

# **BUSINESS ECONOMICS & PUBLIC POLICY**

## **(WH) {BEPP}**

**201. (BEPP770) Introduction to Business Economics and Public Policy. (C)** Katja Seim..Prerequisite(s): None.

This course explores the economics and politics of public policy to provide an analytic framework for considering why, how, and with what success/failure government intervenes in a variety of policy areas. Particular attention will be paid to important policy issues relating to taxation, social security, low-income assistance, health insurance, education (both K-12 and higher ed), the environment, and government deficits. The costs and benefits of alternative policies will be explored along with the distribution of responsibilities between the federal, state and local governments. While the course will focus primarily on U.S. policies, the topics covered (e.g. tax reform, deficits versus austerity, etc.) are currently at the center of the policy debate in many other industrialized countries as well.

**203. Business in the Global Political Environment. (C)** Santosh Anagol/Robert Jensen.Prerequisite(s): ECON 1 or equivalent.

This course examines the non-market components of business and the broader political, regulatory, and civil context in which companies function. This course addresses how businesses interact with political and regulatory institutions, as well as the general public, with a focus on the global economy. The first portion examines the realities associated with political economy and the actual making of laws and regulations by imperfect politicians and regulators. The second portion analyzes the economic rationale for legislation and regulation in the presence of market failures. The course covers specific market failures and potential solutions including government regulation.

**204. (BEPP704) Financing and Managing Government. (B)** Staff..Prerequisite(s): BEPP 250, ECON 1 or equivalent.

Given government regulations, cost-benefit evaluations are critical for many private sector activities. This course studies the role of public policy in affecting the efficiency of markets and the distribution of resources in society. The first goal of the course is to survey public expenditure programs and their interaction with markets. The second goal is to discuss how the public sector raises revenue through taxation to finance these expenditure programs.

**206. (BEPP772, REAL206, REAL772, REAL972) Urban Public Policy and Private Economic Development. (C)** Gilles Duranton..Prerequisite(s): ECON 1.

This course considers a range of local policies in cities and regions. Examples of policies will include clusters and other local development initiatives, large scale regional policies, employment zones and other targeted policies. More traditional urban policies such as zoning and planning and constraints, transportation pricing, and parking policies among many others will also be considered. Practical examples will be extremely diverse and include the Silicon Valley and attempts to copy it, the Tennessee Valley Authority, housing restrictions in developing countries such as Brazil, congestion pricing in London, etc. Students will be expected to actively participate and make presentations. The course emphasizes the importance of the economic context, the understanding of the underlying rationale for policies, and how the private agents respond to public incentives. The main learning goals are the following: be able to use simple empirical tools of economic evaluations, be able to articulate a critical analysis of competing viewpoints and assessments, and be able to integrate various analytic steps into an overall assessment of economic policies that relies on sound principles and is well argued.

# **BUSINESS ECONOMICS & PUBLIC POLICY**

## **(WH) {BEPP}**

**208. (BEPP708, REAL208, REAL708) Housing Markets. (B) Joseph Gyourko.**Prerequisite(s): Managerial Economics (BEPP 250) or equivalent. Lecture with discussion required.

This course is designed for students interested in the economics and operations of housing markets. It is primarily a U.S. focused course, but does include a limited amount of international material for comparative purposes. The class is divided into four sections: (1) supply and demand for housing, including the operations of homebuilders and rental landlords; (2) house prices, including cycles and price dynamics; (3) international comparisons; and (4) public policy analysis applied to a current housing markets-related issue. This course presumes knowledge of intermediate economics, as we will apply that knowledge throughout the semester. For Wharton students, this means you must have passed BEPP 250 (undergrads) or MGE 611 and MGE 612 (MBAs). Non-Wharton students should have taken the equivalent course in the College.

**210. (BEPP710) Firms, Markets and Public Policy. (C) Katja Seim.**Prerequisite(s): ECON 1.

Many dimensions of firms' strategies, including agreements with suppliers and competitors, mergers and acquisitions, pricing, and technology standards development, among others, are subject to the oversight of regulatory bodies and governmental agencies. This course studies how public policy impacts firms' strategic choices in a host of economic environments. We will analyze pricing strategies including versioning and bundling; product standardization decisions; the management of complementarities between products; the role of network effects and platform competition; and how firms can take advantage of the regulatory environment they operate in when making such decisions. We will study, for example, why Sony won the Blu-Ray format war against the widely supported HD-DVD format; how the FCC plans to incentivize television broadcasters to return spectrum holdings for auction to wireless broadband providers; and how contracts with content providers affect firms' strategic interactions in the e-reader market. To understand how firm strategy and public policy interact, the course will rely on a mix of simple but rigorous analytical models and case studies.

**212. (LGST212, PPE 212) Economic Analysis of Law. (C) Martin Asher.**Prerequisite(s): ECON 1 or ECON 10.

The course is designed to teach students how to think as an economist about legal rules; to evaluate alternative legal rules against standards of economic efficiency and distributive justice; and to understand the nature of the legal process and several specific areas of the law. With the use of alternative texts, both deductive and inductive reasoning will be employed to study the formation and interpretation of legal rules.

