

PHD IN	Archaeology, History and Human Sciences
PHD COORDINATOR	Prof. Maria Grazia Melis – mgmelis@uniss.it
PHD PROGRAMME DURATION	3 years
TRAINING GOALS	The main purpose of the Course is to train graduates in advanced research, supporting the increase of knowledge in the disciplines that characterise it, methodological skills, the ability to independently conduct high-level research activities, and the ability to compare and dialogue within the scientific community and with the general public. PhD students will have the concrete opportunity to take part in the numerous scientific activities carried out by the members of the Board and by the scholars who will be called upon to intervene with initiatives of a didactic nature as part of their training. The numerous research activities, in the laboratory and in the field, which are concentrated not only in Sardinia but also in France, Spain, Romania and Tunisia, will be able to count on the active involvement of PhD students. Through a high-level training process, specifically dedicated to refining the critical tools of scientific research, PhD students will be able to familiarise themselves with the methodologies of data collection and processing, up to the realisation of original research paths that will lead them to acquire the skills to publish scientific works in monographic form or in the form of articles for indexed journals.
RESEARCH FIELDS (SSD)	L-ANT/01 – Prehistory and Protohistory L-ANT/02 – Greek History L-ANT/03 – Roman History L-ANT/07 – Classical Archaeology L-ANT/10 – Methodologies of Archaeological Research L-ART/01 – History of Medieval Art L-OR/06 – Phoenician-Punic Archaeology M-FIL/03 – Moral Philosophy M-FIL/06 – History of Philosophy M-PED/03 – Teaching and Special Education M-STO/01 – Medieval History M-STO/04 – Contemporary History
SELECTION	Qualifications, research project and interview (30+20+50)
SCHOLARSHIPS (Distinguished by administrative category)	<u>n. 2 scholarships funded by the University + 1 scholarship funded by the Autonomous Region of Sardinia, pursuant to Regional Law No. 7 of 7 August 2007, "Promotion of Scientific Research and Technological Innovation in Sardinia"</u> Topics:

	- Knowledge and techniques in the Mediterranean: between tradition and innovation from prehistory to the present day - Aspects of the sacred - Settlements and social structures - Economic activities, production processes and the organisation of labour - Funerary practices and society: death and the grieving process - Models of self-representation amongst the elites - Learning processes <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Ancient Globalisation Routes (AnGR): Digital technologies (AI and advanced surveying technologies) for the study of the circulation of raw materials and finished products in Sardinian and Mediterranean Pre-Protohistory
RESEARCH TOPICS FOR PHD RESEARCH PROJECT AND INTERVIEW	The same topics already indicated for the scholarships should be used.
DIRECTIONS REGARDING THE WRITING OF THE RESEARCH PROJECT	The research project must be written in a maximum of 4500 characters including spaces and excluding the bibliography.
INTERVIEW	The interview will take place online

PHD IN	Architecture and Environment
PHD COORDINATOR	Prof. Fabio Bacchini – bacchini@uniss.it
PHD PROGRAMME DURATION	3 years
TRAINING GOALS	The aim of the PhD programme in Architecture and Environment is to train a researcher capable of understanding built spaces and their relationships with the environment and landscape in order to design their management and transformation. In particular, the perspective of the PhD programme is to train new researchers capable of reflecting within action and learning in a self-formative process. The primary objective of the course is to generate new scientists, professionals and entrepreneurs capable of achieving international prominence. The PhD program promotes a systemic and multidisciplinary approach, in which the contents, objectives and research methodologies are consistent with the individual research topics and are open to an interdisciplinary approach as proposed by the course design. The various disciplines that are part of the doctoral programme aim to work in an innovative and sustainable manner with respect to the challenges of an ever-changing society, dealing with material and immaterial objects in relation to the structures and functions of complex ecosystems. In addition to the basic objectives typical of the third cycle of Higher Education, which envisage the perfect mastery of sources within a disciplinary framework relating to one's research, good writing skills in a scientific and academic context and the ability to transmit scientific results through appropriate forms of communication, the PhD Program in Architecture and Environment has as its peculiar objectives the construction of specific contents relating to a research method that responds to specific themes of investigation of the various disciplines pertaining to the course and the construction of operative methodologies that envisage an analytical-constructive reading parallel to a profound reflection on action. The interoperable components between the different fields, in collaboration with various research organisations and territorial government structures, aim to provide research and training capacities that enable the future PhD to respond to issues of particular complexity and specificity even in non-academic environments, such as private companies and local authorities.
RESEARCH FIELDS (SSD)	AGR/14 - Pedology BIO/07 - Ecology GEO/02 - Stratigraphic Geology and Sedimentology GEO/09 - Mineral Georisources and Mineralogical-Petrographic Applications for the Environment and Cultural Heritage ICAR/05 - Transportation ICAR/08 - Construction Science ICAR/09 – Construction Engineering ICAR/12 – Architectural and Urban Technology ICAR/13 – Industrial Design ICAR/14 - Architectural and urban composition ICAR/17 - Drawing ICAR/18 - History of architecture ICAR/19 - Restoration

	ICAR/20 - Urban planning and technology L-ANT/08 - Christian archaeology, late antique and medieval L-FIL-LET/05 – Classical Philology MAT/03 – Geometry MAT/05 – Mathematical Analysis M-DEA/01 – Demo-ethno-anthropological disciplin AGR/14 – Soil Science BIO/07 – Ecology GEO/02 – Stratigraphic and Sedimentological Geology GEO/09 – Mineral Resources and Mineralogical and Petrographic Applications for the Environment and Cultural Heritage ICAR/05 – Transport ICAR/08 – Structural Engineering ICAR/09 – Construction Engineering ICAR/12 – Architectural and Urban Technology ICAR/13 – Industrial Design ICAR/14 – Architectural and Urban Composition ICAR/17 – Drawing ICAR/18 – History of Architecture ICAR/19 – Conservation ICAR/20 – Urban Planning and Design L-ANT/08 – Christian and Medieval Archaeology L-FIL-LET/05 – Classical Philology MAT/03 – Geometry MAT/05 – Mathematical Analysis M-DEA/01 – Demographic and Ethno-anthropological Studies MED/42 – General and Applied Hygiene M-FIL/02 – Logic and Philosophy of Science
SELECTION	Qualifications and interview (30+70)
SCHOLARSHIPS (Distinguished by administrative category)	<u>n. 1 scholarship funded by the University + 1 scholarship funded by the Autonomous Region of Sardinia, pursuant to Regional Law No. 7 of 7 August 2007, "Promotion of Scientific Research and Technological Innovation in Sardinia"</u> Topic: Enhancement and regeneration of tangible and intangible cultural heritage; revitalisation of places and territories; climate change; conservation and rethinking of the environment; ecological transition; the cultural and creative industries; new learning spaces: the role of scientific knowledge, philosophical and historical reflection, and urban, architectural and design projects <u>n. 1 scholarship funded by the Department of Architecture, Design and Urban Planning funded by the FIS-2024-04330 project "Coarse-Graining Inelasticity of Non-Local Lattices" CUP J53C25002130001</u>

