business, Legal Studies, Management Information Systems, Marketing, Real Estate, Risk Management and Insurance, Supply Chain Management, Statistical Sci + Data Analyt, Undeclared-Business & Mngt.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, 'Y' in CRFI01, or 'Y' in CRFI07)

**FIN 3509. Real Estate Investment and Finance. 3 Credit Hours.**

This course provides theoretical and practical analysis of investments in real estate assets. Topics include real estate interests, forms of ownership, market and site analysis, financing alternatives, and valuation techniques.

**Field of Study Restrictions:** Must be enrolled in one of the following Fields of study: Accounting, Actuarial Science, Business Management, Economics, Economics, Entrprnrship & Innovation Mgt, Entrepreneurship, Finance, Financial Planning, Human Resource Management, International Business, Law & Business, Legal Studies, Management Information Systems, Marketing, Real Estate, Risk Management and Insurance, Supply Chain Management, Statistical Sci + Data Analyt, Undeclared-Business & Mngt.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, FIN 3504, 'Y' in CRFI01, 'Y' in CRFI07, or 'Y' in CRFI02)

**FIN 3512. Financial Modeling. 3 Credit Hours.**

This course teaches how to apply Excel to capital budgeting and financial statement modeling for the purposes of forecasting and valuation. Students will learn how to calculate various project performance measures, construct financial statements from trial balances, develop financial statement forecasting models, and assess the sensitivity of the obtained results to forecasting assumptions. Other topics include bond valuation, beta analysis, and optimization methods. All techniques will be illustrated by applying them to real market data from Capital IQ and FactSet.

**Field of Study Restrictions:** Must be enrolled in one of the following Fields of study: Accounting, Actuarial Science, Business Management, Economics, Economics, Entrprnrship & Innovation Mgt, Entrepreneurship, Finance, Financial Planning, Human Resource Management, International Business, Law & Business, Legal Studies, Management Information Systems, Marketing, Real Estate, Risk Management and Insurance, Supply Chain Management, Statistical Sci + Data Analyt, Undeclared-Business & Mngt.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, FIN 3504, 'Y' in CRFI01, 'Y' in CRFI07, or 'Y' in CRFI02)

**FIN 3513. Financial Statement Analysis. 3 Credit Hours.**

This course teaches students to use and interpret economic and accounting information that is essential in financial analysis and valuation. By the end of the course, students should be able to use financial statements to evaluate a firm's performance, indicate key financial reporting issues, identify potential sources of financial statement manipulation, calculate and interpret financial ratios and their trends, and prepare a comprehensive financial assessment of a firm.

**Field of Study Restrictions:** Must be enrolled in one of the following Fields of study: Accounting, Actuarial Science, Business Management, Economics, Economics, Entrprnrship & Innovation Mgt, Entrepreneurship, Finance, Financial Planning, Human Resource Management, International Business, Law & Business, Legal Studies, Management Information Systems, Marketing, Real Estate, Risk Management and Insurance, Supply Chain Management, Statistical Sci + Data Analyt, Undeclared-Business & Mngt.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, FIN 3504, 'Y' in CRFI01, 'Y' in CRFI07, or 'Y' in CRFI02)

**FIN 3514. Commercial Real Estate Analysis. 3 Credit Hours.**

This course is designed to give students an understanding of activities and decisions that result in the man-made environment by introducing students to the complex world of commercial real estate analysis and development. Of primary interest are principles of sound development and the procedures and interactions of the analyst/developer that are necessary to coordinate with governmental officials, community leaders, and neighbors, while meeting the needs of users of commercial real estate space. Of importance is the integration of community preferences including environmental and sustainable development issues. An understanding of commercial real estate markets and development dynamics requires an understanding of real estate assets; complex urban dynamics; pertinent laws and regulations; the use of public and private financing; and the marketing of space within an urban context. Students should also develop the skills necessary to determine the requirements for the successful financial analysis of commercial real estate development including the forecasts of future cash flows and application of appropriate financial analysis techniques.

**Field of Study Restrictions:** Must be enrolled in one of the following Fields of study: Accounting, Actuarial Science, Business Management, Economics, Economics, Entrprnrship & Innovation Mgt, Entrepreneurship, Finance, Financial Planning, Human Resource Management, International Business, Law & Business, Legal Studies, Management Information Systems, Marketing, Real Estate, Risk Management and Insurance, Supply Chain Management, Statistical Sci + Data Analyt, Undeclared-Business & Mngt.

**Course Attributes:** SI

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, 'Y' in CRFI01, or 'Y' in CRFI07)

**FIN 3515. Financial Markets and Institutions for Business. 3 Credit Hours.**

This course provides finance majors with a survey of financial instruments (with a focus on fixed income and money markets), markets, and institutions with a strong current events perspective. The course will have an applied managerial perspective that focuses on both how the markets are viewed by companies who need access to funding as well as the professionals that work in the financial services industry. The course is intended not only for those interested in careers in financial markets and institutions, but also for those who wish to extend their institutional industry specific knowledge.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101 (may be taken concurrently), FIN 3901 (may be taken concurrently), 'Y' in CRFI01, or 'Y' in CRFI07)

**FIN 3516. Corporate Valuation. 3 Credit Hours.**

This course covers the valuation of public and private companies using discounted cash flow methods, market multiples, and hybrid models. Valuation techniques based on discounted cash flows include dividend discount models, free-cash flow models, and residual income models. Multiples-based methods use both market prices and enterprise values. The instructional format of the course is lecture supplemented with case analysis. The course extends the basic concepts of financial management beyond textbook fundamentals to practical applications. NOTE: Prior to Fall 2023, this course was titled "Advanced Corporate Finance."