**214. Nonprofit Sector: Economic Challenges and Strategic Responses. Ashley Swanson.**Prerequisite(s): None.

The nonprofit sector plays a key role in the provision of many goods and services which are fundamental in our society and which may be difficult to provide using market mechanisms alone. Education, health care, charitable services, and the arts are some primary examples of these. Nonprofit organizations operate in service of specific social missions rather than profit maximization, but in order to serve those missions effectively while ensuring their own survival, they must also make many of the decisions typically associated with private firms. That is, they must compete for funding, human resources, and consumers of their services, they must manage and invest their resources efficiently, and they must innovate new products and services over time. Importantly, the latter requirements may at times come in conflict with the organizations' social values. As a result, nonprofit organizations as economic decision-makers confront a number of unique challenges to their success and growth. The goal of this course is to give students a broad overview of the economic, organizational, and strategic concerns facing the non-profit sector. Our objective is to characterize the unique economic environment, identify effective strategic governance, and management approaches, and explore how appropriate measurement techniques can

can inform the policy treatment of nonprofits. This course is organized around a number of lectures, readings and outside speakers, a midterm exam and a required project.

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**230. (BEPP899, FNCE230, REAL230) Urban Fiscal Policy. (A) Robert Inman.** Prerequisite(s): ECON 1, FNCE 101.

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

**220. Behavioral Economics, Markets, and Public Policy.** Jeremy Tobacman..

Behavioral economics applies insights from psychology to the study of economic phenomena. This course will take the possibility of deviations from rational, self-interested behavior as a starting point, and explore two main questions: How does psychology play out in markets, where sophisticated and unsophisticated consumers and firms interact and compete? And what does behavioral economics imply for public policy? Markets have the potential to protect consumers from their biases, when firms compete to give biased consumers the best deal. In addition, markets allow for the emergence of informational intermediaries that give biased consumers advice. We will examine whether and how this remedy is provided in a diverse array of markets. Behavioral economics also affects what governments should do and what governments actually do, when they address market failures, combat poverty and inequality, and raise revenue. This course therefore also explores "Behavioral Public Finance" -- optimal policy in the presence of biases -- and "Behavioral Political Economy" -- how biases affect the choices of politicians and regulators themselves.

**233. Consumers, Firms and Markets in Developing Countries. (C) Robert Jensen.**

Nearly four-fifths of the world's population lives in low income or developing countries. Though currently far behind the U.S., the 15 fastest growing economies/markets in the world are all developing countries. And developing countries already account for 6 of the world's 15 largest economies. This course will examine economic life, including consumers, firms and markets, in low income countries. We will apply both economic theory and empirical analysis for analyzing the roles of both business and government in consumption, production and market equilibria.

**236. (BEPP836, REAL236, REAL836) International Housing Comparisons. (B) Susan Wachter.** Prerequisite(s): Econ 1 and Econ 2 or Econ 10.

This course focuses on international comparisons of housing finance systems and housing market outcomes. This includes comparative analyses of the financial and economic factors that underlay housing market differences and similarities. Changing housing market institutions and policies in developed and emerging economies are examined. The course also addresses the implications of the integration of global financial markets for national housing markets. International speakers present their views on institutional innovations and the policy setting process in their respective markets. Various approaches to understanding these issues will be used, including readings, written assignments, and group projects.

# **BUSINESS ECONOMICS & PUBLIC POLICY**

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**L/R 250. (BEPP950) Managerial Economics. (C) Staff.** Prerequisite(s): ECON 1 or equivalent; MATH 103 or equivalent.

Managerial economics is the application of microeconomic theory to managerial decision-making. Microeconomic theory is a remarkably useful body of ideas for understanding and analyzing the behavior of individuals and firms in a variety of economic settings. The goal of the course is for you to understand this body of theory well enough so that you can effectively analyze managerial (and other) problems in an economic framework. While this is a "tools" course, we will cover many business applications so that you can witness the usefulness of these tools and acquire the skills to use them yourself. We will depart from the usual microeconomic theory course by giving more emphasis to prescription: What should a manager do in order to achieve some objective? That course deliverable is to be compared with description: Why do firms and consumers act the way they do? The latter will still be quite prominent in this course because only by understanding how customers and competitors behave can a manager determine the best strategy. Turning to coverage, the course begins with development of the theory of supply and demand underlying the competitive model. We then turn to monopoly and oligopoly and investigate the development and use of market power such as through price discrimination.

Strategic interaction is explored both in product markets and auctions. Finally, the challenges created by asymmetric information - both in the market and within the firm - are investigated.

**261. (BEPP761, BEPP961, OIDD261, OIDD761) Risk Analysis and Environmental Management. (M) Howard Kunreuther.** Prerequisite(s): ECON 1 helpful.

