PhD Programme in ECONOMICS AND BUSINESS in collaboration with - Sophia University Institute - Universitat Jaume I Curriculum 1: BUSINESS ADMINISTRATION Curriculum 2: POLITICAL ECONOMICS Curriculum 3: QUANTITATIVE METHODS	
DISCIPLINARY SCIENTIFIC AREAS	13 - ECONOMICS AND STATISTICS
COORDINATOR	PROF. VITTORIO PELLIGRA
HEAD DEPARTMENT	DEPARTMENT OF ECONOMICS AND BUSINESS
DURATION	3 YEARS
LEARNING OUTCOMES AND RESEARCH TOPICS	Description of the project: The PhD programme aims to ensure a high-level training in the fields of economics, business, managerial and statistical sciences at the end of which the students will be able to carry out original research, given also the mastery of methods and analytic tools characteristic of economic and business sciences and to the development of a critical attitude towards problems of a scientific and operational nature, as well as the ability to design, organize and finalize projects of research, all aimed at producing original and innovative scientific results. The students will interact in a human environment characterized by high scientific qualification and will be supported by professors and researchers well positioned within the national and international reference networks, networks to which students can draw in order to identify opportunities for collaboration and of study stays abroad. Objectives: The achievement of the following specific training objectives constitutes qualifying elements of the training path: - the development of a research project characterized by a high level of originality and innovativeness; - the publication of scientific products in international journals or with publishers of wide circulation and of recognized quality level; - the acquisition of specific knowledge that cannot be acquired through a traditional tertiary training course; - the mastery of qualitative-quantitative investigation methods and operational tools typical of scientific research in the economic, business and statistical fields and closely linked to modern digital innovation processes; - the development of the skills necessary for participation in calls for funding of research projects on a competitive basis both nationally and internationally; - the ability to integrate into research groups and contribute to the achievement of objectives in a proactive, coordinated and cooperative way; - openness to the international context, both in terms of research activities carried out in foreign institutions and the acquisition of language skills. Particular attention is given to the interdisciplinary nature of the training course. The University of Cagliari, in fact, is among the few in Italy to have brought together business economists, political economists and experts in

	quantitative methods in a single department. This specificity has made it possible to create an interdisciplinary study and research environment and specifically a doctoral program that is aimed at the same time as the training of future researchers in economics and business-economics. At the end of the research path, the research doctor is in the best conditions to be able to start towards a university career, but the method and the critical ability acquired make him able to undertake careers also in the world of extra-academic work (public bodies and companies). The PhD, in fact, will be able to independently carry out a wide range of activities both of a theoretical-analytical nature and of an application type both in the public and private sectors. The PhD in Economics and Business is divided into a three-year period during which the doctoral students acquire specialized skills in three fields of specialization: - Business and Managerial economics - Economics - Quantitative methods. In addition, in-depth courses are provided on specific issues that make it possible to acquire additional interdisciplinary operational skills and a combination of knowledge through which to address and solve complex problems. In particular, the educational path of the Doctorate in Economics and Business can be divided into three levels (only partially coinciding with the three years of the course): - The first level refers to the cycle of basic lectures and seminars which mainly have a methodological content aimed at all participants in the doctorate. This cycle therefore includes lessons in quantitative and qualitative methods for scientific research and supplementary courses for doctoral students on interdisciplinary issues not developed during previous degree courses. At the end of the basic training, the doctoral student will define a research program that he will carry out under the guidance of a supervisor, possibly supported by other teachers, in view of the preparation of the doctoral thesis. - The second level refers to the lectures and seminar cycles for thematic in-depth analysis relating to the three specialization courses. As part of the second level, students will be encouraged to carry out a period of study at other universities, preferably abroad. At the same time, participation in thematic specialization schools as well as internships in research institutions, public bodies and companies may prove useful. - The third level is entirely dedicated to the drafting of the doctoral thesis and will be oriented to an individual training course referring to the specific research project. In this phase, which will take place under the direct supervision of one or more teachers, active participation in the initiatives of the PhD Departments (such as seminars and workshops) will be important. At the same time, participation in international conferences and workshops will be particularly encouraged (and financially supported) during the last phase of the doctorate. It is considered useful to underline that the topics covered by the PhD course activity, in addition to being studied from a theoretical point of view, are also analyzed according to the empirical and operational aspect, paying attention to the techniques that more than others are suitable for responding to needs. of public and private economic organizations operating in the regional,