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, 'Y' in CRFI01, or 'Y' in CRFI07)

**FIN 3517. Financial Data Analysis. 3 Credit Hours.**

This course applies the core materials in statistics and econometrics to the analysis of large financial data sets. The course covers three areas with intensive finance application: 1) statistical inference: distributions, hypothesis testing, confidence interval; 2) regression analysis: simple and multiple linear regressions, and probit/logit regression; and 3) big data and data mining: Monte Carlo simulation, and SQL. Students completing this course should be well prepared for the level of analysis required in the capstone for the asset pricing track.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, 'Y' in CRFI01, or 'Y' in CRFI07)

**FIN 3519. Introduction to Financial Planning. 3 Credit Hours.**

This course provides an overview of the professional approach to personal financial planning. Topics include client/planner interactions; time value of money applications to retirement planning needs; personal financial statement development and assessment; cash flow and debt management; education planning; risk management and insurance; investment planning; employee benefits, tax and estate planning; ethics and practices standards; and practice management concepts. Note: This course only counts towards the Financial Planning major. It can't be used to satisfy any requirements for the Finance major.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, 'Y' in CRFI01, or 'Y' in CRFI07)

**FIN 3522. Advanced Portfolio Analysis. 3 Credit Hours.**

This course provides majors in the asset pricing track with hands-on experience to a variety of portfolio management skills. In this course students are exposed to Capital Asset Pricing Model (CAPM), estimating betas and the Security Market Line (SML), backtesting portfolio allocation, portfolio optimization, risk parity, asset correlation, efficient frontier, Fama-French factor regression analysis, factor performance attribution and stress tests. CapitalWave's Portfolio Asset Simulator will be used as the primary means of instruction giving students an opportunity to create and adjust portfolios to different events and evaluate their performance in response to simulated news feeds using the techniques described above.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, 'Y' in CRFI01, or 'Y' in CRFI07)

**FIN 3523. Real Estate Financial Modeling. 3 Credit Hours.**

The fundamentals of understanding real estate involve a combination of market conditions and economics, legal and environmental due diligence, marketing, and finance. The course is on real estate financial modeling, but will review the accompanying components involving legal and environmental due diligence. This course mixes theory and practice. The financial analysis occurs while obtaining and tracking an actual property. That property is proposed to be an apartment building, since a residential investment is the most likely that small investors can acquire. The class continues to examine real estate financial modeling, but with the use of Argus. The remainder of the class is on financing and capital structure for the project. These include remaining material on depreciation, amortization and loan financing, mezzanine and cash flow waterfalls.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, 'Y' in CRFI01, or 'Y' in CRFI07)

**FIN 3524. Real Estate Finance and Mortgage Markets. 3 Credit Hours.**

This course explores real estate finance and quantitative methods that are used in the valuation of real estate. Students develop an understanding of real estate financing and valuation as well as related topics such as underwriting, risk analysis, and financial leverage. In addition, students learn about the mortgage market including a review of the government-sponsored enterprises including Fannie Mae and Freddie Mac, and the securitization process for residential and commercial mortgages. The course includes analysis of both residential and commercial real estate markets. Students will be able to set up a term sheet to attract equity capital, prepare an offering memorandum for lenders to propose financing packages, and evaluate between competing loan proposals.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, 'Y' in CRFI01, or 'Y' in CRFI07)

**FIN 3525. Real Estate Development. 3 Credit Hours.**

This course evaluates ground-up development on vacant sites as well as rehabilitation, redevelopment, and acquisition investments. The course examines raw and developed land and the similarities and differences of traditional real estate product types including office, R & D, retail, warehouses, single family and multi-family residential, mixed use, and land as well as specialty uses like golf courses, assisted living, and fractional share ownership. Emphasis is on concise analysis and decision making. The course discusses the development process with topics including market analysis, site acquisition, due diligence, zoning, entitlements, approvals, site planning, building design, construction, financing, leasing, and ongoing management and disposition. Special topics like workouts and running a development company are discussed.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, 'Y' in CRFI01, or 'Y' in CRFI07)

**FIN 3526. Commercial Credit Essentials. 3 Credit Hours.**

This course will introduce you to commercial credit risk analysis undertaken by financial services firms. The topics range from financial statement analysis to loan structuring and detecting problem loans. Case studies are used extensively along with mini-assignments to reinforce the learning goals for each topic. The culmination of the course is a final case study exercise that is a turn-key underwriting exercise.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, 'Y' in CRFI01, or 'Y' in CRFI07)

**FIN 3551. International Finance. 3 Credit Hours.**

The course surveys theoretical and institutional aspects of international finance. Topics include the structure of global financial systems, foreign exchange markets, exchange rate risk management, and international corporate finance.

