Course Descriptions: Department of Finance (FIN)

(March 2011)

Required Courses

300: Introduction to Finance (Fall, Spring)
3 hours. This course covers the foundations of finance with applications in corporate finance and investment management. It discusses many of the major financial decisions made by corporate managers and investors. Essential in many of these decisions is the process of valuation, which will be an important emphasis of the course. Topics include financial statement analysis, fundamental valuation principles for stock and bond valuation, criteria for making investment and financing decisions, valuation of financial assets and liabilities, relationships between risk and return, and market efficiency. **Prerequisites: None.**

310: Investments (Fall, Spring)
3 hours. This course introduces capital markets, asset pricing, risk models, portfolio theory, derivatives, and investment management. After this course, students should understand valuation and risk models for stocks and bonds; how to analyze a portfolio of securities; basic workings of derivative contracts; and, the investment management industry. **Prerequisite: FIN 300.**

320: Managerial Finance (Fall, Spring)
3 hours. The primary purpose of this course is to enhance students' understanding of managerial decision making as it relates to a number of key corporate financial policies. Such important policies include a firm's capital budgeting decision (which investments to make), and its capital structure decision (how to raise capital). For capital structure decision, we first examine firm's decision on capital structure in an idealized and frictionless economy in which capital structure is irrelevant for firm valuation. We then analyze the effect of frictions, such as taxes, bankruptcy costs, or self-interested managers, on the firm's financial decisions and how these decisions can affect a firm's value. **Prerequisite: FIN 300.**

Elective Courses

412: Portfolio Management (Fall, Spring, Chen)
3 hours. This course develops the concept of investing from the perspective of a portfolio manager rather than an individual investor. Both portfolio theory and investment practice will be the focuses of this course. The course involves detailed quantitative analysis that is essential for a successful career in this area. We will focus on investment strategies for large portfolios, particularly in risk management issues. Students will have abundant opportunities to learn investment methodology by hands-on practice with financial data. Additionally, current developments in financial markets will be reviewed and introduced to help explain the dynamics of the markets. Overall, the course is designed to expose students to what it is really like to run money professionally. **Prerequisite: FIN 310.**

Elective Courses (continued)

415: Fixed Income Securities (Fall, Spring, Acharya)
3 hours. The fixed income market is far larger than the stock market. Almost every form of debt is traded in the fixed income market: from credit card receivables and mortgages to state taxes and road tolls to short-term loans and bonds. This course will focus on the principles and practices of valuing and trading fixed income securities and their derivatives. In addition, we will focus on measuring and enhancing financial prosperity through trading. There will be an independent project on estimating the term structure of interest rates based on bond data. The estimated term structure may also be used for other assignments on valuation, trading and risk management. **Prerequisite: FIN 310.**

416: Options and Futures Markets (Fall, Spring, Acharya)
3 hours. This course will focus on the practical aspects of options and futures markets with an emphasis on modern techniques used in the real world to determine fair values and trading strategies for options and futures contracts. Actual trading based on fair values will be emphasized. The course objectives are three-fold: (i) to develop an understanding of the institutional arrangements involved in execution of options and futures contracts, (ii) to understand the principles of valuation that are used in practice, and (iii) to apply the valuation principles to real world contracts. Some aspects of measuring and enhancing financial prosperity through trading will also be covered. **Prerequisite: FIN 310.**

418: Commodities, Energy, and Related Markets (Spring, Rosenthal)
3 hours. Chicago is the world center of commodity trading. However, interest in commodities is growing beyond Chicago: many investment funds are now diversifying their portfolios to include commodities and the government of China has recently focused policies on their strategic interests in commodities markets. This course covers commodities fundamentals from agricultural products (including biodiesel and ethanol) and "tropicals," metals, and petroleum to the newer markets of electricity, natural gas, emissions, and shipping. We will discuss models for spreads (such as oil vs. gasoline and heating oil or electricity vs. coal and emissions), their economic meaning for running a business, and how that meaning affects risk management. We will also cover ways to value commodity businesses, how regulation differs from other markets, and scandals such as Enron's manipulative electricity trading. At the end of the course, we will have a contract design competition with presentations to CME executives and prizes for the best proposals. If we have time, we will discuss off-exchange trading and new markets such as lithium and rare earth metals. **Prerequisites: FIN 310, IDS 270; recommended: IDS 371.**

