

DOCTORAL PROGRAMME – COURSE DESCRIPTION

and research topics of the industrial positions

Ph.D. in «Advanced Sciences for Agrifood Systems» – XLII cycle – a.y. 2026/2027

PhD Programme in “Advanced Sciences for Agrifood Systems” – 42nd cycle – academic year 2026/2027

Part I – Course Description

Name	Advanced Sciences for Agrifood Systems
Cycle	XLII (42) – academic year 2026/2027
Accreditation proposal code	DOT26RJB4F (CINECA DOTT26 ministerial platform)
Administrative seat	Institute of Advanced Science for Agriculture (IASA) – Via Cavicchini n. 2, 44037 Jolanda di Savoia (FE)
Proposing structure	Department of Agrifood Sciences
Coordinator	Prof. Pier Sandro Cocconcelli e-mail: rettore@iasaeu.it
Type of organisation	Doctorate in association with companies pursuant to art. 3, paragraph 2, of Ministerial Decree No. 226 of 14 December 2021; industrial doctorate pursuant to art. 10 of the same decree.
Reference scientific-educational areas	• Precision agriculture: digital technologies, artificial intelligence, sensors and big-data analysis • Plant genetics and genomics • Agri-food microbiology • Soil science and regenerative agriculture • Food processing, quality, traceability and safety • Economics, geopolitics, finance, markets and risk management in agri-food chains
Language	English.
Duration and start	3 years. Start of the Programme: 1 November 2026. Enrolment to be finalised by 30 November 2026.
Residential character	The School has a residential and collegial nature and provides students with dedicated study spaces, laboratories and services. Hospitality at the School's residences is assured.
Training objectives	The Programme trains researchers able to conceive, design and carry out independently research programmes of excellence and innovation pathways applied to agri-food systems, with an interdisciplinary and international perspective oriented towards sustainable development, with particular reference to the African Continent and the aims of the Piano Mattei. The pathway integrates agricultural sciences, life sciences, data science, agricultural economics, agribusiness and environmental sustainability, in collaboration with companies, institutions, universities and research centres, to address the challenges of sustainable production, food safety, food security and the adaptation of scientific solutions to different territorial and geopolitical contexts. Upon completion of the pathway, and consistent with the scientific profile developed, there is the possibility of accessing two-year post-doctoral positions at the BF Group's model farms in Africa linked to the Piano Mattei initiatives.
Organisation of teaching	Teaching activity clearly distinct from that of first- and second-cycle courses and functional to research activities, for an average of approximately 93 hours per year per cycle, organised into institutional courses, monographic courses, seminars, laboratory activities and interdisciplinary, multidisciplinary and transdisciplinary training, including courses dedicated to Europe-Africa relations, food security and development cooperation.