**Field of Study Restrictions:** Must be enrolled in one of the following Fields of study: Accounting, Actuarial Science, Business Management, Economics, Economics, Entrprnrship & Innovation Mgt, Entrepreneurship, Finance, Financial Planning, Human Resource Management, International Business, Law & Business, Legal Studies, Management Information Systems, Marketing, Real Estate, Risk Management and Insurance, Supply Chain Management, Statistical Sci + Data Analyt, Undeclared-Business & Mngt.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, FIN 3504, 'Y' in CRFI01, 'Y' in CRFI07, or 'Y' in CRFI02)

**FIN 3571. Owl Fund Seminar. 3 Credit Hours.**

This course provides select students with the in-depth training required to manage the William C. Dunkelberg Owl Fund.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, 'Y' in CRFI01, or 'Y' in CRFI07)

**FIN 3580. Special Topics. 3 Credit Hours.**

Special topics in the field of Finance.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may be repeated for additional credit.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, FIN 3504, 'Y' in CRFI01, 'Y' in CRFI07, or 'Y' in CRFI02)

**FIN 3581. Field Experience in Finance. 3 Credit Hours.**

This course allows finance majors to apply what they have learned in the classroom coupled with any professional skills they may have acquired in the workplace. The requirements of the course include: (1) an expectation that you can demonstrate a synthesis of finance concepts through the preparation of a final paper; (2) student responsibility to arrange meetings every other week with their faculty sponsor to track progress throughout the semester; and (3) a strong work ethic including self-motivation and self-discipline as well as an ability to meet deadlines is critical.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (FIN 3504 or 'Y' in CRFI02) and (FIN 3507 or 'Y' in CRFI03)

**FIN 3582. Independent Study. 1 to 6 Credit Hour.**

Readings and/or research paper under the supervision of a faculty member.

**Field of Study Restrictions:** Must be enrolled in one of the following Majors: Finance, Real Estate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may be repeated for additional credit.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, 'Y' in CRFI01, or 'Y' in CRFI07)

**FIN 3671. Advanced Owl Fund Seminar. 3 Credit Hours.**

This course is a continuation of Finance 3571 that will focus on improving the students' skills in value investing and applied portfolio analysis. Students may register for this class only with the permission of the instructor.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in FIN 3571.

**FIN 3682. Independent Study. 1 to 6 Credit Hour.**

Readings and/or research paper under the supervision of a faculty member.

**Field of Study Restrictions:** Must be enrolled in one of the following Majors: Finance, Real Estate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may be repeated for additional credit.

**Pre-requisites:** Minimum grade of C in (FIN 3101, FIN 3901, 'Y' in CRFI01, or 'Y' in CRFI07)

**FIN 3901. Honors Financial Management. 3 Credit Hours.**

This course provides a survey of the financial problems associated with the life cycle of a business firm. Topics include: financial analysis and planning, capital budgeting, cost of capital, and the sources and uses of business funds. While the emphasis is on decision making within a corporate environment, the tools taught in this course are just as relevant to other forms of business organization and to personal financial management. Finance 3901 is the honors section of Finance 3101 and meets the FSBM Finance 3101 requirement.

**Field of Study Restrictions:** Must be enrolled in one of the following Fields of study: Accounting, Actuarial Science, Business Management, Construction Mgt Tech, Career and Technical Education, Economics, Economics, Entrprnrship & Innovation Mgt, Entrepreneurship, Finance, Financial Planning, Human Resource Management, International Business, Law & Business, Legal Studies, Management Information Systems, Marketing, Real Estate, Risk Management and Insurance, Supply Chain Management, Statistical Sci + Data Analyt, Undeclared-Business & Mngt.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Cohort Restrictions:** Must be enrolled in one of the following Cohorts: SCHONORS, UHONORS, UHONORSTR.

**Course Attributes:** HO

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C- in (ECON 1101 or ECON 1901), (ECON 1102 or ECON 1902), (ACCT 2101 or ACCT 2103), and (STAT 2103 (may be taken concurrently), STAT 2903 (may be taken concurrently), STAT 2104 (may be taken concurrently), or MATH 3031 (may be taken concurrently))

**FIN 3999. Honors Thesis I. 1 to 3 Credit Hour.**

The first of a two-part sequence of courses in which independent research is conducted under the supervision of a thesis advisor from the Finance department resulting in a substantial piece of original research, roughly 30 to 50 pages in length upon completion of Finance 4999. The student must publicly present his/her findings at a Temple University Research Forum session or the equivalent during one of the two semesters during which these courses are undertaken.

**Field of Study Restrictions:** Must be enrolled in one of the following Majors: Finance.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Cohort Restrictions:** Must be enrolled in one of the following Cohorts: SCHONORS, UHONORS, UHONORSTR.

**Course Attributes:** HO

**Repeatability:** This course may be repeated for additional credit.

**FIN 4596. Seminar in Corporate Finance. 3 Credit Hours.**

This course integrates the knowledge and skills obtained by students from other finance courses and teaches how to holistically apply them to real-world situations. The focus of the course is on financial decisions made by corporate executives. Using realistic cases, the students will learn how to perform financial analysis of a firm, compute a firm's cost of capital using publicly available data, value a firm using various methods, assess potential capital structure changes, and evaluate takeover alternatives. This is a writing intensive course that will help students further develop professional communication skills as well as satisfy the writing requirements for their degree.

