

PhD Programme table 37th cycle – PON Call for application “Ricerca e Innovazione” 2014 – 2020



UNIONE EUROPEA
Fondo Sociale Europeo



Errata corrige section “Research Topics” – modified on 15/10/2021

PROGRAMME’S NAME	VETERINARY SCIENCES
DURATION	3 years
PROGRAMME START DATE	01/01/2022
LANGUAGE	Italian, English
COORDINATOR	Prof. Arcangelo Gentile (arcangelo.gentile@unibo.it)
CURRICULA	N/A
RESEARCH TOPICS	Detailed list at the bottom of the present document
PhD POSITIONS	6
ADMISSION PROCEDURE	Qualifications and research proposal evaluation

Available Positions and Scholarships

Actions	Pos. n.	Financial Support	Research topic
Action IV.4 “PhDs on innovation topics”	1	PhD Scholarship	“APP” CREATION FOR MANAGMENT OF MEDICAL DATA FOR DOMESTIC PETS
Action IV.5 “PhDs on green topics” “PhDs on innovation topics”	2	PhD Scholarship	Cellular platforms for the study of toxic effects of persistent environmental pollutants mixtures (POPs) on animal and human health (one-health toxicology)
	3	PhD Scholarship	
	4	PhD Scholarship	Innovative approach to assess the health status of honeybees and other wild pollinators and counteract their decline
	5	PhD Scholarship	Nutritional and feeding strategies to reduce Methane and Nitrogen excretion in dairy cow.
	6	PhD Scholarship	WISE – Welfare and use of Insects in monogastric diets to attain global Sustainability and Environmental protection

Required and Supporting Documents to be attached to the application

(only documents in Italian, English, French, German and Spanish shall be considered as valid and be assessed by the Admission Board)

Only qualifications obtained during the last 5 calendar years shall be taken into consideration, except for the University Degree. **The Admission Board will assess the relevance of the supporting documents to the criteria listed in Art. 3 of the Ministerial Decree 1061/2021 (see also Art. 4 of the Call for applications).**

REQUIRED DOCUMENTS	
Identity document	Valid identity document with photo (i.e. identity card, passport)
Curriculum Vitae	No specific CV format is required

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Degrees	Documents attesting the awarding of the first and second cycle degrees (see Art. 3 of the Call for Applications)
Research proposal	Multi-annual research proposal, with special emphasis on the activities to be completed during the first-year course. The proposal must meet the following requirements: <ul style="list-style-type: none"> - it cannot exceed 20,000 characters, including spaces and formulas, if present. This figure does not include: the title, the outline, references and images (such as graphs, diagrams, tables etc. - where present); - it must be written following the templates provided for Action IV.4 “PhDs on Innovation topics” and Action IV.5 “PhDs on Green topics”. The templates are attached to the Call for Application and available for download on the University website.
SUPPORTING DOCUMENTS	
Publications	Lists of publications (i.e. monographs, articles on scientific journals), minor publications (conference papers, etc.), abstracts and posters presented during national and international conferences, etc.

Evaluation criteria

The **results of the admission exams** will be available from 03/11/2021 on [Studenti Online](#) (select “summary of the requests in progress” > “see detail” and open the .pdf file at the bottom of the page). **No personal written communication will be sent to applicants concerning the examinations results.**

Scores will be expressed in points out of 100, as follows.

Minimum score for eligibility: 60 points

Qualifications evaluation	Graduation final mark. Graduands shall be evaluated on the basis of the Weighted Average Mark (WAM)	10 points max
	Publications	10 points max
Research proposal evaluation		80 points max

Research Topics

n. 1 - INNOVATION

Thematic area SNSI 2014-20	Health, nutrition, quality of life <i>Development trajectories:</i> 1. Bioinformatics
PNR 2021-2027*	4.2 High Performance Computing and Big Data Section 1 - Hardware and software to support the implementation and evolution of large European and national HPC&BD hubs for scientific computing, research and open science.
Project title	“App” Creation for Management of Medical Data for Domestic Pets
Project description	An application will be developed in collaboration with an european software company (Around Pet – Berlin) useful for pet owners to register medical data, images and refertation in a virtual space. This electronic medical record will have limited access managed by the owner of the animal. This could allow to have medical data available in every situation (travels, change of veterinary doctor) and could be useful also to public health institution for epidemiological studies and research.
Mandatory traineeship	12 months
Company type	Software development and communication company
Stay abroad	6 months

n. 2 - GREEN

Thematic area SNSI 2014-20	Health, nutrition, quality of life <i>Development trajectories:</i> 1. Technologies for biomaterials, biobased products and biorefineries
PNR 2021-2027*	5.1 Health

