

PHD PROGRAMME TABLE 37TH CYCLE

Section "Available Positions and Scholarship" integrated on 29/04/2021

Section "Available Positions and Scholarship" integrated on 06/05/2021

Section "Available Positions and Scholarship" integrated on 07/06/2021

PROGRAMME'S NAME	NANOSCIENCE FOR MEDICINE AND THE ENVIRONMENT
DURATION	3 years
PROGRAMME START DATE	01/11/2021
LANGUAGE	English
MANDATORY STAY ABROAD	3 months
COORDINATOR	Prof. Dario Braga (dario.braga@unibo.it)
CURRICULA	N/A
RESEARCH TOPICS	Detailed list at the bottom of the present document
PhD POSITIONS	10
ADMISSION PROCEDURE	Qualifications evaluation Oral examination

Available Positions and Scholarships

Pos. n.	Financial Support	Description	Positions linked to research topics
1	PhD Scholarship	Totally funded by the University of Bologna general budget	
2	PhD Scholarship	Totally funded by the University of Bologna general budget	
3	PhD Scholarship	Totally funded by the University of Bologna general budget	
4	PhD Scholarship	Totally funded by the University of Bologna general budget	
5	PhD Scholarship	Totally funded by the Department of Chemistry "Giacomo Ciamician"	
6	PhD Scholarship	Co-funded by the University of Bologna general budget under the Progetti di Sviluppo Strategico dei Dipartimenti (PSSD) initiative, by the Department of Industrial Chemistry "Toso Montanari" and by the Department of Chemistry "Giacomo Ciamician"	Characterization of transitions metal homogeneous catalysts
7	PhD Scholarship	Co-funded by the University of Bologna general budget, the Department of Chemistry "Giacomo Ciamician" and the Department of Physics and Astronomy "Augusto Righi" with funds made available by the project H2020 "Condor - COmbined suN-Driven Oxidation and CO2 Reduction for renewable energy storage- CONDOR" (Grant Agreement n° 101006839), P.I. Prof. Luca Pasquini	Nanostructured semiconductors for photoelectrochemical energy conversion
8	PhD Scholarship	Funded by CNR ISMN - Istituto per lo Studio dei Materiali Nanostrutturati	Organic and hybrid optoelectronic devices and systems for optical-sensing applications
9	PhD Scholarship	Funded by CNR ISMN - Istituto per lo Studio dei Materiali Nanostrutturati	Organic and hybrid optoelectronic devices and systems for optical-sensing applications
10	Research Grant	Provided by Consiglio Nazionale delle Ricerche - Istituto per la Sintesi Organica e la Fotoreattività (CNR-ISOF). The research grant will have a duration of 12 months, renewable up to 36 months, and gross percipient amount of € 19.367	Graphene-biopolymer composites for water purification from contaminants of emerging concern

Admission Exams

	DATE AND TIME	RESULTS
Qualifications evaluation	Applicants' participation is not required	Available from 11/06/2021**
Oral examination	Date: starting from 24/06/2021 – 9 a.m. CEST* Place: Remotely, using Microsoft Teams, or Department of Chemistry "Giacomo Ciamician"	Available from 29/06/2021**

* In case that the oral examination cannot be completed in one day due to the large number of applicants, the oral examination detailed schedule shall be made available on the webpage [Studenti Online](#) together with the results of the qualifications evaluation. **During the oral examination applicants may express their interest in one or more positions linked to specific research topics.**

** The **results of the admission exams** will be available on the webpage [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.**

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 PhD Programme.