**Field of Study Restrictions:** Must be enrolled in one of the following Majors: Finance.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Course Attributes:** WI

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C (except where noted) in ((FIN 3504 and FIN 3507), (FIN 3504 and 'Y' in CRFI03), (FIN 3507 and 'Y' in CRFI02), or ('Y' in CRFI02 and 'Y' in CRFI03)) and (BA 2196 (C- or higher; may be taken concurrently) or BA 2996 (C- or higher; may be taken concurrently))

**FIN 4597. Seminar in Real Estate Asset Analysis. 3 Credit Hours.**

This course is designed to provide students with an integrative experiential learning opportunity in real estate finance that is an ideal preparation for entry into the workplace. It covers a variety of topics including the acquisition and cash flow analysis, lease analysis, asset and property management strategies, financing strategies, disposition strategies, federal income taxation issues, risk management strategies, and standard valuation techniques for commercial real estate. Over the semester, students work on a real estate project that requires a holistic application of the skills learned in the other courses. NOTE: FIN 4597 is the required capstone course for Real Estate majors. It is also a writing intensive course that helps students further develop business communication skills as well as satisfy the writing requirements for their degree.

**Field of Study Restrictions:** Must be enrolled in one of the following Majors: Real Estate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Course Attributes:** WI

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C (except where noted) in (FIN 3509 or 'Y' in CRFI04), (RE 3501 or 'Y' in CRRE01), and (BA 2196 (C- or higher; may be taken concurrently) or BA 2996 (C- or higher; may be taken concurrently))

**FIN 4598. Seminar in Financial Planning. 3 Credit Hours.**

This course integrates the knowledge obtained by students throughout their studies in six areas: fundamentals of financial planning, risk management, investments, income tax planning, retirement planning, and estate planning. Over the semester, students develop and present a financial plan for a hypothetical client that requires a holistic application of the skills learned in the other financial planning courses. NOTE: FIN 4598 is the required capstone course for Financial Planning majors. It is also a writing intensive course that helps students further develop professional communication skills as well as satisfy the writing requirements for their degree.

**Course Attributes:** WI

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C (except where noted) in (FIN 3507 or 'Y' in CRFI03), (FIN 3519 or 'Y' in CRFI05), and (BA 2196 (C- or higher; may be taken concurrently) or BA 2996 (C- or higher; may be taken concurrently))

**FIN 4696. Seminar in Investment Analysis. 3 Credit Hours.**

This course integrates the knowledge and skills obtained by students from other finance courses and teaches how to holistically apply these to real-world situations. The focus of the course is on investing in financial markets. Through realistic cases, students learn how to value stocks using fundamental and technical analysis, perform asset allocation, and evaluate a fund manager's performance. Over the semester, students complete their own investment research project that requires statistical techniques to analyze large financial data sets. This is a writing intensive course that helps students further develop professional communication skills as well as satisfy the writing requirements for their degree.

**Course Attributes:** WI

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C (except where noted) in (FIN 3101, FIN 3901, 'Y' in CRFI01, or 'Y' in CRFI07), (FIN 3504 or 'Y' in CRFI02), (FIN 3507 or 'Y' in CRFI03), and (BA 2196 (C- or higher; may be taken concurrently) or BA 2996 (C- or higher; may be taken concurrently))



**FIN 4999. Honors Senior Thesis II. 1 to 3 Credit Hour.**

Independent research conducted under the supervision of a thesis advisor from the Finance Department resulting in a substantial piece of original research, roughly 30 to 50 pages in length. Student must publicly present his/her findings at a Temple University Research Forum session or the equivalent if this was not done in Finance 3999.

**Field of Study Restrictions:** Must be enrolled in one of the following Majors: Finance.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Cohort Restrictions:** Must be enrolled in one of the following Cohorts: SCHONORS, UHONORS, UHONORSTR.

**Course Attributes:** HO

**Repeatability:** This course may be repeated for additional credit.

**Pre-requisites:** Minimum grade of C- in FIN 3999.

**FIN 5001. Financial Analysis and Strategy. 3 Credit Hours.**

This course develops the conceptual framework that is used in analyzing the financial management problems of business enterprises. Students cover concepts such as the time value of money, the cost of capital, the relationship between risk and return, the valuation of assets such as stocks and bonds, and various corporate finance issues, including capital budgeting, capital structure, corporate financing, and dividend policy.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in (ACCT 5001, ACCT 5003, (ACCT 5301 and ACCT 5302), or (ACCT 5401 and ACCT 5402)) and (STAT 5001, (STAT 5401 and MIS 5401), or (STAT 5301 and MIS 5301))

**FIN 5104. Advanced Corporate Finance. 3 Credit Hours.**

This course builds on the core M.B.A. finance course to develop the critical skills and the analytical tools necessary to apply financial theory to real world situations. The theme of this course is corporate valuation and how corporate decision-making impacts firm value. Four broad topics are covered in this course: cost-of-capital estimation and cash flow estimation; capital structure and dividend policies from the perspective of their impact on firm value; the use of real-option techniques in valuing corporate assets; and mergers and acquisitions, including bidding, takeover defenses, and golden parachutes.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in (FIN 5001, (FIN 5401 and FIN 5402), or (FIN 5301 and FIN 5302))

**FIN 5108. Derivatives. 3 Credit Hours.**

This course provides students with a basic knowledge of the futures, options, and other derivative markets, their market structure, theoretical foundation, and the derivative strategies of both speculators and hedgers.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in (FIN 5001, (FIN 5401 and FIN 5402), or (FIN 5301 and FIN 5302)) and FIN 5109.