	Topic: Study of dissipative phenomena in reticular microstructures and their implications for structural resilience <u>n. 2 scholarships funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: New models of Digital Soil Mapping to support urban planning <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Cultured meat and cellular agriculture: ethical and epistemological challenges in biotechnological innovations for sustainable food systems <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Regional Programme 2021–2027 (145a)</u> Topic: Authorship, agency, responsibility and governance of artificial intelligence systems in critical, high-impact applications <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Regional Programme 2021–2027 (145b)</u> Topic: Study of the non-linear elastic, tribological, mechanical strength and ductility properties of natural fibre-reinforced composites <u>n. 2 scholarships funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145b)</u> Topic: Digital mapping of secondary raw materials for the decarbonisation of the construction industry <u>n. 1 place reserved for international scholarship holders from the Universidade Estadual Paulista “Júlio de Mesquita Filho” (Brazil)</u> Topic: Contribution to initiatives aimed at optimising the use of natural resources and increasing forestry productivity in the medium to long term, with a view to environmental and socio-economic sustainability <u>n. 1 place reserved for international scholarship holders from the Universidad Nacional de Rio Negro (Argentina)</u> Topic: The contribution of women to architecture in the 20th and 21st centuries in Latin America, Spain and Italy
RESEARCH TOPICS FOR PHD RESEARCH PROJECT AND INTERVIEW	1. Architecture, Urban Studies and Cultural Heritage 2. History, Architecture and Territory 3. Architecture and Sustainability Technologies 4. Conservation vs Transformation of Cultural Heritage and Landscape 5. Architecture and Educational Spaces 6. Graphic Languages and Digital Representation 7. Biomimetic Strategies for Complex Problems in Architecture and Engineering 8. Authorship and Agency in Artificial Intelligence 9. Urban Studies, Mobility and Dwelling 10. Participatory Planning and Community Resilience 11. Ecology and Environmental Sustainability 12. Soil Conservation and Land Management 13. Philosophy of Science and Philosophy of Architecture
DIRECTIONS REGARDING THE WRITING OF THE RESEARCH PROJECT	The research project may be written in Italian or English (or in Portuguese for candidates applying for the position reserved for UNESP scholarship holders; or in Spanish for candidates applying for the position reserved for UNRN scholarship holders). Research projects should not exceed 5000 characters (including spaces and excluding the list of references) and should be articulated into the following sections: Title (maximum 70 characters); Short research question (maximum 150 characters); Goals;

	Positioning of the research project with regard to the state of the art in the relevant disciplinary field(s); Methodology; Social and practical implications; Originality. The research project will not receive a separate panel score and will rather be used as a basis for discussion during the interview.
INTERVIEW	In-person or online, at the candidate's choice. For the interview, the foreign language, where applicable, will be English only

PHD IN	Cultures, Literatures, Rights, Tourism and Territory
PHD COORDINATOR	Prof. Carla Bassu – carlabassu@uniss.it
PHD PROGRAMME DURATION	3 years
TRAINING GOALS	PhD students in the PhD Program in Cultures, Literatures, Rights, Tourism and Territory will have to: - develop a theoretical-critical instrumentation adapted to the complex cultural and social scenario generated by globalisation, going back to its social and linguistic cultural roots, in the context of pluralist democracy; - critically examine the transnational dynamics of today's knowledge society and at the same time oppose the uncritical homologation of contemporary reality, drawing on the cultural wealth of the territory and the memory of the past, also in function of a collaboration with companies, local authorities and communities in the perspective of democratic social order; - increase their linguistic, sociological and literary knowledge with a view to broadening their research horizons and international mobility; - provide skills for the use of new research methods through new technologies; - develop skills and research methodologies in relation to cultural activities linked to the territory with a view to economic enhancement; - develop skills relating to technological tools for analysing spatial data
RESEARCH FIELDS (SSD)	ICAR/06 – Topography and Cartography IUS/21 – Comparative Public Law L-ANT/01 – Prehistory and Protohistory L-ANT/03 – Roman History L-ART/04 – Museology, Art Criticism and Conservation L-ART/06 – Cinema, Photography and Television L-FIL-LET/08 – Medieval and Humanist Latin Literature L-FIL-LET/09 – Romance Philology and Linguistics L-FIL-LET/10 – Italian Literature L-FIL-LET/11 – Contemporary Italian Literature L-FIL-LET/13 – Philology of Italian Literature L-LIN/03 – French Literature L-LIN/04 – Language and Translation – French L-LIN/05 – Spanish Literature L-LIN/10 – English Literature L-LIN/12 – Language and Translation – English L-LIN/13 – German Literature L-LIN/21 – Slavic Studies M-FIL/05 – Philosophy and History of Language M-GGR/01 – Geography

	M-GGR/02 – Economic and Political Geography M-PSI/05 – Social Psychology SPS/07 – General Sociology
SELECTION	Qualifications, research project and interview (30+20+50)
SCHOLARSHIPS (Distinguished by administrative category)	<u>n. 2 scholarships funded by the University + 1 scholarship funded by the Autonomous Region of Sardinia, pursuant to Regional Law No. 7 of 7 August 2007, "Promotion of Scientific Research and Technological Innovation in Sardinia"</u> Topics: - The cultural heritage of protohistoric Sardinia: contexts, landscapes and relationships in the Mediterranean - Surrealism and its relationship with the neo-avant-garde: from admiration to protest. Towards a (political) genealogy of anti-surrealist criticism - Simpoietic Networks. Queer genealogies of 20th-century Italian women's writing across literature, theory and the arts <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Technological governance for strategic artificial intelligence: delegation and epistemic competences for the human–AI deliberative process
RESEARCH TOPICS FOR PHD RESEARCH PROJECT AND INTERVIEW	The same themes already indicated for the scholarships should be used
DIRECTIONS REGARDING THE WRITING OF THE RESEARCH PROJECT	Maximum of three folders excluding bibliography
INTERVIEW	In-person or online, at the candidate's choice