Elective Courses (continued)

430: Money & Banking (Fall, Spring, Ardaugh)
3 hours. Why is the business press so focused on financial markets and central bankers? Why do Ben Bernanke, Mervyn King, and Jean-Claude Trichet have such substantial influence on their economies? The purpose of this course is to allow students to understand the answers to these questions, the role of financial markets, the factors determining monetary policy, and its effects on the aggregate economy. Recent dramatic problems in credit markets highlight the importance of monetary policy in promoting financial and economic stability. During the recent financial crisis, why did the FED cut interest rates, the Bank of England allow interest rates to rise, and the ECB held interest rates constant? What does it mean for the FED to "print money"? Why is there concern that the FED may have printed too much money in the face of the recent crisis?

To address these and other questions, we build models (analytic frameworks) of the aggregate (macro) economy that allow us to understand the impact of monetary policy and the role of financial markets. The models and applications should help you to critically appreciate macroeconomic events and monetary policy debates discussed in the media and to get a flavor of ongoing controversies. Current policy issues and data are emphasized throughout. Readings from the business press will be circulated and discussed in class. **Prerequisite: FIN 300.**

431: Management in the Financial Services Industry (Fall, Brown)
3 hours. This course covers effects of the sweeping changes that have occurred in our financial system during the last two decades and its impact on the management in the financial services industry. Emphasis will be placed on the management and survival of commercial banks in a dangerous, turbulent and very risky environment with regulation, deregulation and re-regulation major considerations. With an eye to the current situation in the financial markets, special consideration will be given to asset liability management, the mistakes made by the financial services industry, federal and foreign central banks and political systems. Theory will be hand in hand with practical experience.

Students will, through simulation manage a large regional bank, making decisions that affect the profitability and stock price of the bank for 4 quarters. Through the simulation, the class will learn how to prepare economic forecasts, how the bank uses the forecasts, apply asset liability management theory to realistic situations, management the loan and investment portfolios of the bank, as well as the allocation of its resources among variables such as commercial loans, consumer loans, opening/closing branches, giving raises to employees, etc. **Prerequisite: FIN 300.**

Elective Courses (continued)

442: International Finance (Fall, Spring)
3 hours. Globalization is today's buzzword. If you like the idea of being global or of working for a global firm or just want to understand some of the news stories about financial, economic and political events around the world, International Finance may well be of interest.

Doing business across borders introduces complexities that result from different currencies, legal and business traditions and political systems. These risks are addressed in International Finance. We learn about tools of the trade and how these can be used to manage and mitigate these risks so that investors can preserve or enhance the gains realized in foreign markets. **Prerequisite: FIN 300.**

444: Small Business Finance (Fall, Engle; Spring, Bintz)
3 hours. In today's economy, having a great concept and brilliant management is not enough to assure business success. Effective financial management is a critical factor, especially with small business. Students will learn to apply their accounting and financial knowledge to planning their own small business. Students will prepare basic financial statements, as well as understand the sources and costs of debt and equity. Using the knowledge gained in the classroom, student teams will take their own business idea and develop a business plan with detailed financial projections. Each team will then present their business concept to the class which will count for the final exam. Guest speakers from the business world will add their own insights.
Prerequisite: FIN 300.

455: Asset Management (Spring, Bondarenko)
3 hours. Introductory investments courses discuss valuing bonds and stocks, risk management, and constructing portfolios; however, the connections between these are rarely explored in a hands-on manner. This is an applied course in investments designed to do just that: We will extend the basic theory of investments learned in FIN 510 to practical issues of implementation. The emphasis is on modern quantitative techniques for asset management. Therefore, we will use real data and learn to create spreadsheet optimization programs in MS Excel. In particular, we will cover how to express a view, calculate mean-variance efficient portfolios, estimate covariance matrices, estimate multifactor models, assess evidence regarding the predictability of returns, and evaluate portfolio performance. **Prerequisite: FIN 310.**

Elective Courses (continued)

472: Real Estate Finance (Fall, Spring, Bothen)
3 hours. We spend about ninety percent of our time indoors. Understanding the demand, supply and investment performance measures of residential and commercial real estate contributes to making informed personal and business real estate decisions. The class will learn the same discounted cash flow analysis models which Warren Buffett uses to make acquisition decisions. Additionally, sophisticated risk measurement models will be learned so as to be able to quantify and price investment risk. **Prerequisite: FIN 300.**

473: Introduction to Risk Management (Fall, Lee)
Business managers today must operate in a complex, global environment with many risks. These risks can threaten not only operational goals such as profitability and growth, but also the organization's very survival. These risks are often associated with legal liability, property losses, political risks, currency exchange and interest rate fluctuations, workplace injury, and employee benefits. *Risk Management* is a systematic approach to dealing with business risks.