This course is designed to introduce students to the complexities of making decisions about threats to human health and the environment when people's perceptions of risks and their decision-making processes differ from expert views. Recognizing the limitations of individuals in processing information, the course explores the role of techniques such as decision analysis, cost-benefit analysis, risk assessment and risk perception in structuring risk-management decisions. We will also examine policy tools such as risk communication, incentive systems, third party inspection, insurance and regulation in different problem contexts. The problem contexts for studying the interactions between analysis, perceptions, and communication will include risk-induced stigmatization of products (e.g. alar, British beef), places (e.g. Love Canal), and technologies (e.g. nuclear power); the siting of noxious facilities, radon, managing catastrophic risks including those from terrorism. A course project will enable students to apply the concepts discussed in the course to a concrete problem.

**299. Independent Study. (C) Staff.**

**263. (OIDD263) Environmental & Energy Economics and Policy.**

This course examines environmental and energy issues from an economist's perspective. Over the last several decades, energy markets have become some of the most dynamic markets of the world economy, as they experienced a shift from heavy regulation to market-driven incentives. First, we look at scarcity pricing and market power in electricity and gasoline markets. We then study oil and gas markets, with an emphasis on optimal extraction and pricing, and geopolitical risks that investors in hydrocarbon resources face. We then shift gears to the sources of environmental problems (many of which are energy-related), and how policy makers can intervene to solve some of these problems. We talk about the economic rationale for a broad range of possible policies: environmental taxes, subsidies, performance standards and cap-and-trade. In doing so, we discuss fundamental concepts in environmental economics, such as externalities, valuation of the environment and the challenge of designing international agreements. At the end of the course, there will be special attention for the economics and finance of renewable energy and policies to foster its growth. Finally, we discuss the transportation sector, and analyze heavily debated policies such as fuel-economy standards and subsidies for green vehicles.

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## **(WH) {BEPP}**

**284. Managerial Economics & Game Theory (formerly BPUB 284). (C)** Joseph Harrington. Prerequisite(s): BEPP 250 or equivalent.

This course introduces students to strategic reasoning through the lens of game theory. The objectives are to learn some game theory and to learn how game theory can inform managerial decision-making. Students will discover how to model a strategic situation as a game and how to solve a variety of games including those with sequential interaction, repeated play, and private information. These game-theoretic tools will be extensively applied to business strategy as we examine investment and entry, pricing (for products that are durable and have switching costs or network effects), price-matching guarantees, when it is better to follow than lead, managerial incentive contracts, entry deterrence, product location, and two-sided markets. These business strategy issues will be explored in the context of many real-world settings including the markets for cigarettes, cookies, wholesale power generation, video games, supermarkets, and chemicals. Some of the general takeaways from the course are the value of fewer options, commitment, reputation, and signaling. The presentation of most concepts will be complemented with in-class experiments which provide students first-hand experience for the forces at play in strategic situations.

**289. (BEPP789) Nations, Politics, and Market. (C)** Howard Pack. Prerequisite(s): Econ 2 or its equivalent.

This course is designed for students who are interested in pursuing an international career and for those who plan to work for industrial and financial corporations that operate in emerging markets. The course will deal with the economic and political problems of macroeconomic adjustment, corruption, the transition economies, and international financial transactions. All of these topics will be illustrated with in-depth studies of economies in Africa, Asia, Latin America, the Middle East, Eastern Europe, and China.

**305. (BEPP805, LAW 741) Risk Management. (C)** Staff.. Prerequisite(s): None.

This course introduces the concepts and techniques available to individuals, corporations, governments, and other organizations in their efforts to manage risk. The course explores how individuals and firms assess and evaluate risk, the tools available to successfully manage risk, and real-world frictions that limit the amount of risk-sharing in the economy. We focus on pure risks that are relevant for individuals and firms, such as mortality and health-related expenses, property damage, product liability, and employee benefits (e.g. pensions). The course examines a common set of techniques that can be used by individuals and managers in dealing with risk, including risk assumption, prevention, diversification, and transfer via insurance and non-insurance market mechanisms. Our focus is primarily on explaining the products and institutions that we see in the world, which will prepare students for making decisions in their future careers and lives.

**322. (BEPP823) Business Insurance and Estate Planning. (C)** Victor Hallman.. Prerequisite(s): None.

This course presents an analysis of overall private wealth management. This includes planning for disposition of closely-held business interests; the impact of income taxes and other transfer costs on business interests and other assets; integration of life insurance, disability insurance, medical benefits, and long-term care insurance in the financial plan; planning for concentrated asset (e.g. common stock) positions, diversification techniques, and asset allocation strategies; distribution of retirement assets; lifetime giving and estate planning; and analysis of current developments in the creation, conservation, and distribution of estates. Attention also is given to various executive compensation techniques (including restricted stock and stock options) and planning for various employee benefits. The course also covers sophisticated charitable giving techniques and methods for financing education expenses. Reading consist of textbooks, case studies, and bulk pack articles.

