



Study Plan

School: Institute for Advanced Studies and Research
Degree: Doctorate
Course: Economics (cód. 439)

Alternative Plan PhD Course

1st Year - 1st Semester Alternative Plan PhD Course

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
ECN10311D	Microeconomic Analysis I	Economy	7.5	Semester	195
ECN10312D	Macroeconomic Analysis	Economy	7.5	Semester	196
ECN10313D	Econometrics	Economy	7.5	Semester	195
ECN10314D	Seminar on Research Methodologies	Economy	7.5	Semester	194

1st Year - 2nd Semester Alternative Plan PhD Course

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
*** TRANSLATE ME:Grupo I e II ***					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Group of Options					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
ECN10315D	Dynamic Economics	Economy	7.5	Semester	196
ECN10316D	Economic Growth	Economy	7.5	Semester	194
ECN10317D	Macroeconometrics	Economy	7.5	Semester	195
Group of Options					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
ECN10318D	Industrial Economics	Economy	7.5	Semester	195
ECN10319D	Labour Economics	Economy	7.5	Semester	194
ECN10320D	Microeconometrics	Economy	7.5	Semester	195



1st Year - 2nd Semester
Alternative Plan PhD Course

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
*** TRANSLATE ME:Grupo I, II e III ***					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Group of Options					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
ECN10315D	Dynamic Economics	Economy	7.5	Semester	196
ECN10316D	Economic Growth	Economy	7.5	Semester	194
ECN10317D	Macroeconometrics	Economy	7.5	Semester	195
Group of Options					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
ECN10318D	Industrial Economics	Economy	7.5	Semester	195
ECN10319D	Labour Economics	Economy	7.5	Semester	194
ECN10320D	Microeconometrics	Economy	7.5	Semester	195
Group of Options					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
ECN7078D	Economic and Social Development	Economy	7.5	Semester	196
ECN10321D	Regional Economics	Economy	7.5	Semester	195
ECN10322D	Financial Economics	Economy	7.5	Semester	194
ECN10323D	Monetary Economics and Monetary Policy	Economy	7.5	Semester	194
ECN10324D	International Economics	Economy	7.5	Semester	194
ECN10325D	Business Economics	Economy	7.5	Semester	195



1st Year - 2nd Semester
Alternative Plan PhD Course

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
*** TRANSLATE ME:Grupo I, II, III ou livre ***					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Group of Options					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
ECN10315D	Dynamic Economics	Economy	7.5	Semester	196
ECN10316D	Economic Growth	Economy	7.5	Semester	194
ECN10317D	Macroeconometrics	Economy	7.5	Semester	195
*** TRANSLATE ME:Optativa livre ***					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Group of Options					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
ECN10318D	Industrial Economics	Economy	7.5	Semester	195
ECN10319D	Labour Economics	Economy	7.5	Semester	194
ECN10320D	Microeconometrics	Economy	7.5	Semester	195
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Group of Options					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
ECN7078D	Economic and Social Development	Economy	7.5	Semester	196
ECN10321D	Regional Economics	Economy	7.5	Semester	195
ECN10322D	Financial Economics	Economy	7.5	Semester	194
ECN10323D	Monetary Economics and Monetary Policy	Economy	7.5	Semester	194
ECN10324D	International Economics	Economy	7.5	Semester	194
ECN10325D	Business Economics	Economy	7.5	Semester	195
*** TRANSLATE ME:Optativa livre ***					

2nd Year - 3rd Semester
Alternative Plan PhD Course

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

2nd Year - 4th Semester
Alternative Plan PhD Course

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					



**3rd Year - 5th Semester
Alternative Plan PhD Course**

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

**3rd Year - 6th Semester
Alternative Plan PhD Course**

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

**4th Year - 7th Semester
Alternative Plan PhD Course**

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

**4th Year - 8th Semester
Alternative Plan PhD Course**

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

Alternative Plan Tutorial Plan

**1st Year - 1st Semester
Alternative Plan Tutorial Plan**

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
ECN10314D	Seminar on Research Methodologies	Economy	7.5	Semester	194
Thesis					

**1st Year - 2nd Semester
Alternative Plan Tutorial Plan**

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

**2nd Year - 3rd Semester
Alternative Plan Tutorial Plan**

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

**2nd Year - 4th Semester
Alternative Plan Tutorial Plan**

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

**3rd Year - 5th Semester
Alternative Plan Tutorial Plan**

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					



**3rd Year - 6th Semester
Alternative Plan Tutorial Plan**

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

**4th Year - 7th Semester
Alternative Plan Tutorial Plan**

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

**4th Year - 8th Semester
Alternative Plan Tutorial Plan**

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
Thesis					

Conditions for obtaining the Degree:

