

## ECONOMICS

### CURRICULUM

#### **Master of Arts – International Economics and Finance**

<b>DEGREE REQUIREMENTS</b>	<b>Credits</b>
EF8100 Mathematics and Statistics Review	(Non-credit)
EF8901 Microeconomics	1
EF8902 Macroeconomics	1
EF8903 Applied Econometrics	1
EF8904 Financial Theory	1
<b>One of the following:</b>	
EF8911 International Finance (Field I - International Finance)	1
OR	
EF8931 Int'l Trade Theory, Policy (Field II - International Trade & Policy)	1
<b>Two elective courses</b> (one may be the other field)	2
 <b>AND</b> one of the following options	
<b>Master's Paper Option</b> Master's Paper	(Milestone)
<b>Internship Option</b> Master's Internship	(Milestone)
<b>Course Only Option</b> One additional elective	1
 <b>ELECTIVES</b>	
EF8912 Country Risk Analysis	1
EF8913 Empirical Topics in International Finance	1
EF8914 Financial Econometrics	1
EF8915 Int'l Corporate Finance	1
EF8932 Int'l Trade-Imperfect Comp	1
EF8933 Empirical Topics Int'l Trade	1
EF8934 Global Inst and Int'l Economy	1
EF8935 Law/Reg-Int'l Trade and Invest	1
EF8936 International Public Economics	1
EF8937 Labour Economics	1
EF8938 Development Microeconomics	1

EF8939	Topics in Econometrics	1	
EF8940	Environment Economics	1	
EF8941	Topics in Dev Economics	1	
EF8942	Industrial Organization	1	
EF8943	Monetary Economics	1	
EF8944	Panel Data and NL Model Analysis	1	
EF8945	Nonparametric Data Analysis	1	
EF8946	Game Theory	1	1

### Doctor of Philosophy - Economics

First Offered Fall 2010

Revised Fall 2024

#### DEGREE REQUIREMENTS

PhD Comprehensive Examination (Year 1)

Dissertation Proposal

PhD Dissertation

EF9100 PhD Seminar

EF9913 Primer, Mathematical Economics

#### Credits

(Milestone)

(Milestone)

(Milestone)

(Non-credit)

(Non-credit)

#### Core Courses: Compulsory

EF9901	Advanced Microeconomics I	1
EF9902	Advanced Macroeconomics I	1
EF9903	Advanced Econometrics I	1
EF9904	Mathematical Economics	1
EF9908	Advanced Topics in Macro and Finance	1
EF9921	Advanced Microeconomics II	1
EF9922	Advanced Macroeconomics II	1
EF9923	Advanced Econometrics II	1
EF9924	Advanced Topics in Microeconomics	1

3 Elective Courses 3

#### Credits

EF9905	Advanced Topics in Int'l Trade I	1
EF9906	Advanced Topics in International Finance	1
EF9907	Advanced Topics in Game Theory	1
EF9909	Numerical Methods in Economics	1
EF9910	Advanced Topics in Int'l Trade II	1
EF9911	Advanced Topics in Labour Economics	1
EF9912	Directed Studies in Economics	1
EF9914	Advanced Topics in Financial Econometrics	1
EF9936	Advanced Topics in Public Economics	1
EF9941	Advanced Topics in Development Economics	1
EF9943	Advanced Topics in Monetary Economics	1

#### COURSE LISTING

##### Master's Paper

The student is required to complete a research paper on a topic related to his/her field of specialization (international trade or international finance). The research topic is selected in consultation with the student's supervisor, where the student presents an outline of the research plan in writing, and the research is carried out under the direction of a faculty supervisor and monitored by a supervisory committee. On completion, the research results are submitted in research paper format to the supervisor and a second reader, who assess and grade the research paper. Through the research paper, the student is expected to provide evidence of competence in carrying out research and a sound understanding of the material associated with the research. This is a "Milestone." Pass/Fail

### **Master's Internship**

Students will undertake an internship in the fields of Economics and Finance that allows them to develop links between theoretical knowledge learned in a classroom and a professional/practical setting. One academic term in length, students will be required to submit a detailed report at the end of the internship as well as an employer evaluation. The Department does not guarantee internship for all enrolled students, nor does every placement qualify for credit. This is a "Milestone" and is pass/fail. Department consent is required to enroll. This is a "Milestone" and is pass/fail.