**FIN 5109. Investments. 3 Credit Hours.**

This course provides an understanding of the theory of investments, and introduces the tools and techniques used in investment management. Topics include portfolio theory; equilibrium models of security prices, including the capital asset pricing model and arbitrage pricing theory; empirical behavior of security prices; market efficiency; performance evaluation; and fixed-income markets.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in (FIN 5001, (FIN 5401 and FIN 5402), or (FIN 5301 and FIN 5302))

**FIN 5111. Corporate Valuation. 3 Credit Hours.**

This course covers the valuation of public and private companies using discounted cash flow models, market multiples methods, and hybrid models. Valuation techniques within the discounted cash flow paradigm include dividend discount models, free-cash flow models, and residual income. Market multiples methods will include both price and enterprise models. The instructional format of the course is lecture supplemented with case analysis.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in (FIN 5001, (FIN 5401 and FIN 5402), or (FIN 5301 and FIN 5302))

**FIN 5114. Financial Markets and Institutions. 3 Credit Hours.**

This course is a survey course of financial instruments, markets and institutions. Topics covered include time value of money, interest rates and yield curves, financial markets efficiency, fundamentals of financial institutions, depository institutions, and interest rate risk management. While the primary focus is on U.S. markets, the course also considers global financial markets.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5115. Financial Modeling for Investments and Corporate Finance. 3 Credit Hours.**

This course will develop the modeling skills that are used in the investments and investment planning process. Spreadsheet Models for the valuation and analysis of investment alternatives will be developed. These will include portfolio modeling to obtain the optimal asset mix to meet investor's goals, valuation models for both equity and fixed income securities and models for alternative investment such as real estate, commodities, options and other investments. Applications of these models will be used through the case method. Solutions to real world problems that investors face will be addressed in these analyses. In addition, alternate models for determining the expected returns on investment will be addressed. This course will develop the modeling skills that are used in the process of corporate decision-making. It will include the development of models for financial statement analysis and the evaluation of investment decisions including the capital budgeting, cost of capital and company valuation. Application models of NPV, IRR, Payback Period, MIRR and other methods of establishing the cash flows and the relative value of projects as faced by corporate decision makers will be developed. These models will be utilized in real world applications through the case method to address the steps needed to make optimal business decisions. In addition, how to establish the appropriate return on a corporate investment will be modeled and addressed.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in (FIN 5001 (may be taken concurrently), (FIN 5301 (may be taken concurrently) and FIN 5302 (may be taken concurrently)), or (FIN 5401 (may be taken concurrently) and FIN 5402 (may be taken concurrently)))

**FIN 5134. Fintech, Blockchain and Digital Disruption. 3 Credit Hours.**

The course gives students exposure to the technological advances that are reshaping the financial services as well as other industries using a variety of outside sources including research papers, business news articles and guest speakers. Specifically, the course focuses on block-chain, digital currencies, artificial intelligence (AI), machine learning (ML), internet of things (IoT), virtual reality (VR) and the regulatory environment surrounding these innovations. We are living in a business world that is always changing, and understanding how to observe and analyze changes is a skill as broadly applicable as it is useful.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in BA 5002.

**FIN 5156. Private Equity. 3 Credit Hours.**

This course provides a broad coverage of the private equity market. The course is divided into two distinct segments. The first section addresses the structure of PE funds, evaluation of fund performance, and identification, structuring, and valuation of individual venture capital opportunities. The last segment focuses on leveraged finance and exit. This course is largely case-based, runs at a fast pace, and offers a unique opportunity to interact with private equity industry professionals.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in (FIN 5001, (FIN 5401 and FIN 5402), or (FIN 5301 and FIN 5302))

**FIN 5170. Special Topics. 1 to 6 Credit Hour.**

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**Pre-requisites:** Minimum grade of B- in (FIN 5001, (FIN 5401 and FIN 5402), or (FIN 5301 and FIN 5302))

**FIN 5180. Special Topics Finance. 1 to 6 Credit Hour.**

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**Pre-requisites:** Minimum grade of B- in (FIN 5001, (FIN 5401 and FIN 5402), or (FIN 5301 and FIN 5302))

**FIN 5182. Independent Study. 1 to 6 Credit Hour.**

Special study is undertaken in a particular aspect of finance under the direct supervision of an appropriate graduate faculty member. No more than six semester hours of independent study may be counted toward degree requirements.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**FIN 5190. Special Topics - Finance. 1 to 6 Credit Hour.**

Special Topics - Finance

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**Pre-requisites:** Minimum grade of B- in (FIN 5001, (FIN 5401 and FIN 5402), or (FIN 5301 and FIN 5302))

**FIN 5282. Independent Study. 1 to 3 Credit Hour.**

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**Pre-requisites:** Minimum grade of B- in (FIN 5001, (FIN 5401 and FIN 5402), or (FIN 5301 and FIN 5302))

**FIN 5411. Financial Management. 3 Credit Hours.**

This course provides an overview of the financial challenges associated with the life cycle of an organization. Topics include: financial analysis and planning, capital budgeting, cost of capital, financial statements, and the sources and uses of business funds. While the emphasis is on decision making within a corporate environment, the tools taught in this course are just as relevant to other forms of business organization and to personal financial management.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (ACCT 5411 or ACCT 5001)

**FIN 5601. Financial Technology. .5 or 1 Credit Hours.**

This course teaches specialized financial software, financial market databases and quantitative financial tools. Financial Technology may be repeated up to one credit hour.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may be repeated for a total of 1 credit.