Positions offered	22 positions, all covered by a scholarship or company funding, allocated as follows: – 12 scholarship positions funded by the School, of which at least 8 reserved for candidates holding the citizenship of a State of the African Continent, in implementation of the Piano Mattei (art. 2 of the call), with a separate merit ranking; – 10 industrial positions – Ph.D. Executive (art. 10 of Ministerial Decree 226/2021), reserved for employees of the partner companies, supported by company funding and tied to the research topics referred to in Part II.
Positions without a scholarship	Not provided for the 42nd cycle.
Remuneration	Annual scholarship amount of € 16,243.00 gross of the social-security contributions payable by the recipient (Ministerial Decree No. 247 of 23 February 2022), subject to ministerial updating, paid in monthly instalments, with INPS social-security contributions to the separate management scheme for two thirds payable by IASA. Individual budget for research activity equal to at least 10% of the scholarship amount. No enrolment fee; regional tax for the right to study (ER.GO, € 140.00 for a.y. 2026/2027) payable by IASA. For Ph.D. Executive positions the remuneration is governed by the relevant agreements; for employees who retain their current remuneration no scholarship is paid, without prejudice to the research budget, access to facilities and insurance cover.
International mobility	Periods of study and research abroad authorised up to 6 months, with an increase of the scholarship of 50% for continuous stays of no less than fourteen days. Periods of field research are also provided at model farms, living labs and agro-industrial initiatives operating in African countries within the BFuture Farm project, carried out at the local facilities and partners on the basis of specific hospitality agreements.
Facilities and services	Preparatory and soil-analysis laboratory; biology, microbiology, genetics and genomics laboratory; 20-hectare experimental farm with relevant machinery; 3 climate chambers-phytotrons; plant-imaging systems; digital-agriculture infrastructure with access to 3,000 detection systems; computing systems for modelling, DSS and bioinformatics; drones with multispectral cameras. Open-space areas dedicated to doctoral candidates (150 sq m, one workstation per candidate), laboratories (290 sq m), classrooms and meeting rooms. Individual notebook for each doctoral candidate; access to the Scopus and Web of Science bibliographic databases, to open-access resources (PubMed, Agricola, AgriRxiv, AgEcon Search, FAO-AGRIS) and to the CRUI-CARE agreements being finalised, as well as to software for statistical analysis, modelling, GIS, remote sensing, machine learning and bioinformatics. Research activities also take place at the infrastructure, pilot plants and industrial plants of the BF Group in the sites of Jolanda di Savoia, Cortona and Riccagioia (PV) – which make available agricultural land, regenerative-agriculture and digital-agriculture systems, livestock, biomethane plants and food-processing plants.
Selection schedule	– Deadline for submission of applications: 12:00 noon (Italian time) on 21 September 2026; – Publication of the list of those admitted to the interview: 5 October 2026; – Interviews: 12 October 2026; – Publication of the ranking: 16 October 2026. The interviews are held in person in Jolanda di Savoia (FE) or remotely, according to the option indicated in the application. In setting the times the Committee takes into account the time zones of candidates connecting from abroad.
Required documentation	Compulsory and optional documents as indicated in art. 4 of the call. The research topic, in English and no longer than one page, indicates the title, the research objectives and questions, the methodological approach and the main bibliographic references, with reference to the scientific areas of the Programme and, for the tied positions, the topics referred to in Part II.
Evaluation criteria	Assessment of qualifications and research topic – maximum 50 points. The Committee assesses the Curriculum Vitae et Studiorum, the scientific qualifications and the research topic in terms of quality, feasibility and relevance to the scientific areas of the

	Programme. Candidates who obtain a score of no less than 35/50 are admitted to the interview; for the reserved ranking referred to in art. 2, letter a), of the call the threshold is set at 30/50. Aptitude interview – maximum 50 points. The interview, in English, concerns the qualifications and the research topic and ascertains the aptitude for scientific research, the management of complex systems and knowledge of the English language. It is passed with a score of no less than 35/50. Eligibility is achieved by passing both tests and with an overall score of no less than 70/100.
Title awarded	Philosophiae Doctor (Ph.D.), abbreviated «Dott. Ric.», pursuant to art. 4 of Law No. 210 of 3 July 1998. At the student's request and subject to a favourable opinion of the Faculty Board, the Doctor Europaeus mention may be awarded.
Contacts	Doctoral Office – phd@iasaeu.it PEC: iasaeu@legalmail.it Accessibility: accessibilita@iasaeu.it Information: https://www.iasaeu.it/en/academics/phd-programmes

Part II – Research topics of the industrial positions

Industrial doctorate pursuant to art. 10 of Ministerial Decree No. 226 of 14 December 2021

The 10 industrial positions (Ph.D. Executive) are supported by the funding of the partner companies and tied to the research topics indicated below. Candidates interested in these positions submit a research topic consistent with that of the chosen company, indicated in Section B.3 of the application (Annex 2).