### **PhD Comprehensive Examination (Year 1)**

The comprehensive examination consists of two parts, one in microeconomic theory and one in macroeconomic theory, to be scheduled separately during June of Year 1 of the PhD program. Students may request a second attempt on either part in August of the same year. Both parts must be completed successfully within one year of registration into the PhD program. Students may not register for their second year without passing this milestone. This is a Milestone. Pass/Fail.

### **PhD Dissertation Proposal**

The dissertation proposal normally consists of a complete or substantially developed paper that will become the first chapter of the dissertation as well as written descriptions of two other projects at early stages of development that will become the remaining chapters of the dissertation. A dissertation proposal must receive the approval of the Supervisor and members of the Supervisory Committee by the end of the Winter semester in Year 3 of the program. This is a Milestone. Pass/Fail

### **PhD Dissertation**

To complete the PhD degree, a student's dissertation that contains original and significant research must receive final approval of a Supervisory Committee, as described by the official policies of the YSGPS. The dissertation must be presented and defended at a public colloquium convened by the Supervisor for that purpose. This is a Milestone. Pass/Fail

### **EF8100 Mathematics and Statistics Review**

All students admitted into the Graduate Economics - MA program must demonstrate competence in quantitative methods by passing a preliminary course in mathematical economics. Course material will be provided both in class and on the web during the last two weeks of August. Attendance is highly recommended but not compulsory. This is a pass/fail, non-credit course for which there will be an exam before the official start of the Fall term. Students who fail the first attempt must rewrite the exam by October 31st of that year. Non-attendance to the final exam is also counted as a Fail. If the student fails the second attempt or is unable to rewrite the exam by October 31st, the mark from their first attempt (Fail) will be considered their final grade, and they will be asked to withdraw from the program. Non-credit. Pass/Fail

### **EF8901 Microeconomics**

This course provides in depth coverage of the foundations of microeconomic theory required for effective analysis of international economic issues. Fundamentals such as static and dynamic optimization, consumer choice (deterministic and under uncertainty), and producer theory (profit maximization, costs, and duality) will be supplemented with applications to market structure, game theory in trade and policy, the economics of information, and general equilibrium. Examples and illustrations will be drawn from an international context throughout the course. 3 lecture hours + 1 tutorial hour/week. 1 Credit

### **EF8902 Macroeconomics**

This course is an introduction to graduate macroeconomics and the techniques associated with analyzing macroeconomic models. Topics include theories of aggregate supply, rational expectations, inflation and monetary policy, growth theories, consumption and savings, open economy macroeconomics and empirical methods suitable for studying international linkages of exchange rates, interest rates and prices. The technical tools include standard calculus, linear algebra, optimization in continuous time using the Hamiltonian, optimization in discrete time using dynamic programming, and methods in time series analysis. 3 lecture hours + 1 tutorial hour/week. 1 Credit

### **EF8903 Applied Econometrics**

This is an introduction to estimation and inference in econometrics, in the context of the linear regression model. Estimation methods include Ordinary Least Squares (OLS), Generalized Least Squares (GLS), Instrumental Variables (IV) and Maximum Likelihood (ML). Inference will be based on test statistics from unrestricted and restricted parameter estimates. Theoretical and applied aspects of the course will be considered. Working knowledge of econometrics software such as R, Matlab, SAS, or STATA is recommended. 3 lecture hours + 1 tutorial hour/week. 1 Credit

### **EF8904 Financial Theory**

This course is designed to provide graduate students with a broad overview of financial economics. We will cover expected utility theory, risk aversion and investment decisions, and a variety of asset pricing models such as CAPM, Arrow-Debreu pricing theory, arbitrage pricing theory, and consumption CAPM. The course covers quantitative techniques such as optimal portfolio decision-making, Value-at-Risk and the dynamic general equilibrium modelling of financial business cycles. Antirequisite: AM 8201. 3 lecture hours + 1 tutorial hour/week. 1 Credit