The purpose of this course is to provide a solid understanding of the basic principles of risk management and insurance. The course enables the students to develop a framework for making risk management decisions. The course should be valuable in both your professional and personal lives. The course begins by acquainting the students with the basic knowledge and vocabulary of insurance. We will discuss what risk is, how it can be measured and transferred, why individuals care about risk, and why corporations care about risk. This process, known as the risk management process, is becoming an increasingly important tool in the management of business and personal financial health. An effective risk management program will reduce losses, and improve financial performance and employee morale. By the end of the semester the student should have a good conceptual framework for analyzing risk and making decisions in a corporate setting as well as personal lives. **Prerequisite: FIN 300.**

480: Market Microstructure and Electronic Trading (Fall, Rosenthal)
3 hours. Automated, electronic, algorithmic, and high-frequency trading are all related and an increasing presence in the financial markets: over 40% of stocks are now traded by machines. However, someone must tell these machines what to do. This course is about the details of how markets work and how trading happens. We will cover market characteristics, models for how markets and traders interact, ways to price limit orders, different ideas of liquidity, time and intraday effects, how trades move markets, and optimal ways to execute large trades. We will also discuss how this revolution is progressing through various markets, trading tactics, and useful tools for algorithmic trading. This includes coverage of recent issues such as dark pools, the "flash crash," high-frequency data, and possible effects of new regulations. Because this area changes rapidly, we will cover extensive theory to help navigate coming changes; and, there will also be some intensive hands-on work. **Prerequisite: FIN 310.**

Elective Courses (continued)

494: Capitalism, Finance, and American Culture (Spring, Logue)
3 hours. Finance does not operate as a stand-alone discipline. Instead, it is part of the capitalist fabric of American life. It influences how businesses, charities, and families make considerations. This course will look at how the culture and politics of the United States have influenced business and finance - and vice versa. Politicians and executives sometimes like to say that the business of America is business. What do they mean by that? The context can give students a great perspective when navigating an uncertain political and economic climate.

We will look at how free markets and democracy play out with each other and with the different works of art and culture created by people living in this country. The syllabus includes political writing (such as selections from The Federalist Papers), history (such as Bret Harte's Gold Rush), fiction (Little Women, Huckleberry Finn), movies (It's a Wonderful Life), and television shows (five decades of workplace comedies). Students will be expected to write papers and participate in course discussion. **Prerequisite: FIN 300.**

494: Corporate Value Creation (Fall, Guo)
3 hours. Valuing a modern corporation is difficult. This course aims to provide a comprehensive analysis on corporate valuation. We will examine tools and techniques such as valuation multiples, discounted cash flows, cost of capital, economic value added valuation, as well as the adjusted present value method. Fully understanding these valuation models and how to interpret their differences is valuable. Corporate managers can better determine profitable investment decisions; and, investment professionals can find attractive investments such as mergers, acquisitions, leveraged buyouts, and private equity stakes. **Prerequisite: FIN 320.**

494: Financial Strategies and Text Analysis: Extracting Relevant Information (Spring, Sinha)
3 hours. Financial markets are constantly responding to information. Much of this information is reported in news articles and regulatory filings. Such information may be hard to interpret. Consider a news article titled “Analysts are skeptical of Ford’s better than earnings forecast.” The title contains two important pieces of information for Ford’s stock price. It states that Ford is forecasting better than expected earnings – perhaps good news for the stock. It also states that there is some skepticism about Ford’s forecast – perhaps bad news for the stock. When this news about Ford’s earnings comes out, the stock price responds immediately. As this example shows, a lot of information about the value of Ford stock is embedded in the text of regulatory filings and news articles, but words are more difficult to interpret than numbers.