**FIN 5602. Corporate Finance. 1 Credit Hour.**

This course reviews economic principles governing financial markets and corporate management and develops financial analysis skills. Topics include capital budgeting and cost of capital.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5603. Financial Accounting. 1 Credit Hour.**

This course reviews the practice of financial accounting and develops skills in analyzing financial statements. Topics include financial reporting quality and International standards.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5604. Derivative Markets. 1 Credit Hour.**

This course covers global exchange-traded and over-the-counter futures, options and swap instruments and financial applications. Topics include option investment strategies and structured swap applications.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5605. Fixed Income. 1 Credit Hour.**

This course examines the features and trading behavior of global fixed income markets. Topics include features of debt securities, bond valuation, interest rate risk immunization and foreign exchange.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5607. Stochastic Calculus & Finance. 1 Credit Hour.**

This course covers the mathematical foundations of stochastic calculus with financial applications. Topics include Brownian motion, stochastic integrals and stochastic differential equations.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5612. Asset Pricing. 1.5 Credit Hour.**

This course examines the relationship between financial risk and rates of return. Topics include equilibrium and empirical approaches to asset pricing and international asset pricing.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5613. Derivative Valuation. 1.5 Credit Hour.**

This course explores equity, fixed income, foreign exchange and commodity derivatives valuation and risk management applications. Coursework includes trading in futures and options markets.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5614. Continuous Time Finance. 1.5 Credit Hour.**

This course covers continuous-time financial theory and option pricing methods. Topics include risk-neutral pricing and equilibrium asset pricing.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5615. Data Science in Finance. 1.5 Credit Hour.**

This course explores the tools and techniques of data mining to extract useful information from large financial data sets. Topics include data cleaning, data visualization and data mining for global financial market insights.

**Field of Study Restrictions:** Must be enrolled in one of the following Fields of study: Fin Analysis + Quant Risk Mgt, Financial Analysis & Risk Mgmt, Financial Engineering, Financial Analysis, Investment Management, Quant Fin + Risk Mgmt.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5618. Corporate Value Management. 1.5 Credit Hour.**

This course examines the drivers of firm value and develops financial statement analysis skills. Topics include free cash flow valuation, industry analysis and valuation in emerging markets.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5619. Quant Fixed Income. 1.5 Credit Hour.**

The course covers the mathematics driving fixed income markets. Topics include term structure modeling, interest rate immunization and fixed income derivatives.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5622. Machine Learning in Finance. 1.5 Credit Hour.**

This course examines machine learning techniques for exploring relationships between financial economic variables and making future predictions. Topics include financial modeling and learning algorithms for global market insights.

**Field of Study Restrictions:** Must be enrolled in one of the following Fields of study: Fin Analysis + Quant Risk Mgt, Financial Analysis & Risk Mgmt, Financial Engineering, Financial Analysis, Investment Management, Quant Fin + Risk Mgmt.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in FIN 5615.

**FIN 5623. Risk Measurement. 1.5 Credit Hour.**

This course examines alternative measures of value-at-risk (VaR) including stress-testing and scenario analysis. Topics include Monte Carlo Methods and risk management failures.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5624. Numerical Methods. 1.5 Credit Hour.**

This course examines numerical lattice, Monte Carlo and finite difference methods for pricing vanilla and exotic options. Topics include implied trinomial trees and variance reduction techniques.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5627. Financial Econometrics. 1.5 Credit Hour.**

This course examines linear regression and time series models with applications to corporate finance and investments theory. Topics include interpreting regression coefficients and estimating correlation and volatility using GARCH models.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5628. Global Economy. 1.5 Credit Hour.**

This course examines global macro-economic conditions. Topics include monetary and fiscal economics, economic indicators, the European Monetary Union and the causes of financial crises.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5629. Value at Risk. 1.5 Credit Hour.**

This course examines advanced quantitative methods for estimating the risk of financial loss and risk management applications. Topics include scenario analysis, incremental risk and VaR back testing techniques.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5631. Financial Time Series. 1.5 Credit Hour.**

This course teaches methods for analyzing time series data and for forecasting future events. The course offers a mix of financial data analysis together with statistical theory.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5632. Investment Management. 1.5 Credit Hour.**

This course explores portfolio management for individual and institutional investors. Coursework includes formulating a strategic equity and fixed income asset allocation strategy.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5634. Stochastic Volatility. 1.5 Credit Hour.**

This course examines alternative models of implied volatility and model calibration to observed market data. Topics include the term structure of volatility and jump diffusion models of the volatility smile.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5637. Applied Corporate Finance. 1.5 Credit Hour.**

This course examines corporate financial restructuring and mergers and acquisitions. Topics include leveraged buyouts, industry capital structure and corporate governance.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5638. Behavioral Finance. 1.5 Credit Hour.**

This course examines insights of efficient market theory and behavioral finance for the historical pattern of asset prices. Topics include bubbles, momentum and limits to arbitrage.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5639. Quantitative Risk Modeling. 1.5 Credit Hour.**

This course covers advanced quantitative analysis and assessment of market, credit and operational financial risks. Topics include hedging exotic options and default risk measures.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5641. Alternative Investments. 1.5 Credit Hour.**

This course explores proprietary hedge fund strategies and performance measures. Topics include relative value strategies, distressed debt and real estate investment trusts.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5642. Entrepreneurial Companies. 1.5 Credit Hour.**

This course examines how entrepreneurial firms pursue financing at various growth stages. Topics include private company valuation, venture capital and new issues markets.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5643. Structured Products. 1.5 Credit Hour.**

This course teaches the financial engineering of structured product and hybrid security offerings. Topics include exotic derivatives and tailored investment strategies.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5646. Frontiers in Quantitative Finance. 1.5 Credit Hour.**

Seminar in selected classic and evolving industry methods and applications of quantitative finance.