### **EF8911 International Finance**

This course examines theoretical and empirical issues regarding international macroeconomics. Topics include the determinants of the international balance of payments, theories of foreign exchange rate determination, fixed versus flexible exchange rate regimes and the efficacy of monetary and fiscal policies under such regimes. 3 lecture hours + 1 tutorial hour/week. 1 Credit

### **EF8912 Country Risk Analysis**

This course introduces the students to the theory and practice of managing cross-border lending and international investment risk. The course gives a comprehensive coverage of the analysis and reporting of sovereign creditworthiness, political risk, current account analysis, statistical credit-scoring methodologies, loan valuation, portfolio management and regulatory supervision. Several case studies will be used, including the Mexican Peso crisis and the collapse of the markets in South East Asia.

Antirequisite: ECN 821. 1 Credit

### **EF8913 Empirical Topics in International Finance**

The objective of this course is to develop a solid understanding of international financial markets and examine managerial decision making in an international setting. International financial markets will be studied in the context of the foreign exchange, offshore, derivative securities, and international asset portfolio markets. Theoretical and empirical aspects of these markets will be analyzed in detail. Decision making regarding the measurement and management of risk in international markets will be analyzed from the point of view of individuals and firms. Prerequisite: EF8903 or equivalent, or Departmental permission. 1 Credit

### **EF8914 Financial Econometrics**

This course introduces students to the most frequently used time series models in finance and a variety of econometric techniques that are essential to estimate time series models. Topics include forecasting models such as ARMA and ARIMA processes, volatility models such as ARCH-GARCH processes, and market co-movement models. Multivariate stationary and non-stationary processes will also be examined in the context of Vector Autoregressive (VAR) models and Vector Error Correction Models (VECM) for integrated processes. Real data will be used for empirical applications of these models. Students of this course are expected to have a solid background in econometrics and have working knowledge of a programming package such as Matlab or R. Prerequisite: EF8903 or equivalent, or Departmental permission. 1 Credit

### **EF8915 Int'l Corporate Finance**

The purpose of this course is for students to understand the dynamics of international corporate finance by concentrating on the financing and investment policies of multinational corporations. We will examine how to evaluate international projects which require large investments and calculate the cost of capital. We will investigate the costs and benefits of issuing securities on international markets. Other topics include international portfolio diversification, taxation issues and functions of offshore centres. This course offers an in-depth treatment of the Classical, neoclassical, and contemporary theories of international trade. Topics include commercial policy, income distribution, international factor movements, and growth. The course also examines various trade policies and their impact on welfare. 1 Credit

### **EF8931 Int'l Trade Theory, Policy**

This course offers an in-depth treatment of the Classical, neoclassical, and contemporary theories of international trade. Topics include commercial policy, income distribution, international factor movements, and growth. The course also examines various trade policies and their impact on welfare. Prerequisite: EF8901, or Departmental permission. 3 lecture hours + 1 tutorial hour/week. 1 Credit

### **EF8932 Int'l Trade - Imperfect Comp**

This course will provide students with a firm grasp of theoretical and empirical methods of analyzing international trade outside of the traditional competitive framework, utilizing the tools of New Trade Theory. Topics addressed include multinational corporations, strategic interaction between governments and firms, intra-industry trade, intellectual property rights and the emergence of international technology gaps. Prerequisite: EF8901, or Departmental permission. 1 Credit

### **EF8933 Empirical Topics Int'l Trade**

This course examines the pattern of trade and the welfare consequences of various trade policies from an empirical view point and teaches the students how to apply trade analysis in a policy environment. The use of the gravity equation will be examined as well as other methods of analyzing trade flows and impediments to trade such as tariffs and transportation costs. The course will emphasize the difficulties in obtaining data and deciding on the appropriate estimation method. Prerequisite: EF8901, or Departmental permission. 1 Credit