**451. (BEPP851, STAT451, STAT851) Fundamentals of Actuarial Science. (A)** Jean Lemaire.. Prerequisite(s): None.



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## **(WH) {BEPP}**

**452. (BEPP852, STAT452, STAT852) Fundamentals of Actuarial Science I. (B)** Jean Lemaire..Prerequisite(s): One semester of Calculus.

This course is the usual entry point in the actuarial science program. It is required for students who plan to concentrate or minor in actuarial science. It can also be taken by others interested in the mathematics of personal finance and the use of mortality tables. For future actuaries, it provides the necessary knowledge of compound interest and its applications, and basic life contingencies definition to be used throughout their studies. Non-actuaries will be introduced to practical applications of finance mathematics, such as loan amortization and bond pricing, and premium calculation of typical life insurance contracts. Main topics include annuities, loans and bonds; basic principles of life contingencies and determination of annuity and insurance benefits and premiums.

**708. (BEPP208, REAL208, REAL708) Housing Markets. (B)** Joseph Gyourko.Prerequisite(s): Microeconomics for Managers (MGEC 611) and Microeconomics for Managers (Advanced) (MGEC 612) or equivalent. Lecture with discussion required.

This course is designed for students interested in the economics and operations of housing markets. It is primarily a U.S. focused course, but does include a limited amount of international material for comparative purposes. The class is divided into four sections: (1) supply and demand for housing, including the operations of homebuilders and rental landlords; (2) house prices, including cycles and price dynamics; (3) international comparisons; and (4) public policy analysis applied to a current housing markets-related issue. This course presumes knowledge of intermediate economics, as we will apply that knowledge throughout the semester. For Wharton students, this means you must have passed BEPP 250 (undergrads) or MGEC 611/MGEC612 (MBAs). Non-Wharton students should have taken the equivalent course in the College.

**453. (BEPP853, STAT453, STAT853) Actuarial Statistics. (A)** Jean Lemaire..Prerequisite(s): None.

**454. (BEPP854, STAT454, STAT854) Applied Statistical Methods for Actuaries. (B)** Jean Lemaire..Prerequisite(s): None.

One half of the course is devoted to the study of time series, including ARIMA modeling and forecasting. The other half studies modifications in random variables due to deductibles, co-payments, policy limits, and elements of simulation. This course is a possible entry point into the actuarial science program. No INSR course is a pre-requisite for INSR 854. The Society of Actuaries has approved INSR 854 for VEE credit on the topic of time series.

**704. (BEPP204) Financing and Managing Government. (B)** Staff..Prerequisite(s): MGEC 611/612 or equivalent.

Given government regulations, cost-benefit evaluations are critical for many private sector activities. This course studies the role of public policy in affecting the efficiency of markets and the distribution of resources in society. The first goal of the course is to survey public expenditure programs and their interaction with markets. The second goal is to discuss how the public sector raises revenue through taxation to finance these expenditure programs.

# **BUSINESS ECONOMICS & PUBLIC POLICY**

## **(WH) {BEPP}**

**710. (BEPP210) Firms, Markets and Public Policy.** Katja Seim..Prerequisite(s): None.

Many dimensions of firms' strategies including agreements with suppliers and competitors, mergers and acquisitions, pricing and technology standards development, among others, are subject to the oversight of regulatory bodies and governmental agencies. This course studies how public policy impacts firms' strategic choices in a host of economic environments. We will analyze pricing strategies including versioning and bundling; product standardization decisions; the management of complementarities between products; the role of network effects and platform competition; and how firms can take advantage of the regulatory environment they operate in when making such decisions. We will study, for example, why Sony won the Blu-Ray format war against the widely supported HD-DVD format; how the FCC plans to incentivize television broadcasters to return spectrum holdings for auction to wireless broadband providers; and how contracts with content providers affect firms' strategic interactions in the e-reader market. To understand how firm strategy and public policy interact, the course will rely on a mix of simple but rigorous analytical models and case studies.

**761. (BEPP261, BEPP961, OIDD261, OIDD761) Risk Analysis and Environmental Management.** (M) Howard Kunreuther..Prerequisite(s): None, but a basic understanding of microeconomics helpful.

This course is designed to introduce students to the role of risk assessment, risk perception and risk management in dealing with uncertain health, safety and environmental risks including the threat of terrorism. It explores the role of decision analysis as well as the use of scenarios for dealing with these problems. The course will evaluate the role of policy tools such as risk communication, economic incentives, insurance, regulation and private-public partnership in developing strategies for managing these risks. A project will enable students to apply the concepts discussed in the course to a concrete problem. Cross-listed with OPIM 761.

