

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



UNIONE EUROPEA  
Fondo Sociale Europeo



PROGRAMME'S NAME	BIOTECHNOLOGICAL, BIOCOMPUTATIONAL, PHARMACEUTICAL AND PHARMACOLOGICAL SCIENCES
DURATION	3 years
PROGRAMME START DATE	01/01/2022
LANGUAGE	Italian
COORDINATOR	Prof. Maria Laura Bolognesi ( <a href="mailto:marialaura.bolognesi@unibo.it">marialaura.bolognesi@unibo.it</a> )
CURRICULA	N/A
RESEARCH TOPICS	<a href="#">Detailed list at the bottom of the present document</a>
PhD POSITIONS	4
ADMISSION PROCEDURE	Qualifications and research proposal evaluation

### Available Positions and Scholarships

Actions	Pos. n.	Financial Support	Research topic
Action IV.5 “PhDs on green topics”	1	PhD Scholarship	Sustainable production of nutraceuticals and bioactives from food waste: application to cashew nut shell liquid
	2	PhD Scholarship	Microbiome-based applications for sustainable food production and waste-Streams valorization (MUST)
	3	PhD Scholarship	Emerging contaminants and health: from the study of the effects of endocrine disruptors on human and environmental health to the development of strategies for their characterization.
	4	PhD Scholarship	Green synthesis of compounds of pharmaceutical interest supported by artificial intelligence

### 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	
<b>Identity document</b>	Valid identity document with photo (i.e. identity card, passport)
<b>Curriculum Vitae</b>	No specific CV format is required
<b>Degrees</b>	Documents attesting the awarding of the first and second cycle degrees (see Art. 3 of the Call for Applications)

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<b>Research proposal</b>	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"> <li>- it <b>cannot exceed 20.000 characters</b>, 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);</li> <li>- it <b>must be written following the template</b> provided for Action IV.5 “PhDs on Green topics”. The template is attached to the Call for Application and available for download on the University website.</li> </ul>
<b>SUPPORTING DOCUMENTS</b>	
<b>Publications</b>	Lists of publications (i.e. monographs, articles on scientific journals), minor publications (conference papers, volume’s chapters 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, Maximum score: 100 points

<b>Qualifications evaluation</b>	University degree final mark. Graduands shall be evaluated according to the Weighted Average Mark (WAM).	10 points max <ul style="list-style-type: none"> <li>- 10 points for 110 and Lode</li> <li>- 8 points for 109 to 110 included</li> <li>- 6 points for 105 to 108 included</li> <li>- 4 points for 101 to 104 included</li> <li>- 3 points for 95 to 100 included</li> </ul>
	Publications	10 points max. Only titles within the PhD Programme’s research topics will be evaluated. <ul style="list-style-type: none"> <li>- 3 points for any major publication on scientific journals,</li> <li>- Up to 1 point for any minor publication,</li> <li>- conference poster or other publications</li> </ul>
<b>Research proposal evaluation</b>	Scientific value and innovative nature of the proposal	20 points max
	Ability of the project to foster the synergy between research and the productive world	20 points max
	Identification of parameters allowing the measurability of expected results	20 points max
	Adherence of the proposal to the objectives of the Action PON R&I 2014-21	20 points max

## Research Topics

### n. 1 - GREEN

<b>Thematic area SNSI 2014-20</b>	<b>Thematic Area: <i>Health, nutrition, quality of life</i></b> Development trajectory: Biotechnology, bioinformatics and pharmaceutical development
<b>PNR 2021-2027*</b>	<b>Research Field: Health</b> Area of Application: <i>Pharmaceutical and pharmacological technologies</i> Section: 6. Implementation of the drug discovery process
<b>Project title</b>	<b>Sustainable production of nutraceuticals and bioactives from food waste: application to cashew nut shell liquid</b>
<b>Project description</b>	This project aims to produce drug candidates and nutraceuticals starting from a food waste, cashew nut shell liquid (CNSL). CNSL is composed of phenolic lipids, which represent an interesting molecular scaffold. Green strategies will be developed for the production of nutraceuticals and the development of new bioactive compounds. The project idea is aligned to the "green" trend of the Italian pharmaceutical/nutraceutical sector, based on actions reducing the environmental impact, social responsibility and circular economy.
<b>Mandatory traineeship</b>	6 months
<b>Company type</b>	Molecular and nutraceutical medicine
<b>Stay abroad</b>	6 months

