

Scuola Superiore “G. D’Annunzio”

PhD Program in *Applied Sciences for Business Innovation*

List of Courses

Courses scheduled to begin for the academic year 2023/2024

Courses other than that given in degree or master degree programs.

	COURSE TITLE	TOTAL N. OF HOURS FOR THE ENTIRE CYCLE	DISTRIBUTION DURING THE PHD CYCLE (YEARS IN WHICH THE COURSE IS ACTIVE)	COURSE DESCRIPTION	FINAL ASSESSMENT (YES/NO)
1	Scientific Writing: disseminating the results of scientific research	8	1	<p>The course aims to familiarize PhD students on the writing of scientific papers by highlighting how the publications show common characteristics and a common writing strategy. The general objective is to present the different types of scientific publications, peer review and the role of the referees and the editor (editor in chief and/or associate editor) of the journal. General criteria will be indicated on the drafting of the individual sections of a paper and their preparation:</p> <ul style="list-style-type: none">- choice of the journal;- title and abstract;- list of authors and affiliation;- drafting of the introduction, typical structure and key steps towards the presentation of the results;- results and discussion, in which order to report them and with what criteria;- meticulous preparation of figures and tables;	NO

				<ul style="list-style-type: none"> - conclusions and future prospects; - bibliography; - preparation of the cover letter; - communications in poster format; - oral communications: strategies, mistakes to avoid and suggestions. <p>A secondary objective is to convince PhD students to write scientific papers concerning the results of their research, primarily for the benefit of other students and/or researchers. The following topics will also be covered:</p> <ul style="list-style-type: none"> - description of what is meant by scientific papers; - descriptions of different types of scientific journals and their comparison; - bibliometric logics and the use of some indicators such as the impact factor and the h-index; - use of databases of peer reviewed abstracts and citations, such as Scopus and Web of Science; - green, gold and diamond open access. <p>From an instrumental point of view, the Collections of Electronic Journals made available in our University will be described with the relative methods of access; some wordprocessors, such as LaTeX, particularly dedicated to the drafting of scientific papers and the most widespread applications for the management of bibliographies and/or PDF collections, such as Mendeley, EndNote and BibTex.</p>	
2	Interpretive research: theories, theorisation and methodological approaches	16	1	<p>The course focuses on the adoption of interpretive research approaches in business studies and the social sciences. The main theories, their function within research development and the role of theorising in qualitative research will be presented. Some main methodological approaches for interpretive research will also be covered, with demonstrations of their practical application and related classroom exercises</p>	YES
3	Research methodologies in social sciences	16	1	<p>The course introduces applied research methodologies in the social sciences by offering two teaching modules focusing on qualitative research (8 hours) and quantitative research (8 hours) respectively.</p> <p>The first module ("Introduction to Qualitative Content Analysis") is structured as follows:</p> <ol style="list-style-type: none"> I. Qualitative research in the social sciences: strategies, collection techniques and data analysis methods; II. Qualitative Content Analysis (QCA) as an analysis technique based on coding; III. Coding: approaches, elements, phases and methods; I. and II; IV. Quality of QCA: reliability and validity; V. Some operational aspects of QCA; VI. Examples of reporting the results of QCA; VII. Bibliographical references. <p>The aforementioned contents will enable doctoral students to: (i) know how to place QCA in the methodological framework of social sciences; (ii) know types,</p>	YES