**763. (OIDD763) ENERGY MARKETS & POLICY.**

Over the last several decades, energy markets have become some of the most dynamic markets of the world economy. Traditional fossil fuel and electricity markets have been seen a partial shift from heavy regulation to market-driven incentives, while rising environmental concerns have led to a wide array of new regulations and "environmental markets". The growth of renewable energy could be another source of rapid change, but brings with it a whole new set of technological and policy challenges. This changing energy landscape requires quick adaptation from energy companies, but also offers opportunities to turn regulations into new business. The objective of this course is to provide students with the economist's perspective on a broad range of topics that professionals in the energy industry will encounter. Topics include the effect of competition, market power and scarcity on energy prices, the impact of deregulation on electricity and fossil fuel markets, extraction and pricing of oil and gas, uncertainty and geopolitical risk in hydrocarbon investments, the environmental impact and policies related to the energy sector, environmental cap-and-trade markets, energy efficiency, the economics and finance of renewable energy, and recent developments in the transportation sector.

**770. (BEPP201) Introduction to Business Economics and Public Policy. (C)** Larry Seidman..Prerequisite(s): A basic understanding of microeconomics.

This course explores the economics and politics of public policy to provide an analytic framework for considering why, how, and with what success/failure government intervenes in a variety of policy areas. Particular attention will be paid to important policy issues relating to taxation, social security, low-income assistance, health insurance, education (both K-12 and higher ed), the environment, and government deficits. The costs and benefits of alternative policies will be explored along with the distribution of responsibilities between the federal, state, and local governments. While the course will focus primarily on U.S. policies, the topics covered (e.g. tax reform, deficits versus austerity, etc.) are currently at the center of the policy debate in many other industrialized countries as well.

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## **(WH) {BEPP}**

**772. (BEPP206, REAL206, REAL772, REAL972) Urban Public Policy and Private Economic Development. (B) Gilles Duranton..Prerequisite(s): Microeconomics.**

This course considers a range of local policies in cities and regions. Examples include: clusters and other local development initiatives, large scale regional policies, employment zones and other targeted policies. More traditional urban policies such as zoning and planning and constraints, transportation pricing, and parking policies among many others will also be considered. Practical examples will be extremely diverse and include the Silicon Valley and attempts to copy it, the Tennessee Valley Authority, housing restrictions in developing countries such as Brazil, congestion pricing in London, etc. Students will be expected to actively participate and make presentations. The course emphasizes the importance of the economic context, the understanding of the underlying rationale for policies, and how the private agents respond to public incentives. The main learning goals are the following: be able to use simple empirical tools of economic evaluations, be able to articulate a critical analysis of competing viewpoints and assessments, and be able to integrate various analytic steps into an overall assessment of economic policies that relies on sound principles and is well argued.

**773. (FNCE730, REAL730) Urban Fiscal Policy. (A) Robert Inman..Prerequisite(s): Microeconomics, FNCE 601.**

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

**789. (BEPP289) Nations, Politics, and Markets. (C) Steve Golub..Prerequisite(s): Microeconomics.**

This course is designed for students who are interested in pursuing an international career and for those who plan to work for industrial and financial corporations that operate in emerging markets. The course will deal with the economic and political problems of macroeconomic adjustment, corruption, the transition economies, and international financial transactions. All of these topics will be illustrated with in-depth studies of economies in Africa, Asia, Latin America, the Middle East, Eastern Europe, and China.

**805. (BEPP305, LAW 741) Risk Management. (C) Staff..Prerequisite(s): None.**

This course introduces the concepts and techniques available to individuals, corporations, governments, and other organizations in their efforts to manage risk. The course explores how individuals and firms assess and evaluate risk, the tools available to successfully manage risk, and real-world frictions that limit the amount of risk-sharing in the economy. We focus on pure risks that are relevant for individuals and firms, such as mortality and health-related expenses, property damage, product liability, and employee benefits (e.g. pensions). The course examines a common set of techniques that can be used by individuals and managers in dealing with risk, including risk assumption, prevention, diversification, and transfer via insurance and non-insurance market mechanisms. Our focus is primarily on explaining the products and institutions that we see in the world, which will prepare students for making decisions in their future careers and lives.



# **BUSINESS ECONOMICS & PUBLIC POLICY**

## **(WH) {BEPP}**

**811. Risk and Crisis Management. (C)** Joan Lamm-Tennant..Prerequisite(s): None.

The growing connectivity of global economies and financial markets has produced widespread risk contagion, resulting in increased volatility and an ever-increasing demand for risk capital. This course focuses on understanding the drivers of risk contagion and ways to restore confidence in worldwide markets for pure and financial risk. The class begins with an evaluation of recent financial and pure risk events: for example, the sovereign debt crisis, Japanese earthquake, and BP Deepwater Horizon. We explore how these events are being financed in innovative ways via the capital and insurance markets. Next we emphasize the role of risk management in the preservation and creation of value, helping firms identify, measure, monitor and manage/finance risk. Doing so results in risk-adjusted returns (or return on risk-adjusted capital) that exceed the cost of capital. We devote substantial focus on the practical implementation of effective risk management/financing, given evolving regulatory and governance standards. In addition, we explore opportunities for corporate growth as well as public/private partnerships. The course will conclude with a discussion of emerging markets and the role of risk management in developing a middle class needing new forms of risk transfer/financing.