Recent developments in text analysis allow us to distill relevant information from news articles and filings. Students will learn about the developments made in analyzing textual information. Students will also learn text analysis tools to unlock some of this information and discuss the implications to trading strategies and financial regulations. For example, some of these techniques are already used in high frequency trading environments. This is a hands-on course. Passing familiarity with financial markets will be helpful but it is not a prerequisite. Some interest in programming is helpful as well. **Prerequisite: FIN 300.**

494: Venture Capital and the Private Equity Market (Fall, Brown)
3 hours. This course provides insight into the dual nature of the venture capital and private equity markets: entrepreneurs who seek alternative funding and the investors who provide the funds. The historical and economic importance of venture capital cannot be overemphasized. The great explorers, Columbus and Marco Polo, were privately financed by entities who shared in the profits and risks of exploration. The technological revolution of the past 30 years could not have taken place without private financing. Approximately 2 million new businesses are formed each year, but only a small percentage will attract the attention of private investors. Successful entrepreneurs and venture capitalists indicate that much of their success is due to an understanding of the mechanics of the venture capital and private equity markets, recognition of mutual goals, and negotiating a symbiotic partnership that will prove financially beneficial for all. The course will focus on the development of financing strategies that achieve this success. Topics include: the sources of entrepreneurial finance, how to attract the right venture capital resources or choose the right firm for investment, working out a term sheet (agreement between the firm and the venture capitalists) that will reward investors for their risk, but not hamper the entrepreneur, and valuing a firm with the intent to design securities for private placement. Course methodology will include lectures, case studies, guest lecturers as available, and a term project. **Prerequisite: FIN 300.**

494: Applied Investment Management (Fall + Spring, Two Semester Course; Wightkin)
3 hours. This course will put financial theory to practice by giving students hands-on experience in managing an equity investment process, from stock selection to trading. Students will experience firsthand the decisions that investment professionals make and the tools they use to improve their decision making.

The first semester of this two semester course will cover three different stock selection techniques – fundamental, technical and quantitative analysis, with an emphasis on the quantitative techniques. This focus will include individual factor analysis & selection and building & testing a stock selection model. This semester will culminate in a team presentation of their multi-factor model to a review board comprise of industry professionals. Throughout the semester, students will have a chance to apply all three techniques to real life investment problems and case studies using the latest investment technology.

The second semester will shift to the implementation of the techniques learned in the first semester. In a team setting, we will get hands-on experience in managing an equity portfolio strategy in real time using portfolio simulation software. Students will learn firsthand how to select stocks using techniques learned from the first semester, experience how to construct and manage a portfolio of stocks, understand the importance of risk management, learn about the different ways to trade stocks and analyze their portfolio performance. Aiding this effort will be access to the current investment technology used by industry professionals. At the end of the semester, each team will present and defend their portfolio strategy and analysis of their portfolio's performance to a review board of industry professionals. Throughout both semesters, current developments in the financial markets will be reviewed and academic and practitioner articles will be discussed to help reinforce the topics being presented in class.

Overall, this class is designed to give students a hands-on understanding of how to run an equity investment management process. **Prerequisite: FIN 310.**

571: Empirical Issues in Finance (Fall, Zhang)
3 hours. This course will address several empirical issues in finance, including (1) the concepts and the techniques for statistically and econometrically based trading strategies, (2) estimation issues and latent efficient price structure high frequency financial data. Possible topics include: factor models in asset pricing including the Fama-French three factor model, style analysis, various trading strategies such as reversal strategies, momentum strategies, pairs trading and cointegration-based trading, risk quantification and management, and volatility/co-volatility estimation in the presence of market microstructure. Both methodology and data application will be covered.

If time permits, we will look into more advanced techniques in data mining, as well as strategies using the information from derivatives markets. We will demonstrate how to search for arbitrage strategies based on short-term, long-term patterns, and multi-equity relationships. The analysis of limit order books may also be discussed.

OBJECTIVES:
1. To expose the students to finance literature in trading strategies and asset pricing.
2. To introduce the idea and the methodology in the data-driven trading strategies.
3. To provide essential skills in time series analysis.
4. To expose the students to statistical computing and graphics via Splus or R package. The computing will be mostly confined to linear regression, time series analysis in financial data, and basic techniques in statistical arbitrage. **Prerequisite: Ph.D. standing or permission of the instructor.**