### **EF8934 Global Inst and Int'l Economy**

This course is divided into two parts. The first part investigates various explanations of why institutions exist and examines the challenges of creating international institutions that enforce agreed upon rules governing economic relations among nations. The second part of the course looks at the structure of existing international institutions, such as the IMF, the World Bank and the WTO. Case studies will be presented to analyze the impact of policies of these institutions on the national economies. Instructor permission required. Prerequisite: EF8901, or Departmental permission. 1 Credit

### **EF8935 Law/Reg – Int'l Trade and Invest**

This course introduces the student to the law and regulation of international trade and investment. The course will begin with an introduction and overview of the history and characteristics of the WTO trading system. The similarity and differences to USMCA will be reviewed. Students will then examine the regulation of trade in goods and services, as well as current international regulatory issues relating to the environment, labour, immigration, culture and ethics. Government procurement and intellectual property rules will be examined. International investment rules and dispute settlement will be studied as well as international competition policy and its relationship to AD and CVD rules. The course will conclude with an examination of the dispute settlement regimes of USMCA and the WTO. Prerequisite: EF8901, or Departmental permission. 1 Credit

### **EF8936 International Public Economics**

Globalization and the ongoing integration of world markets have serious implications for the nature and impact of domestic fiscal policies. The design of taxation policies in modern economies requires that policymakers carefully consider the international ramifications of their decisions. This course examines some important issues in international taxation. Topics to be covered include the effects of fiscal policy in an open economy relative to a closed economy, optimal income taxation in an open economy, taxes and portfolio choice, tax harmonization and tax coordination, and the impact of taxation on the activities of multinational corporations. Prerequisite: EF8901 or equivalent, EF8902 or equivalent, or Departmental permission. 1 Credit

### **EF8937 Labour Economics**

This course examines theoretical and empirical issues regarding international labour economics. While goods and capital markets across countries are integrating rapidly, labour markets are integrating at a much slower pace, especially between developing and developed countries. Nevertheless labour markets are deeply affected by the integration in the other markets. The relationship between labour markets dynamics and the integration in capital and goods markets will be the focus of the course. Topics to be covered include regional labour market differences, the interaction between international trade, capital flows and labor markets, the importance of human capital formation for development, and international migration. 1 Credit

**EF8938 Development Microeconomics**

The purpose of this course is to provide a microeconomic analysis to some important issues of the current global economy. The topics we intend to cover are taken from a broad spectrum, ranging from current industry practices (e.g., outsourcing) to institutions in developing countries (e.g., Grameen Bank-a highly successful rural micro-credit program in Bangladesh). The approach will be of a theoretical nature, applying tools of general microeconomic theory to some of the major issues of the international economy. Although we shall often provide illustrations using case studies, the emphasis will be on microeconomic analysis rather than descriptive accounts. As the course will discuss the micro-foundations of institutions as well as industry practices that have important trade policy implications, it will complement the existing courses on institutions and trade (e.g., International Trade under Imperfect Competition, Global Institutions and the International Economy). 1 Credit

**EF8939 Topics in Econometrics**

This topic course introduces different topics in econometrics. Topics will differ depending on the availability of instructors. Topics could include microeconometrics, time series econometrics, nonparametric econometrics, or Bayesian econometrics. Prerequisite: EF8903 or equivalent, or Departmental permission. 1 Credit

**EF8940 Environment Economics**

An evaluation of the theory and practice of economic sources of environmental problems and environmental policy, including emissions taxes, standards and permits. Analysis of approaches to address topics such as regional air pollution, global climate change, water allocation, and the use of renewable resources, and the relationship between the environment and population growth, income, international trade and economic development. 1 Credit

**EF8941 Topics in Dev Economics**

A survey of empirical methods in development microeconomics. The course examines different methodologies used to measure the effectiveness of development policies. Topics include analysis of randomized controlled trials, quasi-experimental methods, survey methodology, and poverty measurement. 1 Credit