**851. (BEPP451, STAT451, STAT851) Fund of Act Sci I (formerly INSR 851). (A)** Prerequisite(s): One semester of Calculus.

**812. Markets for Pure Risk. (C)** Joan Lamm Tennant..Prerequisite(s): Basic microeconomics and finance.

The increased frequency and severity of pure risk events hinders corporations' abilities to execute strategy and deliver sustainable financial results to stakeholders. Prominent recent examples include disruptions from Hurricane Katrina, Japan's earthquake/nuclear disaster/supply chain breakdowns, Thai floods, U.S. wildfires, and global terrorist attacks. At the same time, both industrialized and emerging economies understand that the management and financing of pure risk is critical to the success of their economies. Consequently, the rising demand for risk capital has ushered in several capital market innovations and public/private partnerships necessary for managing and financing pure risk. This course investigates these issues, beginning with an introduction to pure risks, their centers of gravity and global consequences for corporations, consumers, and the macroeconomies. Next we move on to traditional sources of risk capital provided to corporations and governments via insurance and reinsurance mechanisms. The course concludes with a discussion of new sources of risk capital provided by capital markets including catastrophic risk bonds, securitization of mortality and liability risk, and other forms of insurance-linked securities.

Our focus is on the supply of risk capital to corporations and economies, recognizing the unique position of emerging economies in this nexus. Throughout, the class emphasizes current real-world cases to illustrate the competitive differences in strategies taken by hedge funds, private equity pools, and insurers, as they address the increasing need for risk capital around the world. This course complements BEPP 811, Risk and Crisis Management, which focuses on how firms can use various types of hedging instruments to manage pure risks (that is BEPP811's emphasis is primarily on the demand side of markets for pure risks whereas BEPP 812 examines the supply side of these markets). However, BEPP 811 is not required as a prerequisite. Format: Lecture and discussion, midterm and final.

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## **(WH) {BEPP}**

**823. (BEPP322) Business Insurance and Estate Planning. (C)** Victor Hallman..Prerequisite(s): None.

This course presents an analysis of overall private wealth management. This includes planning for disposition of closely-held business interests; the impact of income taxes and other transfer costs on business interests and other assets; integration of life insurance, disability insurance, medical benefits, and long-term care insurance in the financial plan; planning for concentrated asset (e.g., common stock) positions, diversification techniques, and asset allocation strategies; distribution of retirement assets; lifetime giving and estate planning; and analysis of current developments in the creation, conservation, and distribution of estates. Attention also is given to various executive compensation techniques (including restricted stock and stock options) and planning for various employee benefits. The course also covers sophisticated charitable giving techniques and methods for financing education expenses. Readings consist of textbook, case studies, and bulk pack articles.

This course should be attractive to most students to help them plan for their own or their families' financial affairs. It also should be particularly attractive to students specializing in entrepreneurship, wealth management finance, and law.

**836. (BEPP236, REAL236, REAL836) International Housing Comparisons.** Prerequisite(s): MGEC 611: Microeconomics for Managers.

This course focuses on international comparisons of housing finance systems and housing market outcomes. This includes comparative analyses of the economic factors that underlay housing market differences and similarities. Changing housing market institutions and policies in previously socialist economies and newly emerging countries are examined. The course also addresses integration of global financial markets for national housing markets. International speakers present their views on institutional innovations and the policy setting process in their respective markets. Various approaches to understanding these issues will be used, including readings, written assignments, and group projects.

**852. (BEPP452, STAT452, STAT852) Fund of Actuarial Sci II (formerly INSR 852). (B)** Prerequisite(s): STAT 851 OR BEPP 851.

This specialized course is usually only taken by Wharton students who plan to concentrate in actuarial science and Penn students who plan to minor in actuarial science mathematics. It provides a comprehensive analysis of advanced life contingencies problems such as reserving, multiple life functions, multiple decrement theory with application to the valuation of pension plans.

**853. (BEPP453, STAT453, STAT853) Actuarial Statistics (formerly INSR 853). (A)** Lemaire.Prerequisite(s): Two semesters of Statistics.

This course covers models for insurer's losses, and applications of Markov chains. Poisson processes, including extensions such as non-homogenous, compound, and mixed Poisson processes are studied in detail. The compound model is then used to establish the distribution of losses. An extensive section on Markov chains provides the theory to forecast future states of the process, as well as numerous applications of Markov chains to insurance, finance and genetics. The course is abundantly illustrated by examples from the insurance and finance literature. While most of the students taking the course are future actuaries, other students interested in applications of statistics may discover in class many fascinating applications of stochastic processes and Markov chains.

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## **(WH) {BEPP}**

**854. (BEPP454, STAT454, STAT854) Appl Stat Methd For Actu (formerly INSR 854). (B)**  
Prerequisite(s): One semester of Probability.

One half of the course is devoted to the study of time series, including ARIMA modeling and forecasting. The other half studies modifications in random variables due to deductibles, co-payments, policy limits, and elements of simulation. This course is a possible entry point into the actuarial science program. No INSR course is a pre-requisite for INSR 854. The Society of Actuaries has approved INSR 854 for VEE credit on the topic of time series.