				<p>approaches, phases, methods and main automated coding programmes; (iii) distinguish units of analysis and meaning as well as manage coding phases and worksheets.</p> <p>The second module ('Introduction to quantitative research methods in the social sciences') is structured as follows:</p> <p>I. Methods of investigation: introductory aspects; II. The formulation of research hypotheses; III. The empirical tests: the definition of variables and data collection; IV. The quantitative analysis of the data; V. Multiple linear regression models in business studies; VI. Some examples of quantitative research in Accounting.</p> <p>These contents will enable doctoral students to be able to identify the main methodological processes that characterise quantitative research in the economic-business field, in particular: deduction, operationalisation, data organisation, interpretation and induction.</p>	
4	Statistical Methods in Economics	16	1	<p>In the course "Statistical Methods in Economics", a series of statistical methodologies are presented to analyze either economic or business phenomena. The lectures are aimed at offering a wider baseline for empirical analyses by deepening statistical methodologies mostly applied in economic fields.</p> <p>The main topics covered in the course are related to statistical inference, testing of statistical hypothesis, confidence intervals for mean, variance, and proportions useful for the analysis of economic data. Additionally, the course aims at supplying a deeper knowledge on the statistical open-source software R. This will be done with reference to specific packages as well as to the R language and base programming. The course will improve competences in quantitative analyses for PhD students.</p> <p>The lectures will be supported by empirical cases in different field of economics. These case studies can be replicated during the lectures by the students themselves to enhance their ability to perform empirical analyses.</p> <p>The results expected attain the ability of PhD students to perform more accurate analyses by consolidated statistical methods and inference. Hence, the PhD students will improve their skills to critically assess the use of the underlying methodologies, interpret results from various empirical settings in economics, and appropriately discuss flaws of the statistical techniques under study.</p> <p>These abilities will be evaluated by a test at the end of the lectures. Particularly, students are expected to produce their own applications and case studies. The applied case will be at their discretion. However, applied studies should be performed using the software R studio. Within the discussion, students will be invited to offer their own interpretation of the results.</p>	YES

5	Econometrics	16	1	<p>The primarily objective of the course in Econometrics is to introduce fundamental problems of econometric analysis as well as mathematical and statistical notions useful for the analysis of economic phenomena. The focus will be on linear regression, interpretation of estimated regression coefficients, misspecification problems, heteroskedasticity and omitted variable bias.</p> <p>In line with the multifaceted nature of the PhD program, a wide set of case studies and applications will be presented linked to various economic phenomena as well other disciplines.</p> <p>During the lectures, students will be asked to perform, discuss, and autonomously interpret outputs from different empirical tests based on the estimation of linear regressions using R software. The choice is justified by the fact that this software is broadly adopted in the academia, but, lately, it spread out to different fields including the private sector.</p> <p>A deeper knowledge on how to correctly specify a regression model will be acquired by students with reference to endogeneity problems, measurement error issues, and simultaneity. Further, linear regressions models including dummy variables useful to model discrete choices will be presented in the lectures.</p> <p>Nowadays, the acquaintance of econometric techniques is crucial to approach the study of various economic phenomena and to inform public and private policies.</p>	YES
6	Industrial Ecology as an interdisciplinary model of systemic integration	16	1	<p>Industrial ecology, a field of study with a prominently interdisciplinary character, which has formally consolidated in recent decades, is proposed as a methodological model of systemic integration between multiple disciplinary domains. The evolutionary stages of this field of study will be treated, by outlining its attributes and characteristics. The main approaches and methods associated with it (both internally developed and borrowed from various disciplines) will then be critically reviewed. Amongst these, several have verged into the recent concept of Circular Economy.</p>	YES
7	Multivariate Analysis for Economic data	16	1	<p>In the course "Multivariate Analysis for Economic data", a series of statistical methodologies are presented to improve the skill of PhD students to analyze multivariate economic phenomena. The course is aimed at offering a set of advanced statistical tools and multivariate techniques in many applied studies in economics.</p> <p>Within the lectures, different topics will be covered, including logit,probit, and Poisson regressions as well as log-linear models. The course aims at supplying a deeper knowledge on the statistical open-source software R. This will be done with reference to specific packages and base programming.</p> <p>The lectures will be supported by several empirical cases in the fields of economics. These case studies will be replicated during the lectures together with students to increase their ability to autonomously perform multivariate analyses. Expected results are related to the ability of PhD students to perform accurate analyses by the use of more sophisticated statistical methods. Therefore, students</p>	YES