PHD IN	Economics, Management and Quantitative Methods
PHD COORDINATOR	Prof. Andrea Carosi – acarosi@uniss.it
PHD PROGRAMME DURATION	4 years
TRAINING GOALS	The PhD program in Economics, Management, and Quantitative Methods (EMQM) at the University of Sassari is a four-year advanced training course that combines a solid theoretical foundation in economics and business studies with rigorous quantitative preparation. The program is structured in two main phases: an initial phase of advanced coursework aimed at developing strong analytical, theoretical, and empirical skills, followed by a research phase focused on the writing of the doctoral dissertation. The dissertation must demonstrate the candidate's ability to conduct original and independent research at a high academic standard. Thanks to its interdisciplinary approach, the wide range of courses offered, and a strong emphasis on innovative methodologies, the EMQM PhD program fosters the development of original intellectual profiles with cross-cutting skills, capable of analyzing the complex dynamics of firms and markets. The program provides advanced, specialized training in economics and management, with particular focus on the application of mathematical, statistical, and computational models in these disciplines. Its overarching aim is to prepare researchers who are equipped to face future challenges, particularly by responding to the growing demand for digital, technical, and scientific skills that are increasingly crucial in academic, professional, and institutional contexts.
RESEARCH FIELDS (SSD)	IUS/04 – Commercial Law M-GGR/02 – Economic and Political Geography SECS-P/01 – Political Economy SECS-P/02 – Economic Policy SECS-P/03 – Public Finance SECS-P/05 – Econometrics SECS-P/06 – Applied Economics SECS-P/07 – Business Economics SECS-P/08 – Business Economics and Management SECS-P/09 – Corporate Finance SECS-S/04 – Demography SECS-S/05 – Social Statistics SECS-S/06 – Mathematical Methods in Economics, Actuarial Science and Finance
SELECTION	Qualifications, Research Project and Interview, in English (30+20+50)
SCHOLARSHIPS (Distinguished by administrative category)	<u>n. 3 scholarships co-funded by the University and the Department of Economics and Business Studies</u>

	Topic: Candidates must submit a research proposal on a topic consistent with the programme's areas of interest (SSD) <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Economic, Managerial and Quantitative Models for Strategic Digital Technologies and Innovation
RESEARCH TOPICS FOR PHD RESEARCH PROJECT AND INTERVIEW	1 - Economics (Microeconomics, Macroeconomics, Econometrics); 2 - Management (Financial Accounting, Business Administration, Public Management, Corporate Finance, Banking, Marketing); 3 - Quantitative Methods (Applied Mathematics, Applied Statistics).
DIRECTIONS REGARDING THE WRITING OF THE RESEARCH PROJECT	The research project must be in English. The research project must be presented, in English, during the interview, with the aid of a presentation with slides (max. 10 slides). As a guide, the project and presentation must have the following structure: - Introduction and related literature; - Motivation; - Data and Methodology; - Expected or Preliminary Results; - Conclusion and expected contributions.
INTERVIEW	Online

PHD IN	Life Sciences and Biotechnologies
PHD COORDINATOR	Prof. Daria Sanna – dsanna1@uniss.it
PHD PROGRAMME DURATION	3 years
TRAINING GOALS	The PhD Programme in Life Sciences and Biotechnologies, organised by academic staff from four departments at the University of Sassari, aims to serve as a centre for advanced training, open to young Italian and international graduates, with the following objectives: to provide a high level of scientific expertise in both basic and applied research; to foster an aptitude for national and international scientific collaboration; to foster the capacity for independent research, both in terms of scientific understanding and the technological implications of the research topics studied. It aims to offer structured training programmes and broadly interdisciplinary research projects to foster interaction and the exchange of knowledge between rapidly growing sectors such as modern biological and biomedical sciences, as well as to promote theoretical and experimental cultural training and multiple interactions with national and international laboratories. The aim is to enable students to engage with other study and research environments, thereby increasing their employment prospects, including beyond the academic sphere. The programme comprises two curricula: • One Health, Biodiversity and Conservation, • Translational medicine: molecular and clinical sciences, and digital technologies.
RESEARCH FIELDS (SSD)	BIO/05 – Zoology BIO/07 – Ecology BIO/09 – Physiology BIO/10 – Biochemistry BIO/11 – Molecular Biology BIO/16 – Human Anatomy BIO/18 – Genetics BIO/19 – General Microbiology ING-INF/06 – Electronic and Computer Bioengineering MED/04 – General Pathology MED/05 – Clinical Pathology MED/07 – Microbiology and Clinical Microbiology MED/09 – Internal Medicine MED/16 – Rheumatology MED/26 – Neurology MED/33 – Musculoskeletal Disorders M-PSI/02 – Psychobiology and Physiological Psychology VET/05 – Infectious Diseases of Domestic Animals

SELECTION	Qualifications and interview (30+70)
SCHOLARSHIPS (Distinguished by administrative category)	<u>Curriculum in One Health, Biodiversity and Conservation</u> <u>n. 1 scholarship funded by the Department of Biomedical Sciences</u> Topic: Study of the molecular basis of the pathogenicity of <i>Trichomonas tenax</i> and its role in oral diseases <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Research topic: Integrated biosensing framework for assessing ecological status and ecosystem services in marine habitats through the integration of eDNA, acoustic and video data <u>n. 1 scholarship funded by the Institute of Biomedical Sciences of Defence – Ministry of Defence</u> Topic: Metagenomic characterisation of bioaerosols using high-throughput sequencing technologies and the development of bioinformatics pipelines for microbiome analysis and the monitoring of pathogenic microorganisms in indoor and outdoor environments <u>n. 1 position without a scholarship</u> Research topic: RNA viruses and various species of <i>Trichomonas</i>: molecular epidemiology and in vitro study of their potential role in protozoan pathogenicity <u>Curriculum in Translational Medicine: Molecular and Clinical Sciences and Digital Technologies</u> <u>n. 1 scholarship funded by the University</u> Topic: The role of infections and endogenous retroviruses in autoimmune, neurodegenerative and oncological diseases. Human endogenous retroviruses (HERVs) and exogenous bacterial and viral infections represent a fundamental link between genetics and environmental factors in the aetiology of complex diseases. Normally silenced within the genome, HERVs can be reactivated in response to infectious triggers, triggering autoimmune reactions, chronic neuroinflammation and oncogenic transformations. From multiple sclerosis to type 1 diabetes, from ALS to cancer, the candidate should discuss these mechanisms with a view to opening up new frontiers for early diagnosis and the development of innovative targeted therapies <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Programme 2021–2027 (145a)</u> Topic: Isolation and structural-functional characterisation of bioactive compounds from marine invertebrates, of potential interest in the biomedical and bioengineering fields <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Regional Programme 2021–2027 (145a)</u> Topic: Precision immunobiology and advanced biotechnologies for neurodegenerative diseases <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Mixed reality applications and wearable sensors for motor rehabilitation