**EF8942 Industrial Organization**

Industrial Organization is the formal study of firm behavior under imperfect competition. The objective of this course is to provide a rigorous understanding of certain core theoretical aspects of the behavior of firms and industries in imperfectly competitive markets. The main emphasis of the course will be upon oligopoly theory. The course will cover issues such as oligopoly pricing, price discrimination, location strategies, product differentiation, structure of firms and mergers, entry deterrence, advertising and the economics of research and development. Prerequisite: EF8901 or Departmental permission. 1 Credit

**EF8943 Monetary Economics**

The goal is to study theoretical frameworks that can help us make sense of recent financial market developments and to see what these theories suggest in the way of appropriate interventions in (and following) a financial market crisis. We begin by reviewing the foundations of monetary exchange and the role of banks as suppliers of liquidity. Discussions may also include: role of central banks, the emergence of "shadow banking", and special properties of exchange media. 1 Credit

**EF8944 Panel Data and NL Model Analysis**

The first part of this course covers panel data models: static panel data models and dynamic panel data models. The second part deals with limited-dependent variable models in the cross-sectional setting such as discrete choice models, censored and truncated regression models and sample selection models. 1 Credit

**EF8945 Nonparametric Data Analysis**

This course provides an introduction to nonparametric methods used in econometrics. Nonparametric methods are statistical techniques which do not require the researcher to specify a particular form for the function being estimated (e.g., probability density function, regression function, etc.). The primary goal of the course is to enable students to intelligently apply these methods in analyzing real-world economic data. 1 Credit

**EF8946 Game Theory**

This course provides students with a comprehensive overview of game theory and its applications in understanding strategic decision-making in economics. Students will be introduced to foundational concepts such as strategic- and extensive-form games, Nash equilibrium, and its refinements. The course also touches upon topics like repeated games, bargaining, and auctions as well as information and mechanism designs. We also illustrate through examples how these tools can be useful in analyzing and understanding strategic behavior in economic and social interactions. PREREQUISITE: EF8901 1 Credit

**EF9100 Economics PhD Seminar**

The objective of this course is to guide students through the process of writing their PhD dissertations. PhD students in second year and above must register in this course each semester. Students will be assessed based on their research progress. Pass/Fail. PREREQUISITE: Successful completion of PhD Comprehensive Exam.

**EF9901 Advanced Microeconomics I**

The goal of the Advanced Microeconomics I and II sequence is to provide a firm microeconomic foundation, and the necessary toolkit, for advanced doctoral study in economics. We will analyze consumer theory, producer theory, decision theory, game theory, the economics of information, the general equilibrium theory. We will learn how to use these tools correctly when applying economic analysis to the real world. This is the first course of the sequence. 3 lecture hours + 1 tutorial hour/week. 1 Credit

**EF9902 Advanced Macroeconomics I**

The objective of this course is to introduce students to modern macroeconomic theory. The course formally analyzes the basic models used in modern macroeconomics theory and their applications to the study of various economic issues. Topics covered include recursive methods, asset pricing, search frictions, and the labour market. Student will learn to use MATLAB software in order to numerically solve some of the models introduced in the course. 3 lecture hours + 1 tutorial hour/week. 1 Credit

**EF9903 Advanced Econometrics I**

This is the first half of the PhD-level econometrics sequence. Topics to be covered include ordinary least square estimator, instrumental variable estimator, and estimators accounting for unobserved effects in panel data. Prerequisite: EF9904 or Departmental permission. 3 lecture hours + 1 tutorial hour/week. 1 Credit

**EF9904 Mathematical Economics**

The field of economics has become more technical over the years. Macroeconomic models often involve the solution of complex dynamic optimization problems. In microeconomics, the relaxation of the assumptions of perfect information and complete markets requires the use of advanced mathematical tools that are usually not familiar to students entering the field. The objective of this course is to provide the students with the technical tools and concepts that they will use in their graduate economic courses. Topics include: linear algebra, set and measure theory, convex analysis, and optimization and fixed point theory. A significant part of the course is devoted to economic applications that illustrate how the concepts and techniques are used in the different areas of economics. These applications are designed for the students to recognize the link between mathematical and economic theory. 3 lecture hours + 1 tutorial hour/week. 1 Credit