				<p>will enhance their skills to critically assess the use of the discussed methodologies, interpret results from empirical settings in economics, and appropriately reappraise the statistical techniques presented.</p> <p>Those abilities will be evaluated by a test at the end of the lectures. Particularly, students are expected to produce their own applications and case studies. The applied case will be at their discretion. However, applied studies should be performed using the software R studio. During the class discussions, students will be invited to offer their own interpretation of the results.</p>	
8	Analysis of time series and spatial data in economics	16	1	<p>The course "Analysis of time series and spatial data in economics" will present a series of statistical methodologies with reference to problems related to data dependence arising over time or space. Lectures are aimed at offering a set of statistical tools to cope with these issues and to be applied to the analysis of economic phenomena.</p> <p>During the lectures, different topics will be covered with reference to time dependence and spatial dependence, including Box and Jenkins procedure for time series analysis and spatial econometric models. The course aims at improving knowledge on the statistical open-source software R. This will be done with reference to specific packages devoted to time series analysis and spatial regressions.</p> <p>The lectures will be supported by a set of empirical cases in economics. The case studies could be reproduced during the lectures by students in order to improve their skill to perform empirical analyses autonomously.</p> <p>Results are expected in terms of the ability of students to retrieve accurate insights using statistical methodologies. Accordingly, the PhD students will improve their ability to assess the use of the underlying methodologies, interpret results from a variety of empirical settings, and appropriately discuss appropriateness of the statistical techniques adopted.</p> <p>Finally, these skills will be evaluated by a test at the end of the lectures. Students are expected to present their own applications and case studies. Applied studies should be mandatorily performed in the R software. Within the discussion, PhD students will be asked to present their interpretation of results.</p>	YES
9	Circular economy and sustainability assessment	16	2	<p>The course aims at providing a systematic framework on the definition, evolution and recent developments of the Circular Economy, also through an analysis of the links with the broader concept of Sustainability. The main approaches and tools that come into play in the transition process towards Circular Economy will be described, encompassing different levels of intervention: in particular, the Life Cycle Thinking methodologies (such as, for example, Life Cycle Assessment and Social Life Cycle Assessment), "closed loop" approaches-inspired system solutions and Sustainability indicators.</p>	YES

10	Economic and political geography: analysis methodologies and research tools	16	2	<p>Applied geography aims to use knowledge and geographical skills, to try to overcome social, economic and environmental problems at different scales, revealing its utility nature and social relevance. The areas of synthesis of geographical perspectives are based on three types of dynamics: those properly environmental and territorial, those related to the relationship between environment, society and cultures, and those between individual human beings with different societies. The aim of geographical analysis is to capture a vision of synthesis that can be evaluated at different scales: first local integration, also through innovative community based approaches; the interdependencies between places, that is, the integration between them and the territories, possibly with the creation of territorial networks; finally, the correlations between the scales, for example through new methodologies of analysis such as multilevel perspective. The methodologies of analysis concern quantitative and qualitative evaluations, also using mathematical, spatial and visual representations.</p> <p>Geo-spatial analysis can use inductive methodologies, based on the observation and concrete description of territorial phenomena, to reach a definition and a subsequent classification, and ultimately, the formulation of general theoretical abstractions. On the other hand, deductive methodologies can also be pursued, through the construction of theoretical hypotheses and reference models and then proceed to the collection and processing of data and measurements to verify the initial assumptions and refine the assumptions taken.</p> <p>This module, therefore, intends to focus on: the methods of investigation (inductive and deductive), focusing on the scale of analysis - local (micro), regional (meso), national (macro) and global; the tools for geoeconomic analysis (space, place, territory, region).</p>	YES
11	Measuring productivity	16	2	<p>Quantifying productivity is a <i>conditio sine qua non</i> for empirical analysis in a number of research fields. The identification of the measure that best fits with the specific goals, as well as being data driven, is complicated by the fact that an array of methodologies is available. This course defines productivity/efficiency and provides with an overview of the estimation methods developed by the literature, classifying them according to three main criteria: (i) macro/micro; (ii) frontier/nonfrontier and (iii) deterministic/econometric.</p>	YES
12	Data Envelopment Analysis e Stochastic Frontier Analysis	16	2	<p>The course aims to provide the theoretical foundations and the basic elements of the main benchmarking techniques and to show the application of some of those techniques to the solution of regulatory problems related to public services. In the first part of the course, the elements of economic theory necessary for the understanding of benchmarking techniques attributable to the frontier approach are introduced. In a second part, the parametric and non-parametric techniques for estimating the production and cost frontiers are presented. A focus will be placed on Stochastic Frontier Analysis (SFA) and Data Envelopment Analysis (DEA). In</p>	YES