*** TRANSLATE ME: PLANO COM CURSO DE DOUTORAMENTO: {\ }newline
{\ }newline
Para aprovação na componente curricular nesta especialização deste programa de doutoramento é necessário a aprovação (através de avaliação ou creditação) das seguintes unidades curriculares: {\ }newline
{\ }newline
1.º Semestre: {\ }newline
4 UC Obrigatórias num total de 30 ECTS{\ }newline
{\ }newline
2.º Semestre: {\ }newline
2 UC optativas dos Grupos I ou II num total de 15 ECTS{\ }newline
1 UC optativa dos Grupos I, II ou III num total de 7.5 ECTS{\ }newline
1 UC optativa dos Grupos I, II, III ou outra num total de 7.5 ECTS{\ }newline
{\ }newline
Para obtenção do grau, é necessário a aprovação da Tese com o total de 180 ECTS no 2.º, 3.º e 4.º Ano{\ }newline
{\ }newline
PLANO TUTORIAL: {\ }newline
{\ }newline
1.º Semestre: {\ }newline
1 UC Obrigatória num total de 7.5 ECTS{\ }newline
{\ }newline
Para obtenção do grau, é necessário a aprovação da Tese com o total de 232.5 ECTS no 1.º, 2.º, 3.º e 4.º Ano ***

Program Contents

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Microeconomic Analysis I (ECN10311D)

1. Introductory Topics: individual decisions (consumers and firms - duality)
2. Market Equilibrium: competitive markets (Pareto optimality and welfare analysis)
3. Game Theory: modeling the strategic interaction between decision makers; static and dynamic games, incomplete and complete information
4. Market failure. Externalities and public goods. Asymmetric information (moral hazard and incentives, adverse selection and signaling)



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Macroeconomic Analysis (ECN10312D)

- 1- The long run: from neoclassical growth models to the endogenous growth.
- 2- The business cycles: the new Keynesian economics and the Theory of Real Business Cycles.
- 3 ? Government deficit and public debt stabilization. the Ricardian equivalence debate.
- 4- The labor market, the Phillips curve debate and the dynamic aggregate supply
- 5-Demand management policies in a open-economy framework.
- 6- The microeconomic foundations
- 7- New frontiers for macroeconomics

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Econometrics (ECN10313D)

- I. Topics on Linear Regression: Estimation and Specification Analysis; Endogenous Regressors; Instrumental Variables; Generalized Method of Moments.
- II. Discrete and Limited Dependent Variable Models: Discrete Choice Models; Count Data Models; Fractional Regression Models; Tobit Models; Sample Selection Models.
- III. Panel Data Models: Fixed and Random Effects Models; Specification Analysis.
- IV. Time Series Models: ARMA Processes; Nonstationarity Series; Unit roots; Cointegration; Vector Autoregressive Models; ARCH models.
- V. Introduction to Simulation Methods: Monte Carlo; Bootstrap.

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Seminar on Research Methodologies (ECN10314D)

1. THE METHODOLOGY OF THE RESEARCH PROCESS: Theoretical Aspects
 - 1.1. Science and the Scientific Method: general aspects
 - 1.2. Brief Analysis of the Evolution of Scientific Method: the particular case of monetary and financial economics
2. THE METHODOLOGY OF THE RESEARCH PROCESS: Practical Aspects
 - 2.1. Academic Research: objectives, types and general characteristics
 - 2.2. The Choice of the Theme and Supervisor(s) of the Dissertation: some recommendations
 - 2.3. The Usual Components of a Research Project
 - 2.4. The Operationalisation of the Research Project
 - 2.5. A Proposed Structure for a Master's Dissertation
 - 2.6. Brief Reflections on the Writing and Graphic Styles
 - 2.7. The Presentation / Defence of the Dissertation

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Dynamic Economics (ECN10315D)

1. Time in Economics: Discrete and Continuous. Stability conditions and convergence. Examples: The debt dynamics, adaptive and rational expectations
2. Dynamic systems in continuous time. Scalar and planar differential equations, Linear and nonlinear; economic applications. Examples: The wage equation , Hysteresis model, the Lucas dynamic supply curve
The intergenerational business cycles models (discrete time): the Banchard-Cass-Yaari's overlapping generations model , the Diamond-Samuelson model, etc.
3. Deterministic optimal control. Definition and versions of the problem. First order necessary conditions: the Pontryagin principle, the principle of dynamic programming and the equation of Hamilton-Jacobi-Bellman. Second order conditions and sufficient conditions, necessary and sufficient conditions. Transversality conditions. The modified Hamiltonian dynamical system: stability and comparative dynamics. Economic applications: economic growth models without natural resources



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Economic Growth (ECN10316D)

- I - First Generation Endogenous (R&D) Growth Models
- II - Second Generation Endogenous (R&D) Growth Models
- III - Third Generation Endogenous (R&D) Growth Models
- IV - Fourth Generation Endogenous Growth Models
- V - Is the Modern Economy investing sufficiently in R&D? Optimality of Investments in R&D in 2nd-4th Generation R&D Models
- VI - Unified Growth Theories
- VII - Open Economy and Economic Growth Models
- VIII- Sustainability and Economic Growth
- IX - Economic Growth Empirics

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Macroeconometrics (ECN10317D)

- 1. Univariate Time Series Models.
- 2. Multivariate Time Series Models.
- 3. ARCH and GARCH Models.
- 4. Multi-Factor Models.
- 5. Models for Long Memory Stochastic Processes.
- 6. Simulation Methods.
- 7. Empirical Examples.