**895. (HCMG895) GLOBAL BUSINESS WEEK.**

**931. Numerical Methods in Economics. (C)** Ulrich Doraszelski. Prerequisite(s): None.

The objective of this course is to introduce graduate students to computational approaches for solving economic models. We will formulate economic problems in computationally tractable form and use techniques from numerical analysis to solve them. Examples of computational techniques in the current economics literature as well as discuss areas where these techniques may be useful in future research will be discussed. We will pay particular attention to methods for solving dynamic optimization problems and computing equilibria of games. The substantive applications will cover a wide range of problems including industrial organization, game theory, macroeconomics, finance, and econometrics.

**SM 900. Research Seminar. (F)** Jeremy Tobacman. Prerequisite(s): None. Permission of instructor required.

Of the many ways that doctoral students typically learn how to do research, two that are important are watching others give seminar presentations (as in Applied Economics Seminars) and presenting one's own research. The BEPP 900 course provides a venue for the latter. Wharton doctoral students enrolled in this course present applied economics research. Presentations both of papers assigned for other classes and of research leading toward a dissertation are appropriate in BEPP 900. This course aims to help students further develop a hands-on understanding of the research process. All doctoral students with applied microeconomic interests are encouraged to attend and present. Second and third year Applied Economic Ph.D. students are required to enroll in BEPP 900 and receive one-semester credit per year of participation.

**904. (OIDD904) EXPERIMENTAL ECONOMICS. (M)**

This course will help prepare you to run your own economics laboratory and field experiments. Experimental methods have been widely adopted by economists to develop new insights, and some economic theories and hypotheses are uniquely well-suited for testing with experimental tools and data. Achieving high internal and external validity requires careful experimental design. Substantive areas of application in the course will include market equilibrium, asset bubbles, learning in games, public good provision, and labor market relationships. Additional topics may include biases in individual decision-making; field experiments in development economics; and happiness, neuroeconomics, and behavioral/experimental welfare economics. Economists' typical interests in strategic and market-based interactions raise particular methodological challenges and opportunities.

# **BUSINESS ECONOMICS & PUBLIC POLICY**

## **(WH) {BEPP}**

**911. Empirical Public Policy. (B)** Ulrich Doraszelski. Prerequisite(s): A graduate-level statistics or econometrics course.

This course examines econometric research on a variety of topics related to public policy, with the goal of preparing students to undertake academic-caliber research. The course is not an econometrics or statistics course per se; rather, it focuses on research designs with observational data and how econometric techniques are applied in practice. The course aims to train students to do applied economic research that involves measuring effects of theoretical or practical interest. It proceeds in two major parts. The first part examines endogeneity and inference about causal relationships, instrumental variables methods and critiques, and panel data methods. The second part of the course addresses 'structural' econometric modeling. Topics covered in this part include sorting and selection, entry models, and counterfactual analyses of policy changes. The course proceeds by analyzing, in detail, approximately 24 well-known empirical research papers in applied economics or related fields. These include public economics and tax policy, labor economics, law and economics, health care policy, industrial organization and competition, transportation demand and policy, and others.

**932. Contract Theory and Applications. (B)** Daniel Gottlieb. Prerequisite(s): None.

The course provides an advanced introduction to the theory of contracts and its mixture of foundational theories and applications to fields such as labor, reinsurance, and industrial organization.

**933. Public Economics: Social Insurance and Government Expenditures.** Staff. Prerequisite(s): None.

The first part of this course will examine the rationale for and economic impact (e.g. on saving, labor supply, etc.) of social insurance programs such as social security, unemployment insurance and disability insurance. The next major part of the course will explore these same issues for government interventions in health insurance markets. The course will then cover research on public goods, externalities, fiscal federalism, and economic stimulus (including the government's recent response to the "Great Recession") before proceeding to an exploration of the government's role in K-12 and high education. Both theoretical and empirical evidence will be covered along with a mix of classic studies and more cutting-edge research. Throughout the course we will discuss the tradeoffs - for example between the protection and distortion of social insurance programs -- that influence government's optional role. While the focus will be on evidence from the U.S., some research from other industrialized and developing countries will also be covered.

**934. Economics of Risk and Time. (A)** Daniel Gottlieb. Prerequisite(s): Economics (Basic).

This course deals with the economic theory of supply, demand, and equilibrium in savings and insurance markets, including social insurance. We will review decision models under conditions of risk and use these to address problems of optimal insurance, moral hazard and adverse selection, social security, and contract enforcement.

**941. Development Economics. (C)** Shing-yi Wang/Robert Jensen.

This course will cover current microeconomic issues of developing countries including poverty, risk, savings, human capital, and institutions. We will also explore the causes and consequences of market failures that are common in many developing countries with a focus on credit, land, and labor markets. The course is designed to introduce recent research with focus on empirical methods and testing theories with data.