**EF9905 Advanced Topics in Int'l Trade I**

Traditional theories of comparative advantage are generalized to include alternative sources, and higher dimensional issues. Imperfect competition, external economies, alternative preference representations, asymmetric information, offshoring and outsourcing are introduced into international trade models. Analysis of the gains from trade in different frameworks and the effects of trade on income distribution. The role of international trade and tax policy. Analysis of the design and structure of trade agreements and tax treaties. Prerequisite: Successful completion of PhD Comprehensive Exam. Antirequisite: EF8931, EF8932. 1 Credit

**EF9906 Advanced Topics in International Finance**

The objective of this course is to examine the theoretical and empirical connections between national asset markets. This course covers topics in open-economy macroeconomics and international finance. Topics may include dynamic stochastic general equilibrium models, small open economy models, international business cycles, international financial markets and capital flows, asset pricing puzzles, risk-sharing puzzles and exchange rate implications of macroeconomic models. Prerequisite: Successful completion of PhD Comprehensive Exam. Antirequisite: EF8911. 1Credit

**EF9907 Advanced Topics in Game Theory**

This PhD-level course offers students a rigorous introduction to game theory, together with some of its applications to various strategic aspects in economics. Important concepts covered in this course include: strategic- and extensive-form games, refinements of Nash equilibrium, epistemic foundations, repeated games, bargaining, auctions, information and mechanism designs. We also illustrate how these concepts and analytical tools can be useful in understanding strategic behavior in economic and social interactions. Prerequisites: Successful completion of PhD Comprehensive Exam. Antirequisite: EF8946. 1 Credit

**EF9908 Advanced Topics in Macro and Finance**

This course is an introduction to modern asset pricing theories and applications. It examines asset pricing theories from the perspectives of stochastic dynamic macroeconomic models and recent developments in the theory of finance. Topics to be covered include the pricing of stocks, bonds, options, portfolio theory, the term structure of interest rates, real investments and heterogeneous agent models. The empirical aspects of asset pricing theories will be examined using modern financial econometric techniques such as the generalized method of moments (GMM). Prerequisite: Successful completion of PhD Comprehensive Exam. 1 Credit

**EF9909 Numerical Methods in Economics**

Economic models have become increasingly sophisticated in order to better capture the inherent complexities of real-world behaviour. The majority of these models however cannot be solved analytically using the standard mathematical tools of calculus and algebra. For this reason, economists frequently need to resort to numerical methods. The objective of this course is to introduce students to various computational techniques and their application to economic analysis. Topics to be covered include solution of linear and nonlinear systems of equations, optimization, numerical integration and differentiation, and numerical dynamic programming. The MATLAB software package will be used to illustrate the various techniques and for completing the assignments in the course. Prerequisite: Successful completion of PhD Comprehensive Exam. 1 Credit

**EF9910 Advanced Topics in Int'l Trade II**

A continuation of the topics in EF9905. Prerequisite: Successful completion of PhD Comprehensive Exam. Antirequisite: EF8933. 1 Credit

**EF9911 Advanced Topics in Labour Economics**

The purpose of this course is to familiarize graduate students with empirical techniques and theoretical ideas which are currently widely used in labour economics. Topics include neoclassical analysis of the labour market and its institutions; a systematic development of the theory of labour supply, labour demand, and human capital theory; theories of wage and employment determination, turnover, search, unemployment, equalizing differences, and union behaviour, with particular emphasis on the interaction of theoretical and empirical modeling. Prerequisite: Successful completion of PhD Comprehensive Exam. Antirequisite: EF8937. 1 Credit

**EF9912 Directed Studies in Economics**

This course is for students who wish to gain knowledge in a specific area for which no graduate level classes are available. Students who are approved to take the course are assigned a suitable class advisor most familiar with the proposed content. Students are required to present the work of one term (not less than 90 hours in the form of directed research, tutorials and individual study) in an organized format. 1 Credit

**EF9913 Primer, Mathematical Economics**

This course is designed to ensure that PhD students have the mathematical competency necessary for their first-year required courses. The exam will be before the start of the Fall semester. Students who do not pass the exam will be advised to withdraw from the program. A second attempt will be given by the end of October. Non-credit. Pass/Fail.