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Industrial Economics (ECN10318D)

- 1. Monopoly Price Discrimination
- 2. Relationship between Industrial Concentration and Firm Performance
- 3. Oligopoly Models and Cartel Theory
- 4. Product Differentiation and Advertising
- 5. Vertical Integration
- 6. Innovation, R&D and Patents
- 7. Price Regulation

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Labour Economics (ECN10319D)

Labour Supply and Demand Behaviour. Education and Human Capital. Compensating wage differentials. Wage inequality. Labour market discrimination. Contracts and Work incentives. Collective Bargaining. Unemployment. Labour Market Policies.

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Microeconometrics (ECN10320D)

Introduction: Microeconomic data, Data Issues, Specification Analysis
Advanced topics in Models for Limited and discrete dependent variables: Multinomial Models, Ordered choice Models, Endogeneity, Choice Based Models,
Advanced topics in Panel Data Models: Dynamic Models, Nonlinear Models.
Duration Analysis: Parametric and semiparametric models. Continuous time models and discrete time models.
Spatial Econometrics: Spatial dependence and spatial heterogeneity. Spatial autocorrelation statistics. Spatial regression models.
Policy Evaluation Methods: Natural and Social Experiences, Differences in Differences Methods, Matching.



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Economic and Social Development (ECN7078D)

1. Introduction: Definition of development. Poverty and social exclusion. The HDI, GPI indexes. Absolute and relative welfare. Equity and efficiency. Poverty, under-nutrition and famines.
2. Development behavioural analysis. 2i) Theories: Households and development. Credit and rural markets. Human capital and income distribution. Poverty reduction: efficiency and equity. Technical progress. Environment.
2ii) Applied cases: human capital. Property rights and incentives.
3. Human rights and development
 - The human rights-based approach to development
 - Economic, social and cultural rights and the right to development
 - Satisfying basic needs as guaranteeing human rights (the right to water)
 - Development and cultural freedom
 - Development and Democracy
 - Development strategies and human rights, participation and empowerment
4. Some examples of development public policies: The role of the State, the Market and international NGO's.

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Regional Economics (ECN10321D)

1. Introduction. 2. Advanced Topics in Planning and Territorial Development. 3. Advanced Topics in Urban Economics. 4. Models of Spatial Analysis. 5. Planning and Public Policy. 6. Conclusions.

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Financial Economics (ECN10322D)

1. Portfolio theory: The problem of selection of investment portfolios, the efficient frontier and investor choice under uncertainty.
2. Equilibrium models of capital markets: CAPM - Capital Asset Pricing Model, Model Market Index; APT - Arbitrage Pricing Theory; efficiency of markets, empirical tests of equilibrium models.
3. Analysis and evaluation of action: models of dividends, the approach of the discounted free cash flows, relative valuation.
4. Rating of bonds; temporal structure of interest rates: definition, direct and indirect methods of estimation, equilibrium models and arbitrage, risk management, interest rate, hedging strategies and immunization simple-factor and multifactor models, risk credit
5. Valuation of financial derivatives, discrete time models (binomial model), replicating and Portfolio Risk neutral valuation, continuous time models, stochastic processes, PDE fundamental dynamic hedging

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Monetary Economics and Monetary Policy (ECN10323D)

- Money: nature and functions; the processes of money supply and demand; objectives and instruments of monetary policy; The theory of interest rates; the foreign exchange market and the international monetary system; The coordination of monetary and fiscal policies; The new challenges of monetary policy and the functional redefinition of central banks.



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International Economics (ECN10324D)

1. The main trends of international trade and international investments;
2. Theoretical foundations of international specialization: from comparative advantage to competitive advantage;
3. Intra-industrial trade: typology, measurement and determinants;
4. Economic Geography Models: industrial location and international trade flows;
5. International trade in economic growth models;
6. Instruments of trade policy and their impact on trade;
7. Strategic trade policy in the contexts of globalization and of regional integration;
8. The institutional dynamics of the International Trade System for goods and services;
9. International mobility of production factors: relevant theoretical frameworks;
10. Determinants and impacts of foreign direct investments (FDI);
11. The role of multinational corporations in the trade patterns of developed and developing countries.

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Business Economics (ECN10325D)

- 1- Introduction to Energy Economics
- 2- Energy sources: non-renewables vs renewables
- 3- Economics of fossil fuels
- 4- Economics of renewables
- 5- Energy dependency, climate change, and energy policy
- 6- Regulation in the energy industry
- 7- Energy markets and electricity markets
- 8- Energy demand analysis
- 9- Energy consumption and economic growth
- 10- Energy elasticity
- 11- Economic analysis of Energy Investments
- 12- Security of supply and risk analysis