	<u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Development of a bioinformatics-based Clinical Decision Support System utilising Real-World Data and AI for sero-immunological risk stratification and the early prediction of high-cost organ complications in systemic autoimmune rheumatic diseases <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Integrated multi-omic and artificial intelligence platform for the advanced diagnosis of central nervous system infections <u>n. 1 place reserved for international scholarship holders from Shantou University</u> Topic: Activities will focus on large-scale disease risk stratification, integrating clinical data, environmental factors, lifestyle factors and population genetic profiles. The candidate must demonstrate expertise in the design of observational studies and the analysis of healthcare big data, proposing a research plan capable of translating complex health determinants into highly personalised primary and secondary prevention models for the communities associated with Shantou University Medical College and the University of Sassari <u>n. 1 place reserved for international scholarship holders from Shantou University</u> Research topic: The candidate will be required to submit a translational research project to be carried out in the state-of-the-art laboratories of Shantou University Medical College, focusing on the functional characterisation of molecular alterations and the use of in vitro or ex vivo models to guide the selection of targeted and personalised therapies. The molecular and cellular research project will explore the biological mechanisms underpinning pathological heterogeneity with a view to identifying innovative therapeutic targets.
RESEARCH TOPICS FOR PHD RESEARCH PROJECT AND INTERVIEW	The same themes already indicated for the scholarships should be used
DIRECTIONS REGARDING THE WRITING OF THE RESEARCH PROJECT	The project must be consistent with the educational objectives of the PhD programme and with the specified areas of interest, and must describe the objectives, methodology, expected results and potential practical applications of the research. The research proposal must be no longer than 3 pages.
INTERVIEW	Online

PHD IN	Agricultural Sciences
PHD COORDINATOR	Prof. Severino Zara – szara@uniss.it
PHD PROGRAMME DURATION	3 years
TRAINING GOALS	The PhD program aims to train highly qualified researchers capable of conducting research of the highest scientific standard and of meeting the needs for innovation and development within agri-food, forestry and environmental systems at regional, national and international levels. The programme is structured around the following research areas: i) agrometeorology, plant ecophysiology and crop adaptation to climate change; ii) productivity, sustainability and resilience of cropping systems; iii) management, protection and enhancement of agricultural and forestry production systems, with particular reference to the conservation of natural resources and ecosystem services; iv) agricultural and agri-food biotechnologies aimed at innovation in production processes and the sustainability of supply chains; v) livestock rearing and breeding techniques, animal nutrition and feeding, applied genetics and the genetic improvement of livestock species, including through the use of molecular biology techniques, as well as the quality, safety and enhancement of food products of animal origin; vi) the study of soil degradation processes, understood as the actual or potential loss of soil productivity and functions due to natural and human-induced factors, with particular attention to the effects on food security, livelihoods and the provision of ecosystem goods and services; vii) analysis of the factors and processes leading to soil degradation, desertification and the loss of ecosystem functions, as well as the development of prevention, mitigation and restoration strategies. Over the course of the three-year programme, PhD students acquire solid methodological and scientific skills to design and carry out original research, ranging from the formulation of scientific questions to experimental design, and from conducting field and laboratory work to the quantitative analysis of data using advanced mathematical and statistical tools. The programme also develops skills in the critical evaluation of results, their interpretation in accordance with the principles of the scientific method, and the communication and dissemination of research through scientific publications, participation in conferences and the transfer of knowledge to industry and society.
RESEARCH FIELDS (SSD)	AGR/01 – Rural Economics and Valuation AGR/02 – Agronomy and Arable Crops AGR/03 – General Arboriculture and Tree Cultivation

	AGR/04 – Horticulture and Floriculture AGR/05 – Forest Management and Silviculture AGR/07 – Agricultural Genetics AGR/08 – Agricultural Hydraulics and Hydraulic-Forestry Works AGR/09 – Agricultural Mechanics AGR/10 – Rural Construction and Agroforestry Landscapes AGR/11 – General and Applied Entomology AGR/12 – Plant Pathology AGR/13 – Agricultural Chemistry AGR/14 – Soil Science AGR/15 – Food Science and Technology AGR/16 – Agricultural Microbiology AGR/17 – General Animal Science and Genetic Improvement AGR/18 – Nutrition and Special Diets AGR/19 – Specialised Animal Science AGR/20 – Animal Husbandry BIO/02 – Systematic Botany BIO/03 – Environmental and Applied Botany SPS/07 – General Sociology
SELECTION	Qualifications and interview (30+70)
SCHOLARSHIPS (Distinguished by administrative category)	Curriculum in Agrometeorology and Ecophysiology of Agricultural and Forestry Systems <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145b)</u> Topic: Regenerative agricultural systems for the ecological transition: integrated circular models (machine learning and crop models) to support production, resilience to climate change, and the protection of natural resources Curriculum in Microbial Biotechnology and Food Technology <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Functional screening of a yeast mutant library for the identification and characterisation of the antimicrobial mechanisms of action of natural molecules derived from the biotransformation of agri-food waste to combat antibiotic resistance <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Innovative rhizobial bioinoculants for sustainable nitrogen fixation in Mediterranean agroecosystems <u>n.1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u>

Topic: Biotechnological strategies for the valorisation of sheep offal through the production of functional ingredients for the food and feed sectors

Curriculum in Desertification and Land Degradation

n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145b)

Topic: Development and optimisation of eco-sustainable strategies to reduce environmental impact and protect natural resources in rice-growing systems

n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)

Topic: Innovative biotechnological approaches to the control of mycotoxin-producing fungi using volatile organic compounds of microbial origin

Curriculum in Monitoring and Control of Agricultural and Forest Ecosystems in the Mediterranean Environment

n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)

Topic: Advanced digital technologies for the green transition in agriculture: autonomous entomological monitoring, Artificial Intelligence and sustainable resource management

n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145b)

Topic: STEP technologies for soil resilience: utilisation of agricultural and industrial by-products to improve the health of degraded soils

n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Regional Programme 2021–2027 (145a)

Topic: NFS-AI4FAIR – Trustworthy artificial intelligence for the structuring and FAIRification of hydrological and environmental data

n. 1 scholarship co-funded by the University and the Department of Agriculture

Topic: Development, implementation and validation of multiple UAS systems (drone swarms) managed via the M.A.R.S® platform for the distribution of inputs in agricultural systems

n. 1 scholarship co-funded by the University and the Department of Agriculture

Topic: Innovative approaches to the study, monitoring and management of forest pathogens

n. 1 position without a scholarship

Topic: Development, use and validation of neural networks in the monitoring of plant growth and productivity in agricultural and forestry systems