				the third part of the course, case studies are presented related to problems arising in the regulation of public services whose solution can be identified through the application of the SFA and DEA techniques. In the last part of the course, in order to put the acquired knowledge into practice, guided exercises are performed (R software that will be used).	
13	Basic methods for the analysis of structural change	16	2	The course illustrates the basic tools for the analysis of the structural change of economic systems, emphasizing how important understanding the dynamics of economic systems is to inform policy decisions that aim to promote economic growth and environmental sustainability. Specifically, the course will provide a brief introduction to the theoretical fundamentals of structural change analysis and an overview of methods and models commonly used in empirical investigations, with reference to Input-Output Analysis (IOA). It illustrates how Input-Output Tables are built using data from the national accounts, how Input-Output Tables are used for the analysis of structural change also at regional level and how they can be used for other purposes, such as the assessment of the impacts of public policies and investments on the economic system (for example through the calculation of multipliers and the estimation of sectoral contributions to value added and employment) and on the environment (for example with reference to greenhouse gas emissions and to the breakdown of changes in the energy intensity of GDP). To facilitate student understanding, applications of INA in scientific papers will be presented and the open challenges and limitations of the tool will be discussed.	YES
14	Text as data (using text data in network and time series analysis)	16	2	Text analysis is increasingly utilized in various fields of study, particularly in research applied to social sciences. With respect to textual data, this course aims to focus on methodologies/applications and provide hands-on software exercises in the classroom. Depending on students' interests and the relevance of the proposed applications to the educational path, the lessons may cover the following modules based on text analysis for: - Sentiment or mood measurement on social platforms - Estimating policy uncertainty in economic, climatic, geopolitical, and other domains - Studying the skills demanded by companies - Measuring proximity between businesses - Analyzing strategic choices and technological trajectories pursued by companies.	YES
15	Network analysis	16	2	The increasing use of social media is prompting more and more scholars, researchers, and analysts to resort to network analysis tools and methods. This course aims to provide an introduction to network analysis through the study of key methods and techniques. Throughout the course, we will delve into the principles of network science, discuss major analysis techniques, and explore the visualization/interpretation of various datasets. Attention will be given to definitions and measures for network analysis at the node, cluster (or module), and whole network levels.	YES