	national and international context. The development of teaching and research activities takes place through differentiated methodologies that allow a rich and diversified learning activity through: - lessons and seminar cycles aimed at acquiring basic knowledge; - lectures and seminar cycles for in-depth thematic studies for the three specialization courses; - analysis of cases and testimonies of researchers and economic operators; - study experiences in universities or research centers in Italy or abroad; - participation in conferences and workshops - participation in thematic specialist schools - internships at economic research institutes, local authorities or companies, including foreign ones, relating to the topics of the doctorate - preparation of the final thesis. At the end of the second year, the doctoral student will have acquired the advanced specialized skills suitable for the continuation of the research activity and the drafting of the research work. During their course, each PhD student will be supported by a tutor who will take particular care of their training, based on the general guidelines decided by the Teaching Body. The first year of the course will be dedicated to the formation of a common cultural and research base; in subsequent years, in-depth analyzes of specific research topics will be progressively defined, within each thematic direction.
ELIGIBILITY AND OTHER REQUIREMENTS FOR CANDIDATES (ART. 2 - NOTICE OF COMPETITION)	Applicants must hold the following academic qualifications for admission: LM-16 Finanza LM-18 Informatica LM-31 Ingegneria gestionale LM-35 Ingegneria per l'ambiente e il territorio LM-40 Matematica LM-51 Psicologia LM-55 Scienze cognitive LM-56 Scienze dell'economia LM-59 Scienze della comunicazione pubblica, d'impresa e pubblicità LM-63 Scienze delle pubbliche amministrazioni LM-76 Scienze economiche per l'ambiente e la cultura LM-77 Scienze economico-aziendali LM-82 Scienze statistiche LM-83 Scienze statistiche attuariali e finanziarie LM-91 Tecniche e metodi per la societa dell'informazione 19/S (specialistiche in finanza) 23/S (specialistiche in informatica) 34/S (specialistiche in ingegneria gestionale) 38/S (specialistiche in ingegneria per l'ambiente e il territorio) 45/S (specialistiche in matematica) 55/S (specialistiche in progettazione e gestione dei sistemi turistici) 58/S (specialistiche in psicologia) 59/S (specialistiche in pubblicita e comunicazione d'impresa) 63/S (specialistiche in scienze cognitive) 64/S (specialistiche in scienze dell'economia) 71/S (specialistiche in scienze delle pubbliche amministrazioni) 83/S (specialistiche in scienze economiche per l'ambiente e la cultura)

	84/S (specialistiche in scienze economico-aziendali) 91/S (specialistiche in statistica economica, finanziaria ed attuariale) 92/S (specialistiche in statistica per la ricerca sperimentale) and all the other equivalent degrees, according toold Italian Regulations. Foreign candidates: The foreign degree must be comparable in duration and content to the titles listed above and provide access to PhD education in the country of achievement.
ADMISSION TESTS	ASSESSMENT OF QUALIFICATIONS AND CURRICULUM VITAE, INTERVIEW In addition to the documents required in art. 3 of the notice of competition (*Annex A "Titoli valutabili e Curriculum Vitae'; Annex B 'Dichiarazione sostitutiva di certificazioni del/i titolo/i di accesso con esami e voti'; two-sided coloured scanned copy of a valid ID, with a clear photo*), the candidates must upload, within the deadline indicated in the notice: - a letter of motivation (max 4,000 characters, including spaces) about the reasons that drive the candidate to choose the doctorate and his/her future projects; - one reference letter, written using the form available on the webpage https://unica.it/dottoratiricerca (How to apply for PhD selection: Guidelines and forms- Annex C), by a university professor or an expert in the research fields of the PhD programme, on letterhead of their institution, dated and signed. Evaluators will send their letters directly to the email address phdcall_referenceletter@unica.it (object: Dottorato_SEA_Surname_Name). - A research project that the candidate would like to develop during the PhD course. This project will be attached by uploading to the system, by the deadline date of the call (file name: Research_Project_Surname_Name). The project, which must not exceed 6,000 characters, including spaces, must specify: 1. the aim of the research 2. the relevant literature 3. the methodologies to be adopted 4. Bibliographic References It should be noted that the research project presented in this phase will not necessarily be the one that the candidate will actually carry out if he/she is admitted to the PhD program. The final research project, to be carried out during the PhD Course, will be agreed upon with the Supervisor and approved by the Teaching Body at the end of the first year of the course. - Where possible, a copy in pdf format of the master's degree thesis. The file will be uploaded to the system by the deadline of the call (file name: Tesi_di_Laurea_Cognome_Nome). The letter of motivation, the reference letter, and the research project are not qualifications that can be assessed individually but nevertheless constitute important pieces of information that allow the commission to evaluate more precisely the potential and the propensity to search for the candidate. The interview can also be held in English at the request of the student. Candidates who are unable, for justified reasons, to take the interview at the established location, may be given the opportunity to conduct it by teleconference, on the same date and time established for face-to-face interviews, according to the instructions of the notice of competition.