Curriculum in Crop Productivity

n. 1 scholarship funded by the Autonomous Region of Sardinia, pursuant to Regional Law No. 7 of 7 August 2007, "Promotion of Scientific Research and Technological Innovation in Sardinia"

Topic: From genotype to phenotype in the field: integrated characterisation of genetic resources of grain legumes

	<u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: From the pan-genome of Sardinian grapevine varieties to the identification of traits important for adaptation and quality <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Multi-omic integration for the characterisation and conservation of functional genetic diversity in crops to support the resilience of Mediterranean agroecosystems <u>n. 1 position without a scholarship</u> Topic: Agronomic, physiological and genetic investigations into the resilience of Sardinian grapevine germplasm Curriculum in Animal Science and Technology <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Utilisation of 2D-to-3D visual image analysis and machine learning techniques to develop objective and rapid quantitative morphological classification systems for sheep and goat body conformation, fatness and udder structural profiles, and associated predictors of milk production integrated with nutritional information <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Development and validation of terrestrial robotic systems for intelligent and sustainable mechanisation in agriculture <u>n. 1 scholarship co-funded by the University and the Department of Agriculture</u> Topic: Development and testing of models of feed intake and nutritional requirements for dairy sheep using previous empirical models, dynamic approaches and Artificial Intelligence (AI) techniques for production contexts equipped with precision livestock farming technologies <u>n. 1 scholarship co-funded by the University and the Department of Agriculture</u> Topic: The new CAP, new balances: European agricultural policies and Mediterranean rural areas <u>n. 1 scholarship funded by “Società Agricola Evervitabio Santa Reparata srl”</u> Topic: Synergies between robotics and agrivoltaic systems for optimising sustainable production <u>n. 1 scholarship funded by the Department of Agriculture</u> Topic: Study of new phenotypes for estimating genomic indices in sport horses <u>n. 1 place without a scholarship</u> Topic: The impact of food fraud in the field of animal-derived products on the market and collective well-being
RESEARCH TOPICS FOR PHD RESEARCH PROJECT AND INTERVIEW	The same topics already indicated for the scholarships should be used

DIRECTIONS REGARDING THE WRITING OF THE RESEARCH PROJECT	
INTERVIEW	In presence or online, at the candidate's choice

PHD IN	Chemical Science and Technology (in agreement with the University of Cagliari)
PHD COORDINATOR	Prof. Sebastiano Garroni – s.garroni@uniss.it
PHD PROGRAMME DURATION	3 years
TRAINING GOALS	The PhD Programme in Chemical Sciences and Technologies (UNISS–UniCA) aims to train highly qualified researchers and professionals capable of devising, developing and coordinating original research activities in the main fields of chemical sciences, working in national and international academic, industrial and institutional contexts. The programme enables PhD students to acquire: • advanced scientific and technological skills in the various fields of chemistry, materials science, biotechnology, pharmaceutical chemistry, computational chemistry, energy, the environment and cultural heritage; • autonomy in the design, conduct and management of research, through an interdisciplinary approach based on the scientific method and problem-solving; • transversal skills in scientific communication, project management, research data management, Open Science, intellectual property, technology transfer and entrepreneurship; • the ability to work in international contexts, through scientific collaborations, mobility programmes at foreign universities, research organisations and companies, and participation in European research networks; • skills focused on sustainability, the ecological and digital transition, and the development of innovative technologies, in line with European and national priorities. The skills developed meet the needs of the local area and the regional and national production system, with particular reference to: • the energy and ecological transition; • the development of advanced materials, clean technologies and biotechnologies; • innovation in the chemical, pharmaceutical, environmental and agri-food sectors; • the enhancement of cultural heritage through advanced chemical methodologies; • technology transfer and the creation of new knowledge-intensive business ventures. The Academic Board comprises scholars of the highest scientific calibre, with extensive national and international experience, as evidenced by: • publications in high-impact international journals; • coordination of and participation in competitive national and European projects; • collaborations with universities, research bodies, major scientific infrastructures and businesses; • patents, technology transfer activities and the commercialisation of research; • organisation of doctoral programmes, workshops and international scientific conferences;

	extensive experience in training young researchers and supervising Italian and international PhD students.
RESEARCH FIELDS (SSD)	CHIM/01 – Analytical Chemistry CHIM/02 – Physical Chemistry CHIM/03 – General and Inorganic Chemistry CHIM/04 – Industrial Chemistry CHIM/06 – Organic Chemistry CHIM/08 – Pharmaceutical Chemistry CHIM/09 – Applied Pharmaceutical Technology CHIM/10 – Food Chemistry CHIM/12 – Environmental and Cultural Heritage Chemistry FIS/01 – Experimental Physics FIS/07 – Applied Physics (to cultural heritage, the environment, biology and medicine) ING-IND/22 – Materials Science and Technology
SELECTION	Qualifications, research project and interview (30+20+50)
SCHOLARSHIPS (Distinguished by administrative category)	<u>n. 1 scholarship co-funded by the University and Alkelux srl</u> Topic: Circular economy and the sustainable utilisation of biomass, by-products and renewable resources. Development of innovative materials using sustainable chemistry and engineering approaches. Design, synthesis and characterisation of functional materials for industrial applications. Innovative processes for the recovery and valorisation of resources from natural and waste-based sources. Materials and technologies for environmental sustainability and the ecological transition. Advanced techniques for the chemical, physical and structural characterisation of materials. Optimisation and evaluation of the performance of materials and processes in accordance with the principles of sustainability and innovation <u>n. 1 scholarship funded by the University of Cagliari</u> Topic: to be chosen from those listed <u>n. 1 scholarship funded by the AUSI Consortium</u> Topic: Development of nanostructured sorbents and catalysts for the removal of hazardous chemical species from water and gaseous mixtures and their chemical conversion into energy carriers and other chemically valuable products <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Development of advanced chemical sensors for integration into multi-sensor platforms dedicated to the monitoring of underground environments <u>n. 4 scholarships funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145b)</u> Topic: Advanced materials and clean technologies for the energy transition and the circular economy