				<p>Depending on students' interests and the alignment of the proposed content with the educational path, the lessons may cover the following modules:</p> <ul style="list-style-type: none"> - Introduction to network analysis - Definitions and measures for network analysis - Applications of network analysis - Software exercises - Discussion of real-life cases. 	
16	Empirical labor economics	16	3	<p>The course aims at analyzing the use of empirical methods to deal with economic analysis issues. Starting from the economic literature, the course will highlight how the use of appropriate econometric techniques may help to identify correctly economic effects. The course will privilege an applied approach based on the analysis of specific economic issues. The proposed analysis will be mainly related to the study of the labor market, but the empirical approaches will be valid for the analysis of many economic issues. The course can focus on the following theoretical problems: a) Female labor supply and wages; b) Returns to human capital investment; c) Discrimination in the labor market; d) Unemployment duration. Thus, empirical applications can regard the estimation of wage equations with correction for sample selection, the estimation of Mincer equations and omitted variables, decomposition analysis techniques, and duration analysis. The course will provide the use of STATA software and cross-sectional microdata.</p>	YES
17	Quantitative analyses of economic and behavioral phenomena	16	3	<p>This course aims to develop skills that students could use for: a) the analysis of economic phenomena and decisions (e.g., consumption choices, education choices, participation in the labor market, products/services purchase decisions) based on secondary data (drawn, for instance, from institutional databases or research centres) and primary data (collected, for instance, through random sampling); b) the development of conceptual models capable of describing and interpreting the aforementioned phenomena from a dual perspective: economic and behavioral. The course is structured in two modules. The first module aims to develop skills that can be used for the analysis of statistical-econometric relationships among socio-demographic data (for example, household size), income-related data (for example, average monthly salary) or territorial data (for example, area of residence), and for estimating quantitative models capable of describing these relationships. From a methodological point of view, students will develop skills in the treatment and analysis of micro-data. From a practical point of view, students will learn the STATA software's main functions. The second module aims to develop skills that students could use for the analysis of situational factors (for example, prices), cognitive factors (for example, perceived quality of a product/service), and attitudinal factors (for example, personality traits) that affect individual economic choices (for example, purchasing decisions). From a methodological point of view, students will learn the fundamentals of experimental research. From a practical point of view, students will learn the SPSS software's</p>	YES

				main functions and the basic features of survey creation and data collection platforms.	
18	Performance management, reporting and accountability in public organizations and educational institutions	16	3	The course analyses the approaches to performance management in public enterprises and the related reporting and accountability models that have emerged in the context of the evolution of regulations inspired by the principles of New Public Management and New Public Governance. These perspectives illustrate the main characteristics of their diffusion in the various contexts of the national public sector and, more recently, in that of public educational institutions, which due to their typical features are the subject of specific research perspectives in business studies	YES
19	New trends and methods in the social economy research studies	24	3	This course aims to offer a complete and exhaustive reference framework on the main topics and methods of research relating to companies in the broadly understood social economy (non profit, third sector, social enterprise, charities, benefit societies, etc.). The course may be delivered in Italian and/or English. Teaching materials will be provided in English for the benefit of all students, especially foreign ones. Scholars and experts will speak during the course to offer various points of view on the various topics proposed, with both a theoretical and empirical approach. The teaching will be divided into 4 modules of 6 hours each as follows: Module I - Definitions and classifications; Module II - Measurement and (ac)counting; Module III - Governance and volunteer management; Module IV - New trends and innovations	YES
20	An Introduction to AI	16	3	The course will illustrate the main technologies underlying artificial intelligence. Both symbolic techniques of artificial intelligence and machine learning, in particular neural networks and deep learning, will be presented, also with respect to their applications in business innovation.	YES
21	The new challenges of the financial system between valuation models and risk management	16	3	The module addresses three main lines of research. The first concerns the analysis of the banking system, underlining its evolution on various fronts, such as digitization and attention to transition risks. The second strand concerns measuring and managing financial risks internationally, with the related contagion effects (risk spillover) between the various financial institutions. The third refers to sustainable finance, particularly the study of Green bonds, as instruments for financing production activities with low environmental impact. The analyses are carried out by identifying samples of stock or bonds referring to banks or corporate companies, from which relational elaborations with balance sheets and market data are derived. Through the implementation of methodologies such as Conditional value-at-risk (CoVaR), SRISK, spatial stress-test, Durbin Model, GMM, 2SLS, ARDL, and Wavelet analysis, we can obtain fundamental results, useful both for good micro/macro prudential policies and the identification of new investment opportunities and logics.	YES