REQUIRED DOCUMENTS	
Identity document	Valid identity document with photo (i.e. identity card, passport)
Curriculum Vitae	No specific CV format is required
Degrees	Documents attesting the awarding of the first and second cycle degrees, the exams taken and the marks obtained (see Art. 3 of the Call for Applications)
SUPPORTING DOCUMENTS	
Thesis abstract	Abstract of the second cycle degree thesis . Graduands may submit the draft of their thesis (abstracts cannot exceed 5.000 characters, including spaces and formulas, if present. The above figure does not include: title, outline, images such as graphs, diagrams, tables etc. if present)
Personal Statement	The statement shall include the reasons prompting the applicant to attend the PhD Programme and those relevant experiences and research interests, that make the applicant suitable for the specific PhD Programme (3000 characters maximum, including spaces).
Publications	<ul style="list-style-type: none"> - Publications in full text (i.e. monographs, articles on scientific journals, volume chapters) – max n. 2 - Abstracts and posters presented during academic conferences – max n. 2
Other documents	<ul style="list-style-type: none"> - Periods of study abroad, outside the country of origin (e.g. Erasmus programme or other similar mobility programmes) - Other qualifications attesting the suitability of the applicants (scholarships, prizes, etc)

Evaluation criteria *

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

1. Qualifications evaluation

Minimum score for admission to the oral examination: 30 points, Maximum score: 50 points

University degree final mark. Graduands shall be evaluated according to the Weighted Average Mark (WAM)	10 points max
Coherence between the master's degree thesis and the topics covered by the PhD programme	12 points max
Personal statement	20 points max

Publications	2 points max
Other documents attesting the applicant's training and skills	6 points max

2. Oral examination

Minimum score for eligibility: 30 points, Maximum score 50 points

English proficiency	5 points max
General knowledge of issues encompassed by the PhD Programme	45 points max

Oral examination aims to assess the suitability of the applicant for scientific research as well as the general knowledge of issues encompassed by the PhD Programme ([see the list of research topics at the bottom of the present document](#)).

The oral examination is carried out in English.

*Possible further evaluation criteria will be available on the [University website](#), selecting the relevant PhD Programme > "More information", at the bottom of the page in the section "Notices".

Final Ranking List and Enrollment

Considering the expressions of interest for the **topic-specific positions**, the Admission Board will establish if the applicants can be considered eligible for the allocation of the said positions, taking into account their skills, experience and aptitude.

After the publication of the results of the oral examination, the **final ranking list** will be available on the [University website](#), selecting the relevant PhD Programme > "More information", section "Notices" at the bottom of the page.

Following the publication of the final ranking list, successful applicants shall **enroll** on [Studenti Online](#) by the deadline indicated on the [University website](#), selecting the relevant PhD Programme > "More information".

If a successful applicant withdraws from a position, the following applicant in the ranking list, who is also eligible for the specific position, will be contacted. During the replacement procedure, the new terms of enrollment shall be communicated via e-mail to the chosen applicant.

Research Topics

The PhD in "Nanoscience for Medicine and the Environment" supports research projects dealing with the relation between Nanoscience and Health, considering both "human health and environmental health". Two different thematic areas are planned:

1. Nanoscience for Medicine

- Interactions between nanostructures and biomolecules/cellular structures
- Drug delivery systems
- Nanostructures, solid pharmaceutical hybrids formulations, crystalline polymorphism of active pharmaceutical ingredients
- Nanostructures and nanoformulations for high bioavailability administration of nutrients and bioactive molecules
- Use of artificial molecular machines in biomimetic systems
- Development of theranostic nanoplatfoms
- Design of nanostructured materials for the development of (multimodal) imaging contrast agent
- Nanostructured organic semiconductors for sensor applications
- Nanobiosensing for "point-of-care" and personalized medicine
- Nanostructures for regenerative medicine
- Cellular nanoengineering
- Nanotoxicology and technologies for "safety by design"

2. Nanoscience for the Environment

- Photo and/or electrocatalysts for water and air remediation or for the production of energy using "solar fuels"
- Nanobiosensing for environmental monitoring
- Nanostructured photo and/or electrocatalysts for the reduction of CO₂ in high energy density products
- Development of innovative synthesis for the production of nanocatalysts active in the sustainable transformation of biomass into chemicals
- Nanostructured platforms for the development of membranes for "water remediation"
- New materials for the conversion and storage of solar energy using molecular machines
- Nanotoxicology
- Life cycle analysis (LCA) of the production and use of nanomaterials