PhD Programme Table - 38th cycle
NRRP "National Recovery and Resilience Plan" Call for Applications

Funded by the European Union
NextGenerationEU

ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

Section "Available Positions and Scholarships" integrated on 01/07/2022

Section "Available Positions and Scholarships" integrated on 13/07/2022

Section "Available Positions and Scholarships" integrated on 22/07/2022

Section "Available Positions and Scholarships" integrated on 29/07/2022

PROGRAMME'S NAME	CHEMISTRY
DURATION	3 years
PROGRAMME START DATE	01/11/2022 (DD/MM/YYYY)
LANGUAGES	English
COORDINATOR	Prof. Luca Prodi (luca.prodi@unibo.it)
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 t a specific research topic
1	***PhD Scholarship Ex M.D. 351/2022 - NRRP Research***	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 1, Investment 4.1 (MD 351/2022) – NRRP Research	Applications of chemometrics to the development of innovative analytical methodologies in the food, environmental and pharmaceutical fields
2	***PhD Scholarship Ex M.D. 351/2022 - NRRP Research***	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 1, Investment 4.1 (MD 351/2022) – NRRP Research	Tackling oxidative membrane damage in neurons by proaromatic biomimetic systems
3	***PhD Scholarship Ex M.D. 352/2022***	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (MD 352/2022) and by Solvay Specialty Polymers Italy S.p.A.	Characterization of new polymeric binders for silicon anodes in new generation lithium batteries
4	***PhD Scholarship***	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (MD 352/2022) and by Davines spa	Evaluation of the use of peptide-based supramolecular gels for skin care and hair care cosmetic formulations; rheological studies to assess the stability, sensoriality and

			industrialization of related products; introduction of fragrance and color precursors in hair care and skin care cosmetic formulations
5	***Ex M.D. 352/2022***	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (MD 352/2022) and by B-Plas s.b.r.l.	Development of sustainable technologies for the conversion of waste and by-products in drop-in and/or biodegradable bioplastics and their derivatives, in a circular economy perspective
6	***PhD Scholarship***	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (MD 352/2022) and by Aroma System Srl	Development of formulation based on renewable resources for industrial applications
7	***Ex M.D. 352/2022***	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (MD 352/2022) and by Alchemy SRL	Synthesis and chemical characterization of pharmaceutically relevant organic molecules
8	***PhD Scholarship***	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (MD 352/2022) and by Personal Genomics	Development of luminescence-based biosensors for biomedical applications
9	***PhD Scholarship Ex M.D. 352/2022***	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 2, Investment 3.3 (MD 352/2022) and by Hitachi High-Tech Corporation	Theory and bioanalytical application of Electrocheminuliminescence
10	***Executive PhD***	Position reserved for employees of MG SpA	New requirements for quality and process control in future solid state batteries

Applicants awarded with Ex M.D. 351/2022 or Ex M.D. 352/2022 PhD scholarships shall have specific obligations (i.e. mandatory research periods abroad and/or in a firm) during their PhD programme. For detailed information, refer to the Call for Applications, articles 1.2 and 1.3, and to the text of the law.
For any other eventual PhD positions, a 6-month research period abroad is mandatory.

Admission Exams

The admission exams detailed schedule shall be published **starting from July 12th, 2022:**

- on the University website, selecting the relevant PhD Programme > "More information", at the bottom of the page in the section "Notices";
- 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**.

Required and Supporting Documents to be attached to the application

All the documents listed below **shall be drawn up in English or in Italian**. In case of documents originally issued in any other language (e.g. identity document, qualifications), an official translation is required.
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)

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)
Curriculum Vitae	In the Curriculum Vitae a brief description of the topics researched in the second cycle degree final thesis is required. The Curriculum Vitae must be drawn up according to the "EuroPass" standard.
SUPPORTING DOCUMENTS	
Personal statement	This must 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 (3,000 characters maximum, including spaces).
Publications	List of publications (i.e. monographs, articles on scientific journals), minor publications (conference papers, volume chapters, etc.) and abstracts and posters presented during academic conferences.
Other documents	- Postgraduate vocational training programmes and/or specialisation programmes relevant to the PhD Programme - Teaching activities carried out at academic level - Specialisation thesis abstract (5000 characters max) - Research activity - whether basic, applied, translational, etc. - carried out in any capacity, including when covered by research grants, and as a staff member of research units - Work activity - Curricular and non-curricular professional internships - 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

First and Second cycle degree final mark. Graduands shall be evaluated according to the Weighted Average Mark (WAM)	20 points max
Publications	5 point max
Consistency of the thesis topics, as described in the CV, with the research topics of the PhD programme	15 points max
Personal statement	5 points max
Other supporting documents	5 points max

2. Oral examination

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

English language 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).
During the oral examination, the applicant's English proficiency shall be assessed.
The oral examination is carried out in Italian or English.
* Possible further evaluation criteria will be available on the University website, selecting the relevant PhD Programme > "More information".

Research Topics

The research topics include all areas of chemistry, from computational chemistry (e.g., modelling of molecular materials, computational photochemistry and photophysics, spectroscopy), to physical chemistry (e.g. study of solid state and liquid crystals), electrochemistry (e.g. electrochemistry of molecular materials and for energy, electrochemical analysis techniques), photochemistry (e.g. systems for energy conversion, photoreactive materials, sensors and luminescent tracers), study of polymers (e.g. production of polymeric materials for biomedical

applications), analytical sciences (e.g. analytical methods based on advanced separative techniques, bioanalytical, environmental and cultural heritage chemistry, biosensors), organic chemistry (e.g. chemistry of radicals and host-guest systems, organic synthesis, synthesis by enzymatic catalysis, development of materials and methods for "Green Chemistry"), structural and solid state chemistry (e.g. "Crystal Engineering", development of materials for biomedical applications, synthesis and characterization of nanostructured materials), and molecular spectroscopy (e.g. Raman, electron and rotational spectroscopy). For many topics, the research has important multidisciplinary implications, in particular as concerned nanotechnological and biomedical applications.