	Section 5: Assessment of the impact of the environment on the outcomes of acute and chronic degenerative diseases
Project title	Cellular platforms for the study of toxic effects of persistent environmental pollutants mixtures (POPs) on animal and human health (one-health toxicology).
Project description	The current permitted levels of environmental pollutants are established on the toxic effects of each of them. However, cellular detoxification systems converge on the same pathways that could be saturated. It is therefore necessary to define the permitted pollution levels based on the combination of pollutants present in the various geographical areas. This project intends to develop cellular platforms based on stem cells and high-throughput technology, for the study of the toxic effects of mixtures of pollutants with particular regard to Persistent Organic Pollutants.
Mandatory traineeship	8 months
Company type	Company that operates in the sector of neuroscience, wound healing and reparative medicine
Stay abroad	6 months

n. 3 - GREEN

Thematic area SNSI 2014-20	Health, nutrition, quality of life <i>Development trajectories:</i> 1. Development of precision agriculture and agriculture of the future
PNR 2021-2027*	Food, bioeconomy, natural resources, agriculture, environment Section 2. Safety and quality of primary productions in objective 1 - integrated pest management in plant and animal production.
Project title	New vaccinal strategies for the sustainability of poultry farming
Project description	Vaccination of chickens for the immunosuppressive Gumboro disease ensure animal health and welfare, reduction of the use of antimicrobials and consequently sustainability of the poultry farming. When applied in the hatchery, vaccination is less stressful for the birds and leads an early protection. The project will focus on (1) assessment of the hatchery application of vaccines usually applied in field and (2) evaluation of immunological parameters and viral circulation after hatchery or field vaccine application.
Mandatory traineeship	6 months
Company type	Agri-food company in the poultry sector
Stay abroad	6 months

n. 4 - GREEN

Thematic area SNSI 2014-20	Health, nutrition, quality of life <i>Development trajectories:</i> 1. Development of precision agriculture and agriculture of the future 2. Nutraceuticals, Nutrigenomics, and Functional Foods 3. Systems for urban environment safety, environmental monitoring and prevention of critical events or risks
PNR 2021-2027*	1.1 General topics 6. Alimentary products, Bioeconomy, Natural resources, Agriculture, Environment 6.4 Knowledge and sustainable management of agricultural and forestry systems
Project title	Innovative approach to assess the health status of honeybees and other wild pollinators and counteract their decline
Project description	Pollinating insects play an important role in the environment. In particular, the honey bee (<i>Apis mellifera</i>) is an ecologically and economically important species contributing directly to human nutrition and health and to global economic sustainability. Recently, there has been a decline in bee populations and other wild pollinators such as osmias and bumblebees. Given the multifactorial nature of this phenomenon, it is necessary to use an innovative approach to assess both their health status and the quality of the environment in which they live. Therefore, this project aims to:

	<ul style="list-style-type: none"> - identify a panel of biomarkers for prognostic/diagnostic purposes to study molecular responses to biotic and abiotic stressors. A proteomic approach will be used to separate hemolymph proteins that can also be analyzed by machine learning algorithms in order to identify those that respond significantly; - monitor the health status of bees and possibly other wild pollinators through the use of new biomarkers; - correlate the health status with environmental exposure to potentially toxic metals, such as cadmium, lead and copper. These elements will be analyzed in biological samples taken from the environment, in insects that are considered important bioindicator organisms and in hive products. <p>Moreover, the project is aimed at promoting the interaction between research and productive activities in the context of the themes of ecosystem conservation, biodiversity, reduction of climate change impacts and promotion of sustainable development.</p>
Mandatory traineeship	6 months
Company type	Company in the beekeeping sector
Stay abroad	6 months

n. 5 - GREEN

Thematic area SNSI 2014-20	Health, nutrition, quality of life <i>Development trajectories</i> 1. Development of precision agriculture and agriculture of the future
PNR 2021-2027*	Food, bio-economy, natural resources, agriculture, environment Sustainable improvement of primary production
Project title	Nutritional and feeding strategies to reduce Methane and Nitrogen excretion in dairy cow.
Project description	1 - to evaluate the effects of the composition of the ration and the use of different additives to reduce the excretion of methane and nitrogen in dairy cow; 2- modeling the role of additives in precision rationing programs
Mandatory traineeship	6 months
Company type	A private Italian company with international reach, operating in the field of production and marketing of food additives that improve the efficiency and sustainability of primary production.
Stay abroad	6 months

n. 6 - GREEN

Thematic area SNSI 2014-20	Health, nutrition, quality of life <i>Development trajectories:</i> 1. Safety of food production
PNR 2021-2027*	6.4 Knowledge and sustainable management of agricultural and forestry systems Section 1 - Sustainable improvement of primary production
Project title	WISE – Welfare and use of Insects in monogastric diets to attain global Sustainability and Environmental protection
Project description	Using insects for animal feed allows the valorisation of agricultural waste/by-products as a substrate for larvae farming, reducing farmland use (therefore lowering feed-food competition and deforestation risks) compared to traditional protein sources. This project will focus on <i>Hermetia illucens</i> (fly soldier) larvae meal. We will 1) investigate the effects of feeding this insect meal to pigs and broilers on their productive performance and welfare, 2) propose indicators for the assessment of the welfare of the farmed insects, 3) propose solutions for the optimization of insect farming techniques in order to reduce the main fixed costs and increase profitability.
Mandatory traineeship	6 months
Company type	Company in the sector of breeding of insects to produce sustainable proteins
Stay abroad	6 months

*The translation of the PNR 2021-2027 references has been carried out by the PhD Unit