	<u>n. 4 scholarships funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Regional Programme 2021–2027 (145a)</u> Topic: Advanced biotechnology platforms for precision medicine, drug delivery and health <u>n. 3 scholarships funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145b) – UniCA</u> Topic: Clean and resource-efficient technologies (EU Regulation 2024/795, Article 2(1)(a)(ii)). The proposal lies at the intersection of four categories identified in Communication C/2024/3209 (§2.2): transformative industrial technologies for decarbonisation; CO₂ utilisation technologies; advanced materials and 'safe & sustainable by design' manufacturing technologies; circular economy / circular bioeconomy technologies (conversion of by-products into bio-based materials). 3.1.a. Clean and efficient technologies sector (see paragraph 2.2 of Commission Communication C/2024/3209 of 13 May 2024 – indicative table) With reference to paragraph 2.2 of Communication C/2024/3209 of 13 May 2024 and Delegated Act (EU) 2025/1463 referred to in Communication C/2025/6798 of 23 December 2025, the proposal falls within the following indicative sectors of clean and resource-efficient technologies: (i) transformative industrial technologies for the decarbonisation of chemical processes; (ii) CO₂ utilisation technologies (CO₂-to-chemicals); (iii) advanced materials and sustainable manufacturing technologies, including safe and sustainable materials by design; (iv) circular economy and bioeconomy technologies (valorisation of by-products into bio-based functional materials) <u>n. 2 scholarships funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a) – UniCA</u> Topics: a) Digital technologies and innovation in deep tech; b) Clean and resource-efficient technologies; Biotechnology: Advanced sensing technologies, Artificial Intelligence, data analysis, robotics and autonomous systems, deep-tech technologies. Advanced materials, manufacturing and recycling technologies; nanomaterial technologies; smart materials. Autonomous laboratory platforms, machine learning, process digital twins, AI-assisted reaction engineering, high-throughput experimentation, flow chemistry <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a) – UniCA</u> Topic: Nanobiotechnology – Application of nano/microfabrication tools and processes to the construction of devices for use in drug delivery and diagnostics <u>n. 4 places without a scholarship</u> Topic: to be chosen from those listed
RESEARCH TOPICS FOR PHD RESEARCH PROJECT AND INTERVIEW	Content and Research Topics. The PhD Course in Chemical Science and Technology is organised in a single curriculum and comprises 18 advanced research topics. Each area is supported by experienced research groups, specialised laboratories and international collaborations. 1. Nanostructured materials. Design, synthesis and characterisation of innovative nanostructured materials for applications in heterogeneous catalysis, chemical sensors, devices for energy conversion and storage, materials for selective removal of pollutants, biomedical devices and materials for controlled drug release, for CCU Technologies. 2. Complex biological systems. Molecular and functional analysis of biological systems using advanced techniques (NMR, CG-MS, LC-MS) with integrated metabolomics, proteomics and lipidomics approaches. Modelling of interactions between small molecules and biological targets.

3. Modelling and computational chemistry. Molecular simulations, quantum chemistry and molecular dynamics for the study of reactivity, catalysis, intermolecular interactions and spectroscopic properties. Development and application of theoretical ab initio, DFT, and machine learning methods for the prediction of structural and functional properties.

4. Thermodynamic characterisation of liquid mixtures. Experimental and theoretical studies of the thermodynamic properties of mixing, binary or ternary liquid mixtures containing ionic liquids.

5. Industrial catalytic processes. Study of heterogeneous and homogeneous catalysts for chemical reactions with high efficiency, stability and selectivity. Development of sustainable catalytic processes (e.g. biomass utilisation, CO₂ conversion, hydrogen production).

6. Bio-nanointerfaces. Design of biocatalytic processes based on free or immobilised enzymes, innovative immobilisation techniques, development of bioprocesses for the production of intermediates and value-added products in the food, pharmaceutical and environmental sectors.

7. Development of analytical methodologies for the characterisation of materials. Study of the chemical-physical reactivity of surfaces under environmental and biological conditions. Applications in corrosion, catalysis, renewable and environmental energy, tribology and sensor technology.

8. Application of conventional and supercritical carbon dioxide extraction technologies. Use of supercritical CO₂ and other green solvents for the extraction of active ingredients from plant matrices, natural products or agro-industrial waste. Optimisation of process parameters for selective and sustainable separation. Applications in nutraceuticals, cosmeceuticals and pharmaceuticals.

9. Design and development of new synthesis methods for obtaining complex organic molecules. Study of stereoselective reactions catalysed by transition metals for the synthesis of bioactive and natural compounds. Rational design of synthetic strategies for the construction of complex molecular architectures with pharmacological potential. Development of green synthetic strategies based on alternative approaches with environmentally friendly, solvent-free solvents using mechanical, microwave or ultrasonic milling, or in continuous flow. Application to industrial chemical processes with reduced environmental impact.

10. Synthesis, characterisation, properties and reactivity of new inorganic or organometallic compounds. Design and synthesis of new metal complexes with catalytic, magnetic, electronic and pharmacological properties. Characterisation using spectroscopic techniques, X-ray crystallography, computational modelling. Study of reactivity and potential applications.

11. Molecular materials. Synthesis and characterisation of coordination polymers, MOFs and COFs, with applications in electronic devices, optoelectronics, environmental sensing, gas separation and storage. Design of molecular sensors (fluorescent, redox) for environmental and health analysis.

12. Analytical methodologies and applications. Development, validation and application of instrumental analysis methods to real matrices. Development of optical and electrochemical sensors for analytes in food, environmental and biomedical matrices. Study of complexometric systems for heavy metal detoxification.

13. Design, synthesis and characterisation of new ligands and metal complexes. Design and synthesis of small molecules as potential drugs (anticarcinogens, antivirals, anti-inflammatories). Study of structure-activity relationships (SAR), in vitro and in vivo tests. Use of rational drug design approaches, molecular docking and QSAR.

14. Design, synthesis and biological evaluation of small molecules. Synthesis, characterisation and biological evaluation of new chemical structures with potential pharmacological activity.

	15. Design and testing of innovative platforms for drug delivery through different routes of administration. Development of nanosystems (liposomes, polymeric nanoparticles, nanocrystals, micelles, vesicles, microemulsions) for targeted and controlled drug delivery. Integration with molecular diagnostic strategies (theranostics). Study of new routes of administration (transdermal, nasal, pulmonary) using innovative platforms. 16. Pharmaceutical chemical and toxicological analysis. Validation of LC-MS/MS methods for the analysis of drugs, metabolites and emerging drugs in biological fluids. Study of pharmacokinetics, pharmacodynamics and metabolism of bioactive molecules. Applications in forensic medicine, clinical pharmacology and environmental toxicology. 17. Cultural heritage. Archaeometric studies and development of inorganic consolidants. Study of historical materials (ceramics, metals, glass, obsidian) and their degradation. Development of conservation strategies based on nanomaterials and corrosion inhibition techniques. Application of portable in situ diagnostic techniques and deterioration prediction models. 18. Polymeric materials. Design of polymers from renewable sources, biodegradable materials for sustainable packaging, polymeric devices for biomedical, sensor and energy devices. Study of innovative production processes (3D printing) and modelling.
DIRECTIONS REGARDING THE WRITING OF THE RESEARCH PROJECT	Language: english Title: Abstract (maximum 300 words) State of art (maximum 800 words max 5 references included) Description of the project over three years: methodologies, activities, objectives, and novelties with respect to the state of art (maximum 1200 words maximum 2 figures, one of which figure should be the Gantt chart) Expected results, potential applications, and scientific, social, and economic impact (max 500 words references included)
INTERVIEW	In presence or online, at the candidate's choice