# **BUSINESS ECONOMICS & PUBLIC POLICY**

## **(WH) {BEPP}**

### **971. Market Design.** Eduardo Azevedo.

The course covers Market Design, the analysis and engineering of market rules and institutions. In the last 60 years practitioners and academics have deliberately engineered the rules of an increasing number of markets, with classic examples including medical resident matching (e.g., NRMP), spectrum auctions (e.g., FCC auctions), and organ donation exchanges. In the last few years, very large markets have been created from scratch, such as eBay, Adwords, and smaller markets like odesk.com and sittercity.com. These designs use a broad set of tools, including economic theory, empirical analysis and experiments (and a fair dose of trial-and-error). With this experience, useful principles have emerged, on what market failures typically have to be addressed, and on which rules work and which do not.

### **951. Political Economy. (A)** Staff.Inman.Prerequisite(s): PHD course with advanced microeconomics.

This course will introduce the students to the basic models of formal political economy and methods for empirically estimating those models from policy data, both for the developed and developing economies. Topics to be covered will include Downsian electoral competition and median voter politics, theories of legislative politics including minimum winning coalition and universalistic (pork-barrel) politics, models of lobbying and political corruption, models of executive influence in legislative settings. Particular attention is paid to the role of formal (constitutional) and informal (non-constitutional) institutions as they determine policy outcomes in democratic societies, including majoritarian (first-past-the-post) and proportional representation systems of elections, partisan (party) and non-partisan (special interest) legislatures, executive agenda-setting and veto powers, federal and unitary forms of governance, and finally, the role of judicial review. Policy applications will focus on fiscal policy (taxes, spending, and debt), though students should feel free to apply the analysis to other public policies of interest. Students should have a firm understanding of micro-economic theory and applied econometrics.

### **961. (BEPP261, BEPP761, OIDD261, OIDD761) Risk Analysis and Environmental Management. (M)** Howard Kunreuther.Prerequisite(s): None, but microeconomics helpful.

This course is designed to introduce students to the role of risk assessment, risk perception and risk management in dealing with uncertain health, safety and environmental risks including the threat of terrorism. It explores the role of decision analysis as well as the use of scenarios for dealing with these problems. The course will evaluate the role of policy tools such as risk communication, economic incentives, insurance, regulation and private-public partnerships in developing strategies for managing these risks A project will enable students to apply the concepts discussed in the course to a concrete problem.

### **SM 962. Applied Economics Seminar. (F)** Fernando Ferreira.Prerequisite(s): None.

The goal of this course is to help doctoral students develop critical thinking skills through both seminar participation and writing of referee reports. To this end students will attend the Wharton Applied Economics each Wednesday at noon seminar when it meets; prepare two written referee reports on WAE papers per semester, due before the seminar is presented; after attending the seminar - and the ensuing discussion of the paper - students will prepare follow-up evaluations of their referee report reports, due one week after the seminar.



# **BUSINESS ECONOMICS & PUBLIC POLICY**

## **(WH) {BEPP}**

**987. Industrial Organization and Competition Policy. (C) J.F. Houde.** Prerequisite(s): Doctoral level economics (e.g. ECON 701, 703 or ECON 680, 682).

This course focuses on empirical methods and applications of research topics in Industrial Organization. Although not exclusively, the course will focus mostly on the application of econometric techniques used to study specific markets and antitrust policies. The topics that will be covered include the evaluation of market power and mergers, product differentiation, investment and innovation, collusion, price discrimination, vertical relations, entry and product positioning, and the dynamics of industries. The course will also discuss research methodologies related to microeconomic theory, computational methods, and econometric analysis. The applicability of the techniques goes beyond the field of Industrial Organization, and include the Labor, Health, Trade and Public economics.

**611. Microeconomics for Managers: Foundations. (C) Staff.**

This course establishes the micro-economic foundations for understanding business decision-making. The course will cover consumer theory and market demand under full information (2 lectures), production theory and economic (and opportunity) cost (2 lectures), pricing strategies in competitive and monopoly markets (2 lectures), sophisticated pricing strategies with segmented markets using price discrimination and bundling (2 lectures), sophisticated pricing strategies of a single consumer using two-part tariffs (1 lecture), and decision-making under uncertainty (1 lecture). Students are expected to have mastered these materials before enrolling in the second quarter course: Microeconomics for Managers: Advanced Applications.

**612. Microeconomics for Managers: Advanced Applications. (C) Staff..**

**MICROECONOMICS FOR MANAGERS: ADVANCED APPLICATIONS.** This course will cover the economic foundations of business strategy and decision-making in market environments with less than full information. Topics include game theoretic approach to market strategies with application to market creation and protection (4 lectures), auction theory and application (1 lecture), strategies for managing risk including the value of information (1 lecture), moral hazard and principal-agent theory with application to incentive contracts (1 lecture), asymmetric information and signaling strategies (1 lecture), public goods and externalities within and between firms (1 lecture), and the management of interdependencies through cooperative behavior or politics (1 lecture).

**099. INDEPENDENT RDGS.**