**Field of Study Restrictions:** Must be enrolled in one of the following Fields of study: Fin Analysis + Quant Risk Mgt, Financial Analysis & Risk Mgmt, Financial Engineering, Financial Analysis, Investment Management, Quant Fin + Risk Mgmt.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in FIN 5634.

**FIN 5647. Financial Reporting & Analysis. 1.5 Credit Hour.**

This course examines advanced financial accounting practices, theory, and issues. Topics include employee compensation, multinational operations and financial reporting quality.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5648. Quantitative Portfolios. 1.5 Credit Hour.**

This course examines portfolio management based on quantitative techniques versus fundamental valuation methods. Topics include statistical arbitrage and computer-based models for trading.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5649. Enterprise Risk Management. 1.5 Credit Hour.**

This course covers the analysis and development of a best in practice enterprise-wide risk management system. Topics include corporate risk tolerance and strategic risk and capital management issues.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5671. Financial Analysis I. 1.5 Credit Hour.**

This course explores the CFA Program's CFA Level I Candidate Body of Knowledge: ethical and professional standards, quantitative methods, economics, financial reporting, corporate finance, equity investments, fixed income, derivatives, alternative investments and portfolio management.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5672. Financial Analysis II. 1.5 Credit Hour.**

This course examines the CFA Program's CFA Level I and II Candidate Body of Knowledge emphasizing the application of investment tools and concepts in asset pricing.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in FIN 5671.

**FIN 5673. Financial Risk Management I. 1.5 Credit Hour.**

This course explores the FRM Program's Part I Curriculum covering the tools used to assess financial risk: quantitative analysis, fundamental risk management concepts, financial markets and products, and valuation and risk models.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5674. Financial Risk Management II. 1.5 Credit Hour.**

This course examines the FRM Program's Part I and Part II Curriculum focusing on the application of financial risk management tools.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in FIN 5673.

**FIN 5675. Professional Development. 1 Credit Hour.**

This course examines the importance of professional growth to the financial analyst. Topics include career development goals, effective professional communication, leadership and management skills and ethical issues specific to careers in finance.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 5683. Special Study in Finance. .5 to 6 Credit Hours.**

Special study is in a particular aspect of finance under the supervision of an appropriate faculty member. No more than six semester hours of special study may be counted toward degree requirements.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may be repeated for additional credit.

**FIN 5690. Special Topics in Finance. .5 to 6 Credit Hours.**

Special Topics is in a particular aspect of finance under the supervision of an appropriate faculty member. No more than six semester hours of special study may be counted toward degree requirements.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.



**FIN 5802. Enterprise Financial Management. 3 Credit Hours.**

Enterprise financial management deals with the financial implications of decisions made by firms. The two broad decisions facing the finance manager are (i) what projects should I invest in?, and (ii) how do I finance these investments? These questions will be answered in this course as well as learning the basics of enterprise valuation.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in (STAT 5001 or STAT 5801) and (ACCT 5001 or ACCT 5801)

**FIN 5882. Independent Study. 1 to 6 Credit Hour.**

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**FIN 5890. Special Topics. 1 to 6 Credit Hour.**

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**FIN 9001. Corp Finance Theory. 3 Credit Hours.**

This course is a rigorous introduction to the fundamental concepts and techniques used in modern financial economic research. Topics include individual investment decisions under uncertainty, stochastic dominance, mean-variance portfolio analysis, various equilibrium and arbitrage pricing models, and option pricing. Upon completion of this course, students are expected to acquire a clear understanding of the major theoretical results concerning individuals' consumption and portfolio decisions under uncertainty and their implications for the valuations of securities.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 9002. Empirical Research in Corporate Finance. 3 Credit Hours.**

This course covers a wide variety of topics in corporate finance, including agency theory, capital structure, signaling, executive compensation, ownership structure, boards of directors, corporate control, diversification, venture capital, financial distress, and dividend policy. The analysis is both theoretical and empirical and is based on papers from the leading journals in finance, economics, and accounting. The principal aim of the course is to prepare students to conduct empirical research in corporate finance.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 9003. Banking and Financial Institutions. 3 Credit Hours.**

This course covers a variety of topics on financial institutions and, in particular, the banking enterprise. Emphasis is on empirical papers. The aim is to prepare students to read the literature critically and to strengthen their independent research skills. Subjects include uniqueness of banks, exposure to interest and exchange rate risks, product diversification, contagion, market and regulatory discipline, and others.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 9004. Seminar in Global Finance and Governance. 3 Credit Hours.**

The course introduces students to the basic academic literature in global finance and governance at a doctoral level and to selected advanced topics in this area. The aim is to prepare students to read the literature critically, to strengthen their independent skills, and to help them be ready to select topic in global finance and governance and related areas. Topics will be flexible to class needs but include corporate exchange risk management, international investments, global corporate governance, firm boundaries, financial and strategic issues of multinational firms, and others.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Doctor of Philosophy.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School, Sport Tourism Hospitality Mgt.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 9005. Empirical Asset Pricing. 3 Credit Hours.**

This course is designed to help students bridge the gap between theoretical asset pricing models and the data. Students will read seminal works in empirical asset pricing, implement the methodologies in statistical exercises and produce a research paper that extends the existing literature.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in BA 9105 and BA 9106.