PHD IN	Juridical Sciences
PHD COORDINATOR	Prof. Omar Chessa – ochessa@uniss.it
PHD PROGRAMME DURATION	3 years
TRAINING GOALS	The objective pursued by the PhD Programme is that of Higher Education in the field of law, with specific attention to the various curricula, which respond to needs that are especially felt in the area in which the Doctoral programme operates, but with the intention of constituting a pole of attraction for scholars from other national areas and abroad. With regard to the first curriculum, the PhD aims to provide doctoral students with tools for the legal analysis of supranational and state institutions, through recourse to doctrinal, jurisprudential and legislative formants. The curriculum also pays particular attention to the interactions between law and the economic world, and aims to stimulate inter-individual cooperation between researchers, overcoming the individualistic approach that usually characterises legal studies. With regard to the second curriculum, the Course intends to develop the study of the forms of protection of rights, activities and cultural heritage, which have assumed relevance not only at a national and international level, but also in the island's territory. The Course also aims to strengthen the international dimension of research in the field of culture, thanks to the numerous international agreements concluded with foreign universities involving European and non-European scholars. The objective of the third curriculum is to train PhDs able to give theoretical support to the study of rights in contemporary society, in which the dimension and extent of rights is changing due to rapidly evolving political, social, economic and cultural phenomena. The curriculum also aims to introduce innovative approaches to the themes of justice systems, with indepth studies of the new procedural paths introduced by the Cartabia reform and the study of alternative methods of dispute resolution. In terms of method, the Programme intends to provide the necessary tools for learning suitable research methodologies, through the organisation of in-depth seminars, conferences and external collaborations. This activity is aimed at training scholars who demonstrate the maturity achieved through original monographic study, which makes an adequate scientific contribution to legal research.
RESEARCH FIELDS (SSD)	IUS/01 – Private Law IUS/02 – Comparative Private Law IUS/04 – Commercial Law IUS/05 – Economic Law IUS/06 – Maritime Law IUS/08 – Constitutional Law IUS/09 – Institutions of Public Law IUS/10 – Administrative Law IUS/12 – Tax Law

	IUS/15 – Civil Procedure Law IUS/16 – Criminal Procedure Law IUS/17 – Criminal Law IUS/18 – Roman Law and Ancient Law IUS/20 – Philosophy of Law IUS/21 – Comparative Public Law
SELECTION	Qualifications, written and interview (30+35+35)
SCHOLARSHIPS (Distinguished by administrative category)	<u>n. 1 scholarship funded by the Autonomous Region of Sardinia, pursuant to Regional Law No. 7 of 7 August 2007, "Promotion of Scientific Research and Technological Innovation in Sardinia"</u> Topic: Constitutional and public law <u>n. 1 scholarship funded by the University</u> Topic: Criminal law <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Artificial intelligence, transformations in regulation and predictive justice <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Regional Programme 2021–2027 (145a)</u> Topic: Law, bioethics and liability: regulation of pharmaceutical products and medical technologies <u>n. 1 place without a scholarship reserved for members of the Italian Navy's Maritime Military Police Corps</u> Topic: The underwater environment as a new dimension of maritime law
RESEARCH TOPICS FOR PHD RESEARCH PROJECT AND INTERVIEW	The same topics as already indicated for the scholarships should be used
GUIDELINES FOR THE WRITTEN EXAM	The topic of each written exam will be selected on the day of the exam and will relate to the subject areas associated with the various positions available.
INTERVIEW	In presence

PHD IN	Medical, Surgical and Experimental Sciences
PHD COORDINATOR	Prof. Margherita Maioli – mmaioli@uniss.it
PHD PROGRAMME DURATION	3 years
TRAINING GOALS	General objective: To train highly qualified researchers to be employed in both basic and applied research structures, both public and private. The training objective will also be pursued in collaboration with other Italian and foreign universities or by means of agreements with public and private entities possessing the requisites of high cultural and scientific qualification, as well as adequate personnel, facilities and equipment. The training of the PhD student will also be aimed at his/her insertion in the world of work and in the country's production system at public and private institutions. Specific objectives: - focus the training and research activity on extended scientific and methodological areas of great relevance for basic and applied research in the field of biomedical sciences; - carry out the proposed topics within the curricula with an interdisciplinary approach; - document the results of scientific activity on the proposed topics by the lecturers involved in the training activity; - carry out specific aspects of the training activity within the framework of interchange projects established with public and private research bodies, both Italian and foreign, willing to host doctoral students in their facilities. In order to achieve these training objectives, the PhD program will set up a joint teaching committee, which will provide for the organisation, rationalisation and coordination of the teaching activity
RESEARCH FIELDS (SSD)	BIO/09 – Physiology BIO/12 – Clinical Biochemistry and Clinical Molecular Biology BIO/13 – Applied Biology BIO/14 – Pharmacology BIO/16 – Human Anatomy BIO/17 – Histology CHIM/10 – Food Chemistry FIS/07 – Applied Physics (to cultural heritage, the environment, biology and medicine) MED/01 – Medical Statistics MED/03 – Medical Genetics MED/04 – General Pathology MED/06 – Medical Oncology MED/07 – Microbiology and Clinical Microbiology MED/08 – Pathological Anatomy MED/09 – Internal Medicine