ADMISSION TESTS FOR FOREIGN CANDIDATES APPLYING FOR RESERVED POSITIONS SUPPORTED BY A SCHOLARSHIP	ASSESSMENT OF QUALIFICATIONS AND CV, VIDEO CONFERENCE INTERVIEW In addition to the documents required in art. 3 of the notice of competition *(certificate attesting the award of a 2nd level foreign degree needed to access a PhD programme, including exams and marks, with a translation in Italian or English; certificate attesting the award of a 1st level foreign degree, including and marks, with a translation in Italian or English; signed Curriculum Vitae preferably in EU format, in English or Italian; up to 3 reference letter(s), in English or Italian, on institutional letterhead paper, dated and signed by a university professor or expert in the PhD scientific area(s), following the prescriptions of each annex; additional qualifications, certifications, publications (up to 5) and work experiences, detailed in English or in Italian; two-sided coloured scanned copy of a valid ID, with a clear photo*), candidates must upload, within the deadline indicated in the notice,: - a letter of motivation (max 4,000 characters, including spaces) about the reasons that drive the candidate to choose the doctorate and his/her future projects; - one reference letter, written using the form available on the webpage https://unica.it/dottoratiricerca (How to apply for PhD selection: Guidelines and forms- Annex C), by a university professor or an expert in the research fields of the PhD programme, on letterhead of their institution, dated and signed. Evaluators will send their letters directly to the email address phdcall_referenceletter@unica.it (object: Dottorato_SEA_Surname_Name). - A research project that the candidate would like to develop during the PhD course. This project will be attached by uploading to the system, by the deadline date of the call (file name: Research_Project_Surname_Name). The project, which must not exceed 6,000 characters, including spaces, must specify: 1. the aim of the research 2. the relevant literature 3. the methodologies to be adopted 4. Bibliographic References It should be noted that the research project presented in this phase will not necessarily be the one that the candidate will actually carry out if he/she is admitted to the PhD program. The final research project, to be carried out during the PhD Course, will be agreed upon with the Supervisor and approved by the Teaching Body at the end of the first year of the course. The interview can also be conducted in English.
TOPICS OF THE INTERVIEW	The candidate's knowledge will be assessed on the macro-topics concerning one of the three disciplinary areas indicated below (Business Economics, Economics, Quantitative Methods) which will be chosen by the candidate and communicated to the examining commission before the interview begins. Business Economics: 1. Cost of production 2. Business economics 3. Principles and postulates for the preparation of the financial statements 4. Informational meaning of the financial statements 5. Systems and tools for measuring performance in companies 6. Corporate subjects and corporate governance 7. Organizational innovation / organizational change 8. Organizational behavior 9. The management of human resources 10. The impact of technologies on the organization

	11. Business behavior and strategic management 12. Corporate management functions 13. The operational management of the company 14. The management of innovation <u>Economics:</u> 1. Consumer theory 2. Theory of the firm 3. Externalities and public goods 4. Asymmetric Information 5. General equilibrium Theory 6. Welfare Economics 7. Long-term growth theory 8. Unemployment and the labor market 9. Business cycle 10. Money and inflation 11. Public debt 12. Fiscal policies 13. Monetary policies <u>Quantitative methods:</u> 1. Elements of statistical inference: Estimation theory, confidence intervals and hypothesis tests) 2. Linear regression model and its possible generalizations 3. Multivariate analysis methods based on the principle of dimensionality reduction 4. Methods of cluster analysis and market segmentation 5. Statistical learning methods for data science 6. Statistical methods and models for the analysis of big data 7. Mathematical methods of economics: Theory of ordinary differential equations with relative economic applications; Elements of dynamic optimization, calculation of variations and optimal control, with relative economic applications; Dynamical systems and stability. 8. Quantitative Finance: Portfolio Selection Theory; Pricing of standard options in the discrete (Cox-Ross-Rubinstein) and continuous (Black & Scholes) model; tactical and strategic asset allocation models; Market risk and related indices.
POSITIONS	5
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POSITIONS WITHOUT SCHOLARSHIP	0
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