**FIN 9011. Proseminar in Finance. 1 to 3 Credit Hour.**

This course is integrated with the Finance department's external seminar series (speakers from other universities) and internal seminar series (speakers are PhD students and department faculty). Students are required to attend all seminars. They must read the paper and ask questions during each seminar. For a selected number of seminars, students are required to submit a critique of the paper within a week after the seminar.

**Field of Study Restrictions:** Must be enrolled in one of the following Majors: Business Administration.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Doctor of Philosophy.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School, Sport Tourism Hospitality Mgt.

**Repeatability:** This course may be repeated for additional credit.

**FIN 9013. Alternative Investments. 3 Credit Hours.**

Alternative assets have become an increasingly important segment of the financial markets. This course analyzes various classes of alternative assets and how they are incorporated into portfolios for diversification and performance enhancement purposes. Topics include private equity, real estate, merger and arbitrage and fund of funds management.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Doctor of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 9014. Best Practices in Valuation. 3 Credit Hours.**

Corporate valuation deals with managerial decision-making covering two primary topic areas: (i) what projects should the company invest in? and (ii) how does the company finance these investments? This course will provide an in-depth understanding of the models and processes that managers use in making valuation decisions. In particular, covered topics include DCF model, multiple valuation, and transaction analysis. The course consists of a combination of in-class lectures, online material, and business/finance cases.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Doctor of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 9015. Corporate Governance. 3 Credit Hours.**

In this course, we examine the underlying theory, principles, and practices that surround the governance of modern corporations. The course focuses, in particular, on the mechanisms that shareholders use to ensure that managers maximize shareholder wealth. We will discuss such topics as boards of directors, executive compensation, large shareholders, executive termination and succession, and government regulation.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Doctor of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 9016. Derivatives and Risk Management. 3 Credit Hours.**

Financial derivatives are indispensable in today's business environments. The primary reason for the advent of derivatives has been their application to hedging and risk management. Commercial banks, investment banks, asset managers, mutual funds, hedge funds, pension funds, insurance companies, manufacturing companies, transportation companies, and energy companies are among the participants who are affected by changing conditions in the market and hence engage in risk management using derivative instruments. As the financial markets evolve and change derivatives are likely to emerge as even more vital ingredients of risk management for all kinds of corporations and businesses. The financial crisis, on the other hand, has taught us that clear understanding of derivatives and their price dynamics is ever more important now.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Doctor of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 9017. Dissertation Methodologies. 3 Credit Hours.**

Research can follow many different methodologies in answering important and interesting questions. This class will cover the primary methodologies used in academic and practical research studies. These methodologies include: theoretical, empirical, survey, experimental, case studies, and a more general breakdown between quantitative and qualitative research. In addition to discussing and reading about the different methods, we will examine several different examples that appear in practice-based and academic-based finance journals.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Doctor of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 9018. Financial Markets and Institutions. 3 Credit Hours.**

This course provides a survey of financial markets and institutions with a strong current events perspective and emphasis on global linkages. The course will have an applied managerial perspective that focuses on both how the markets are viewed by companies who need access to funding as well as the professionals that work in the financial services industry. The course consists of a combination of in-class lectures, online material, and business/finance cases.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Doctor of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 9019. Investment Allocation and Management. 3 Credit Hours.**

This course will discuss the concepts of portfolio management within the context of individual and institutional investment portfolios. Topics include the portfolio management process and development of investment policy statements, execution of portfolio decisions, evaluation of portfolio performance and Global Investment Performance Standards. Course materials are heavily weighted toward case studies and practical applications.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Doctor of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 9021. Mergers and Acquisitions. 3 Credit Hours.**

The course focuses on financial tools, techniques, and best practices used in buyouts (financial buyers) and acquisitions (strategic buyers). While we will touch upon various strategic, organizational, and general management issues, our main lens for studying these transactions will be a financial one. We 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).

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Doctor of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 9022. Private Equity. 3 Credit Hours.**

Understanding the philosophy of science and conduct of scholarly applied research is fundamental for undertaking high-quality research. This course introduces students to the philosophy of scientific inquiry, common research approaches (e.g., quantitative, qualitative) and common epistemological perspectives (e.g., positivistic, interpretative, and critical research). The trade-off between scientific rigor and practical relevance is covered with emphasis on conducting rigorous research with practical implications. Students are introduced to practical issues about undertaking applied research, such as identifying a research topic, forming research questions, conducting literature review, and developing a plan for actual fieldwork and data collection. Finally, the course aims at helping students identify a personal interest in a particular type and area of applied research to undertake specific projects during their tenure as the doctoral program.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Doctor of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 9023. Real Estate Finance. 3 Credit Hours.**

This course explores real estate finance and quantitative methods that are used in the valuation of real estate. Students develop an understanding of real estate financing and valuation as well as related topics such as underwriting, risk analysis, and financial leverage. In addition, students learn about the mortgage market and the securitization process for residential and commercial mortgages. The course also includes analysis of both residential and commercial real estate markets.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Doctor of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Business & Mngmnt, Fox School.

**Repeatability:** This course may not be repeated for additional credits.

**FIN 9090. Spec Topic Finance. 1 to 6 Credit Hour.**

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**FIN 9183. Directed Study in Fin. 1 to 6 Credit Hour.**

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.