### n. 2 - GREEN

<b>Thematic area SNSI 2014-20</b>	<b>Thematic Area: <i>Health, nutrition, quality of life</i></b> Development trajectory: Biotechnology, bioinformatics and pharmaceutical development
<b>PNR 2021-2027*</b>	<b>Research Field: Health</b> Area of Application: <i>Biotechnologies</i> Section: 5. Microbial Biotechnologies <b>Research Field: Food, Bioeconomy, Natural Resources, Agriculture, Environment</b> Area of Application: <i>Food Science and Technology</i> Section: 3. Enhancement of the microbiome in agro-food production systems
<b>Project title</b>	<b>Microbiome-based applications for sustainable food production and waste-Streams valorization (MUST)</b>
<b>Project description</b>	Microbiomes are source of beneficial functions for the food systems and for waste-streams valorization. In this scenario, the project MUST aims at the implementation of two synergistic microbiome-based applications, favoring the transition to a fully sustainable agri-food production. The first application will tailor microbiomes at the plant-soil interface to improve plant food productivity. The second application will involve the implementation of microbiome-based processes for waste-streams valorization to a vast range of compounds of relevance to the pharmaceutical and nutraceutical industries.
<b>Mandatory traineeship</b>	6 months
<b>Company type</b>	Agrobiotech
<b>Stay abroad</b>	6 months

### n. 3 - GREEN

<b>Thematic area SNSI 2014-20</b>	<b>Thematic Area: <i>Health, nutrition, quality of life</i></b> Development trajectory: Systems for urban environment safety, environmental monitoring and prevention of critical events or risks
<b>PNR 2021-2027*</b>	<b>Research Field: Health – General themes</b> Section: 5. Assessment of the impact of the environment on the outcomes of acute and chronic degenerative diseases

<b>Project title</b>	<b>Emerging contaminants and health: from the study of the effects of endocrine disruptors on human and environmental health to the development of strategies for their characterization.</b>
<b>Project description</b>	Chemical pollution is one of the factors that affects and amplifies climate change, the loss of biodiversity and the degradation of ecosystems. Drugs and cosmetics are considered "emerging" contaminants by the European Environment Agency. In this context, the project will focus on the study of the effects of endocrine interference (EDC) on human and environmental health. New approaches will be developed to identify and characterize EDCs and their effects on the immune and nervous systems.
<b>Mandatory traineeship</b>	6 months
<b>Company type</b>	Valutazioni della sicurezza di dispositivi medici, prodotti dermo-cosmetologici, integratori alimentari e altre categorie di prodotti
<b>Stay abroad</b>	NO

#### n. 4 - GREEN

<b>Thematic area SNSI 2014-20</b>	<b>Thematic Area: <i>Health, nutrition, quality of life</i></b> Development trajectory: Biotechnology, bioinformatics and pharmaceutical development
<b>PNR 2021-2027*</b>	<b>Research Field: Health</b> Area of Application: <i>Pharmaceutical and pharmacological technologies</i> Section: 6. Implementation of the drug discovery process
<b>Project title</b>	<b>Green synthesis of compounds of pharmaceutical interest supported by artificial intelligence</b>
<b>Project description</b>	In this project, statistical methodology and computational modelling will be exploited for the design of green chemical reactions, capable of providing molecules of pharmaceutical interest with a low environmental impact and reduced costs. Through a combined approach, algorithms will be described that identify possible green reactions within the network of all known reactions and subsequently it will be demonstrated that the predicted sequences can be performed experimentally, with a reduction in the number of experiments and the environmental impact.
<b>Mandatory traineeship</b>	6 months
<b>Company type</b>	Chemical and pharmaceutical sector
<b>Stay abroad</b>	6 months

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