	MED/10 – Respiratory Diseases MED/11 – Cardiovascular Diseases MED/12 – Gastroenterology MED/15 – Haematological Diseases MED/17 – Infectious Diseases MED/18 – General Surgery MED/19 – Plastic Surgery MED/25 – Psychiatry MED/28 – Dental and Oral Diseases MED/29 – Maxillofacial Surgery MED/30 – Diseases of the Visual System MED/31 – Otorhinolaryngology MED/35 – Skin and Venereal Diseases MED/36 – Diagnostic Imaging and Radiotherapy MED/40 – Gynaecology and Obstetrics MED/41 – Anaesthesiology MED/42 – General and Applied Hygiene MED/43 – Forensic Medicine MED/49 – Applied Diabetes Sciences M-EDF/01 – Methods and Pedagogy of Physical Activity
SELECTION	Qualifications, research project and interview (30+20+50)
SCHOLARSHIPS (Distinguished by administrative category)	Curriculum in Biology, Genetics and Molecular Oncology <u>n. 1 scholarship funded by the IEO</u> Topic: Genetic studies in the Sardinian population to identify genetic associations and highlight therapeutic targets for diseases common on the island Curriculum in Neuroscience <u>n. 1 scholarship funded by the Autonomous Region of Sardinia, pursuant to Regional Law No. 7 of 7 August 2007, "Promotion of Scientific Research and Technological Innovation in Sardinia"</u> Topic: The role of oxidative stress in the pathogenesis and progression of neurodegenerative diseases <u>n. 1 scholarship funded by the University</u> Topic: Neuromodulation of superficial and deep brain areas: sites and mechanisms of action, and possible clinical implications <u>n.1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Development and characterisation of biotechnological platforms based on extracellular vesicles for diagnostic and therapeutic applications in neurological and neuropsychiatric disorders

	<u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Development and characterisation of computational models for the identification of electrophysiological biomarkers in physiological ageing and in neurological and neurodegenerative diseases <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Sex-dependent endothelial biomarkers for the early diagnosis and targeted treatment of cardiometabolic diseases: an integrated multi-omic approach Curriculum in Public Health <u>n. 1 scholarship funded by the University of Milan-Bicocca</u> Topic: HPV-associated cancers: new strategies for early diagnosis and clinical monitoring <u>n. 1 place without a scholarship</u> Topic: New biomarkers for the diagnosis and treatment of head and neck cancers <u>n. 1 place without a scholarship</u> Topic: Cellular and molecular morphofunctional characterisation of adipose tissue in breast reconstructive surgery
RESEARCH TOPICS FOR PHD RESEARCH PROJECT AND INTERVIEW	The same topics as already indicated for the scholarships should be used
DIRECTIONS REGARDING THE WRITING OF THE RESEARCH PROJECT	
INTERVIEW	In person or online, at the candidate's choice

PHD IN	Veterinary Sciences
PHD COORDINATOR	Prof. Alberto Alberti – alberti@uniss.it
PHD PROGRAMME DURATION	3 years
TRAINING GOALS	The aim of the PhD programme is to train qualified researchers in the disciplines belonging to the Veterinary Sciences through a multidisciplinary scientific and cultural education transferred also through the provision of highly qualified specialist teaching. In line with the two curricula, the specific training objectives of the course are: - to possess in-depth and up-to-date knowledge of the mechanisms underlying the processes inherent to reproductive and productive biology and animal welfare conditions, with the aim of developing specific knowledge for the development and application of biotechnologies in animal reproduction and to improve the reproductive performance and profitability of livestock farms; - acquire knowledge and technical experience regarding animal production in order to improve its quality through the prudent management of resources and production processes; - develop specific knowledge for the study of animal pathologies and parasitic diseases, also in order to develop all those control measures that, through the optimisation of pharmacological interventions, can allow the quantitative-qualitative improvement of production; - deepen knowledge in the fields of microbiology, epidemiology and infectious diseases and develop specific skills in the study of pathogenesis, immunity, and the control of transverse infectious diseases and zoonoses; - study in depth the latest surgical, obstetric and internal medicine techniques in order to improve and update veterinary clinical practice; - develop specific skills in the fields of pharmacology and toxicology, food microbiology, the control of abiotic contamination, the methodologies required to achieve quality system certification and the policies of EU recognised quality marks in order to enhance the value of animal products and develop innovative processing techniques.
RESEARCH FIELDS (SSD)	AGR/17 – General Animal Science and Genetic Improvement AGR/18 – Animal Nutrition and Feeding AGR/19 – Specialised Animal Science VET/01 – Anatomy of Domestic Animals VET/02 – Veterinary Physiology VET/03 – General Pathology and Veterinary Pathological Anatomy VET/04 – Inspection of Food of Animal Origin VET/05 – Infectious Diseases of Domestic Animals VET/06 – Parasitology and Parasitic Diseases of Animals VET/07 – Veterinary Pharmacology and Toxicology VET/08 – Veterinary Internal Medicine VET/09 – Veterinary Surgery VET/10 – Veterinary Obstetrics and Gynaecology

SELECTION	Qualifications and interview (30+70)
SCHOLARSHIPS (Distinguished by administrative category)	Curriculum in Reproduction, Pathology, Animal Breeding and Animal Welfare <u>n. 1 scholarship funded by the University</u> Topic: A One Health metagenomic approach to understanding pathogen elimination and transmission routes in Sardinian dairy sheep farms <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Development of a physical AI framework for proactive physiological monitoring and the resilience of animals reared in extensive and semi-extensive systems <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Regional Programme 2021–2027 (145a)</u> Topic: Paratuberculosis: a study of the immunopathological and biomolecular mechanisms of the disease <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Vector-borne diseases in the era of climate change: integrating molecular epidemiology, next-generation diagnostics and One Health approaches Curriculum in Food Production, Quality and Safety <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: Implementation and validation of advanced biotechnological applications and population studies for the mitigation of STEC Escherichia coli risk in traditional raw-milk cheeses produced in Sardinia <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u> Topic: In vivo and in vitro study of innovative and sustainable diets and foods aimed at reducing the environmental impact and the use of antibiotics in animal husbandry <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Regional Programme 2021–2027 (145a)</u> Topic: Artificial intelligence-based One Health platform for predictive modelling and the prevention of zoonotic leishmaniasis in Mediterranean ecosystems <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Regional Programme 2021–2027 (145a)</u> Topic: Smart Technologies for Echolocation of Cetaceans in the Mediterranean Sea for Digital Twin and Algorithm Development to Predict Marine Feeding Corridors through Remote Detection and Sanitary Monitoring <u>n. 1 scholarship funded by the Autonomous Region of Sardinia under the Sardinia ESF+ Operational Programme 2021–2027 (145a)</u>

	Topic: Implementation of innovative, low-impact technologies to ensure food safety in traditional food processes and products that are strategic for the economy of the Region of Sardinia <u>n. 1 place without a scholarship</u> Topic: Sustainability of production chains in Sardinia from a One Health livestock farming perspective
RESEARCH TOPICS FOR PHD RESEARCH PROJECT AND INTERVIEW	The same topics already indicated for the scholarships should be used
DIRECTIONS REGARDING THE WRITING OF THE RESEARCH PROJECT	Approximately 5000 characters including spaces, Times New Roman 12, line spacing 1.5, .pdf file format
INTERVIEW	In-person or online, candidate's choice