**EF9914 Advanced Topics in Financial Econometrics**

This course introduces the econometrics used in empirical finance. The main goal is to provide students with an econometric (statistical) foundation for pursuing research in financial economics. It covers some of the most important models and methods used in the empirical time series analysis. Topics include evaluation of asset pricing theories, models of volatility, models of nonlinear dependence, and models for risk management. Prerequisite: Successful completion of PhD Comprehensive Exam. Antirequisite: EF8914. 1 Credit

**EF9921 Advanced Microeconomics II**

The goal of the Advanced Microeconomics I and II sequence is to provide a firm microeconomic foundation, and the necessary toolkit, for advanced doctoral study in Economics. We will analyze consumer theory, producer theory, decision theory, game theory, the economics of information, the general equilibrium theory. We will learn how to use these tools correctly when applying economic analysis to the real world. This is the second course in the sequence. Prerequisite: EF9901 or Departmental permission. 3 lecture hours + 1 tutorial hour/week. 1 Credit

**EF9922 Advanced Macroeconomics II**

The objective of this course is to familiarize the students with the analytical techniques of dynamic macroeconomics theory and its application to the study of several macroeconomic issues. Topics covered include dynamic programming for deterministic and stochastic economics, growth theory, monetary and fiscal policy, Bewley models and the determination of wealth and income distributions, and incomplete markets theory. Students will learn numerical techniques and use MATLAB software. Prerequisite: EF9902 or Departmental permission. 3 lecture hours + 1 tutorial hour/week. 1 Credit

**EF9923 Advanced Econometrics II**

This course is intending for PhD students in Economics and extends the material covered in EF 8903: Econometrics I. Topics covered include instrumental variable estimation, generalized method of moments, binary response models, panel data models, time series models and quantile regression. Prerequisite: EF9903 or Departmental permission. 3 lecture hours + 1 tutorial hour/week. 1 Credit

**EF9924 Advanced Topics in Microeconomics**

This course provides PhD students with an in-depth understanding of selected topics in microeconomic theory and its applications in various fields of economics. Building upon the foundations of the first-year microeconomics sequence, this course delves into cutting-edge research and methods, preparing students to engage in high-level academic research. The course is structured to foster the development of original research ideas in microeconomics. PREREQUISITE: Successful completion of PhD Comprehensive Exam milestone.

**EF9936 Advanced Topics in Public Economics**

The purpose of this course is to familiarize graduate students with modern empirical techniques and theoretical concepts of public economics, including government revenues and expenditures. Students will learn to critically analyze public programs and fiscal policies. Topics to be covered include tax incidence, efficiency and avoidance, income, corporate and wealth taxation, social insurance and the provision of public goods. Prerequisite: Successful completion of PhD Comprehensive Exam. Antirequisite: EF8936. 1 Credit

**EF9941 Advanced Topics in Development Economics**

This course provides a partial survey of academic research on economic issues facing developing countries. The methodological focus is on applications of econometrics and economic theory and developing intuition about when and how to use these tools, particularly when interpreting and evaluating data relevant for the conduct of public policy. Prerequisite: Successful completion of PhD Comprehensive Exam. Antirequisite: EF8941. 1 Credit

**EF9943 Advanced Topics in Monetary Economics**

This is an advanced PhD course in monetary economics. The course will introduce influential papers on the topics of liquidity, banking and business cycles with a specific focus on the role of frictions in markets. The goal of the course is to provide students with the necessary analytical tools and background knowledge to pursue research in monetary economics.

Prerequisite: Successful completion of PhD Comprehensive Exam milestone. Antirequisite: EF 8943. 1 Credit

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