PROGRAMMA DEL CORSO DI ECONOMICS AND POLICY OF DIGITAL INNOVATION

SETTORE SCIENTIFICO

SECS-P/02

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The course has the general objective of providing students with the theoretical and practical knowledge necessary to address economic challenges and those related to technological and digital innovation. Economic Policy analyzes the effects of public and private interventions on the economy, influencing macroeconomic variables to achieve goals such as economic growth, price stability, unemployment reduction, income distribution equity, and environmental sustainability.

In addition, the course aims to emphasize the importance of technological and digital innovation in the modern economy, exploring how these factors can influence market and business dynamics. The educational objectives of the course are:

- To provide an in-depth understanding of the fundamental principles of economic policy and its practical implications.
- To explore microeconomic and macroeconomic policies, examining market power, externalities, public goods, income distribution, fiscal and monetary policies.
- To analyze policies for social, environmental, and economic sustainability, the role of the welfare state, and industrial, regional, and environmental policies.
- To explore the role of technological and digital innovation, understanding processes of technological change, the diffusion of innovation, business models of digital platforms, and the implications for public policies.
- To analyze the impact of innovation on businesses and the labor market, including new organizational dynamics, required skills, and policies for training and change management.

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The first part of the course provides the fundamental models of economic policy necessary to evaluate the impact of public and private actions on a country’s economic dynamics, citizens’ well-being, and sustainability.

The second part of the course aims to provide key concepts and theoretical foundations of the Economics of Innovation, referring both to the innovation process itself—emphasizing its determinants, obstacles, and the nature of the diffusion of technological innovation—and to its economic implications, with a focus on the Digital Economy and Artificial Intelligence.

By using the knowledge and analytical tools provided, students will be able to define and analyze technological and innovation phenomena, their economic consequences, and the related policy implications. The expected learning outcomes are outlined in the following sections:

Knowledge and Understanding

At the end of the course, students will be able to:

- Understand the fundamental principles of economic policy, including macroeconomic and microeconomic objectives, the underlying theoretical models, and the practical implications of public policies in the contemporary economy.
- Critically analyze microeconomic and macroeconomic policies, identifying the causes of market failures and assessing the effectiveness of corrective policies in addressing such issues.
- Evaluate the impact of social, environmental, and economic sustainability policies on the economy and society, understanding the role of public and private institutions in promoting sustainable development.
- Apply concepts and theoretical models to understand technological change and digital economy, analyzing the dynamics of innovation diffusion, digital platform business models, and their implications for public policy.
- Evaluate the impact of innovation on firms and the labor market, understanding organizational challenges, necessary skills, and policies for managing change in the digital economy.
- Communicate acquired knowledge clearly and effectively, both in written and oral form, and collaborate constructively with other course members in analyzing and solving economic and social problems related to technological and digital innovation.
- Develop independent research and analytical skills, using primary and secondary data sources to support evidence-based arguments and decisions in the context of digital economy and policy.

Applying Knowledge and Understanding

Students will have acquired the ability to critically assess and evaluate existing public policies, identifying their strengths and areas for improvement. They will be able to propose alternative solutions or suggest modifications to achieve desired objectives, and assess the economic impacts of policy actions at both microeconomic and macroeconomic levels, also with respect to digital good and services.

Independent Judgment

Students will develop independent judgment in analyzing the economic effects of digital economy and innovation, understanding the differences between various types of innovation as well as digital good and services, and the link between innovation’s potential economic consequences and the structural and market contexts in which they unfold.

Communication Skills

Students will develop the ability to use the analytical tools of economic analysis to understand and clearly present, both in writing and orally, the characteristics, determinants, and economic implications of technological innovation and digital economy.

Learning Skills

Throughout the course, students will develop essential learning skills to effectively face economic challenges. They will be able to grasp key features and the evolutionary process of technological change and innovation, recognize the heterogeneity of these processes, and critically interpret the economic implications of different forms of innovation. They will also deepen their understanding through independent research and critical analysis of primary and secondary sources, continuously improving their skills in the field of economic policy

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The exam can be taken either in written or oral form.

Oral exams are scheduled only at the central location. The oral exam consists of an interview with the Commission on the contents of the course. The written exam consists of a test with 30 questions. For each question the student must choose one of 4 possible answers. Only one answer is correct. Both oral and written questions are formulated to assess the level of understanding of the theoretical notions and the ability to reason using these notions. The questions on theoretical notions will allow the level of understanding to be assessed. The questions that require the development of reasoning will allow the level of competence and autonomy of judgment developed by the student to be assessed. Communication skills and learning ability will also be assessed through direct interactions between teacher and student that will take place during the use of the course (video conferences and papers proposed by the teacher).

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The course is structured into 60 video lectures, organized across 10 modules:

MODULE 1 – ECONOMIC POLICY: DEFINITIONS AND OBJECTIVES 1. Economic policy and its objectives 2. Economic models supporting economic policy 3. Welfare economics 4. Identifying objectives according to the “new” welfare economics MODULE 2 – MICROECONOMIC POLICIES 5. Antitrust policies 6. Externalities 7. Public goods 8. Merit and demerit goods, and information asymmetries MODULE 3 – SOCIAL AND ENVIRONMENTAL SUSTAINABILITY POLICIES 9. Income distribution 10. Distributive equity for social well-being 11. Welfare state and healthcare 12. Pension and welfare systems 13. Industrial policies 14. Regional policies 15. Economics and crime 16. Economic policy in the era of globalization 17. Environmental policies MODULE 4 – MACROECONOMIC POLICIES 18. Money 19. Monetary policies 20. Inflation 21. Anti-inflationary policies 22. The Phillips curve and labor policies 23. Growth and development policies 24. New theories of growth and development 25. Fiscal policy 26. Public debt and debt-reduction policies 27. The evolution of EU economic policies 28. Today’s EU economic policies 29. International economic relations: the balance of

payments and exchange rates 30. Exchange rate fluctuations MODULE 5 – ECONOMICS OF DIGITAL INNOVATION 31. Technological progress in the history of economic thought 32. Sources of innovation 33. Macroeconomic analysis of innovation 34. The diffusion of innovation 35. Innovation policies 36. Innovation and sustainable development MODULE 6 – GOODS AND SERVICES IN THE DIGITAL ECONOMY: ICT, ECOSYSTEMS, AND DIGITAL MARKETS 37. An introduction to the Digital Economy 38. Information and Communication Technology 39. Digital Economy Ecosystems 40. Digital Goods and Services 41. Production models and tools 42. Digital Markets MODULE 7 – DIGITAL INNOVATION IN SUPPLY CHAINS 43. Technologies 44. Industry 4.0 45. Circular innovation 46. Digital technologies supporting processes MODULE 8 – ARTIFICIAL INTELLIGENCE, PLATFORMS, AND THE DIGITAL ECONOMY 47. Public provision of “innovation”: the role of universities and academic research institutions 48. Big Data Economics 49. Multisided Platforms 50. The role of artificial intelligence in managing global value chains 51. Drivers of economic globalization: technological innovations MODULE 9 – ECONOMICS OF INNOVATION AND INNOVATION POLICIES 52. Investment in R&D, development and protection of patents 53. Intellectual property and its protection in the digitalized world 54. Special Economic Zones as a tool for territorial innovation 55. Subsidies as instruments of trade policy and tools for innovation 56. FDI as drivers of innovation and competitiveness MODULE 10 – DIGITAL CITIES 57. Strategies for the cities of the future 58. Smart cities 59. Creating public value in smart cities 60. Measuring public value in smart cities

AGENDA

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In the Exam Information section of the course homepage, the exam dates for each academic year are provided.