Partner company	Positions	Tied research topic
B.F. Agricola S.r.l.	1	<i>Sustainable and climate-resilient agronomic models</i> Development of innovative agronomic models for the sustainability and resilience of agricultural production: response of the main crops (durum wheat, rice, maize, soybean) to abiotic stresses linked to climate change, water and soil-fertility management, large-scale experimentation of precision-agriculture techniques to reduce inputs and improve quality. The doctoral candidate has access to the experimental farms, production infrastructure and company datasets over more than 7,750 hectares of UAA (utilised agricultural area).
B.F. S.p.A.	2	<i>Data-Driven Sustainability Management / Economics and Management of Sustainable Agri-food Systems</i> Analysis of the mechanisms of value creation and distribution in vertically integrated supply chains, with attention to environmental, economic and social sustainability; development of quantitative and data-driven models for risk management (climate, market and supply variables); innovation processes in food processing with reference to nutritional quality, traceability and waste reduction.
B.F. International	1	<i>Transferability of agro-industrial models to African contexts</i> Transferability and adaptability of Italian cropping and agro-industrial systems to sub-Saharan and North African contexts: pedoclimatic specificities; economic, logistical and institutional conditions for building resilient supply chains in developing countries; geopolitical and financial analysis of international agro-industrial investments, including access to credit, public-private partnerships and supply-chain governance models, consistent with the Piano Mattei. Field research at the operating farms of BF International.
Rurall S.p.A.	2	<i>Biostimulants for climate resilience / Agri-data framework and agri risk management</i> Two complementary areas: (1) development and validation of biostimulants for the climate resilience of crops, with field and controlled-environment trials to assess their agronomic efficacy, impact on productivity, quality and tolerance to abiotic stresses and

Partner company	Positions	Tied research topic
		transferability to diversified pedoclimatic contexts; (2) development of an agronomic and management support framework for the collection, processing and enhancement of supply-chain data, based on the integration of field and sensor data and accelerated by artificial intelligence, with applications to supply-chain traceability – including through RFID, serialised QR code, blockchain and origin-certification technologies –, to sustainability indicators and to agri risk management (predictive meteorological, phenological and market models supporting insurance instruments), including the analysis of technology-adoption processes and the impact of digitalisation on the competitiveness of small and medium-sized agricultural enterprises.
DIAGRAM S.p.A.	2	<i>Remote sensing for soil monitoring / AI for ecosystem services and biodiversity credits</i> Digitalisation and precision agriculture: (1) integrated systems for remote monitoring of soil characteristics in agroforestry settings, through the integration of remotely sensed data (satellite imagery and remote sensing), field sensors and agri-environmental time series, supporting agronomic decisions and the sustainable management of resources; (2) advanced computing system based on artificial intelligence for the quantification of ecosystem services and biodiversity credits, with attention to measurability, certification and the enhancement of positive environmental externalities, also in view of transferability to African contexts within the framework of the Piano Mattei.
B.F. Agro-Industriale S.r.l.	1	<i>Durum wheat processing, traceability and sustainable packaging</i> Processing of durum wheat, in particular of the historic Senatore Cappelli variety: milling, pasta-making and baked products aimed at maintaining the nutritional, organoleptic and technological qualities of grain and semolina; advanced methodologies for supply-chain traceability and certification, including isotopic and genomic analysis for origin and varietal authenticity; sustainable packaging and reduction of the carbon footprint; economic and market enhancement of the supply chain.
S.I.S. – Società Italiana Sementi S.p.A.	1	<i>Plant breeding and genomics for Mediterranean and African cropping systems</i> Genetic improvement of herbaceous crops of Mediterranean and African interest: development and validation of new varieties with high adaptability to water and thermal stress through advanced phenotyping, association genomics and genomic selection; research on new genomic techniques (NGT/genome editing) with attention to productivity, resistance to pathogens and nutritional quality; study of the molecular mechanisms of the response to abiotic stresses and development of markers for early selection, in the «from genome to shelf» vision.
Total	10	Industrial positions – Ph.D. Executive

The tied-funding positions are assigned to eligible candidates who have submitted a research topic consistent with that indicated in the relevant agreement. The training and research pathway is defined jointly by the company and the Faculty Board; the doctoral candidate is supported by two Supervisors, one academic and one from the company. For these positions, admission takes place through a dedicated selection procedure, distinct from the ordinary one and with a separate ranking, pursuant to art. 25, paragraph 9, of the Academic Regulations; the same evaluation criteria and the same eligibility thresholds provided for the ordinary procedure apply to it.

This Annex constitutes an integral and substantial part of the competition call and of the rectoral decree of issuance. For anything not expressly provided for, reference is made to the call, to the School's Regulations for Research Doctoral Programmes and to Ministerial Decree No. 226 of 14 December 2021.