



CHEMICAL SCIENCES	
CYCLE	XXXIX
COORDINATOR	Prof.ssa Alessia BACCHI email: alessia.bacchi@unipr.it Department of Chemistry, Life Sciences and Environmental Sustainability
DURATION	3 years
STARTING DATE OF THE PHD PROGRAM	01/11/2023
TRAINING OBJECTIVES	
<p>The training program aims to provide the PhD in Chemical Sciences the necessary skills to propose and manage research projects in the advanced fields of Analytical Chemistry, General and Inorganic Chemistry, Physical Chemistry, Industrial Chemistry, and Organic Chemistry. The PhD course in Chemical Sciences requires each student to work within one of the research groups active at the Chemistry Unit of the Department of Chemistry, Life Sciences and Environmental Sustainability (SCVSA), and to follow a specific training pathway in the chosen sector; this is achieved also through: participation in research activities at qualified centers both in Italy and abroad, participation to national and international schools and conferences, and through the publication of scientific results in international journals. Interdisciplinary training activities, aimed at developing PhD students the ability to exhibit, discuss and disseminate the subjects of their work both in the academic and industrial context and even more generally in society, are also part of the program.</p>	
RESEARCH AREAS	
<ul style="list-style-type: none">• Analytical Chemistry• General and Inorganic Chemistry• Physical Chemistry• Industrial Chemistry• Organic Chemistry	
ADMISSION REQUIREMENTS	<p>Regardless of age and citizenship, applicants holding at least one of the following academic qualifications can apply for admission:</p> <ul style="list-style-type: none">– Laurea specialistica or Laurea magistrale (second cycle master's degree)– Laurea Vecchio Ordinamento (degree obtained under the previous Italian regulations);– Second cycle Master's degree obtained abroad, equivalent to the above mentioned Italian degrees and recognized as suitable for the admission to doctoral program <p>Undergraduates can also apply for admission to the selection, with the obligation to obtain the degree by 31.10.2023</p>

POSITIONS PUT OUT TO COMPETITION		13
With Scholarship		13
Without Scholarship		
Position with Scholarship		
N°	Funding entity	Research Topic, if any
3	Scholarship funded by University of Parma (Ministerial funds)	<ul style="list-style-type: none">• Development of bioorthogonal methodologies for the realization of link-and-release systems and their application to supramolecular protein realization• A bio-inorganic approach to the design and development of substances with antibacterial, antifungal, antiviral, antiparasitic and anticancer properties



		<ul style="list-style-type: none"> Development of innovative analytical methods for assessing the quality and stability of materials in contact with food to be proposed as new models for "sustainable food"
1	Scholarship funded by University of Parma (Ministerial funds) and co-financed by the Department of Chemistry, Life Sciences and Environmental Sustainability	Characterization of Protein Aggregation with Linear-Non-Linear Optical Spectroscopy and Micro-Spectroscopy
1	Scholarship funded by University of Parma (Ministerial funds e University funds) and co-financed by the Department of Chemistry, Life Sciences and Environmental Sustainability (Project: PNRR - M4C2 -I. 1.3- Avviso MUR 341/2022"ON Foods - Research and innovation network on food and nutrition Sustainability, Safety and Security – Working ON Foods" (PE00000003) CUP D93C22000890001)	Multi-sensor platforms for the simultaneous determination of allergens for food safety
1	Scholarship funded by University of Parma (Ministerial funds e University funds) and co-financed by the Department of Chemistry, Life Sciences and Environmental Sustainability (Project 21GRD07 PlasticTrace - Metrological traceability of measurement data from nano to small-microplastics for a greener environment and food safety, Call: European Partnership on Metrology Call 2021 – Green Deal programme of EURAMET. CUP: D53C22002870006)	Integrated analytical strategies for the characterization and determination of emerging contaminants of food safety concern
1	Scholarship co-funded by Fondazione Cariparma	Design and synthesis of multifunctional derivatives for inhibition, detection, transport of medically relevant biomacromolecules and investigation of their properties
1	Scholarship partly financed with UNIVERSITY funds and co-financed by the Department of Chemistry, Life Sciences and Environmental Sustainability (Investimento: PNRR – M2C2 Investimento 3.5 PNRR ART-2-HYDROGEN "ENZIMI ARTIFICIALI PER LA PRODUZIONE FOTOCATALITICA DI IDROGENO IN BATTERI FOTOSINTETICI" ID: RSH2A_000009, CUP F97G22000270006)	Artificial Redox-active Metalloproteins based on the SPY technology
1	Scholarship partly financed with UNIVERSITY funds and co-financed by the Department of Chemistry, Life Sciences and Environmental Sustainability (Investimento: PNRR – M2C2 Investimento 3.5 PNRR ART-2-HYDROGEN "ENZIMI ARTIFICIALI PER LA PRODUZIONE FOTOCATALITICA DI IDROGENO IN BATTERI FOTOSINTETICI" ID: RSH2A_000009, CUP F97G22000270006)	Development of photoactive systems for the production of hydrogen gas combining visible light and hybrid peptide mimics
Position with Scholarship		
LINKED TO SPECIFIC TOPICS (art. 11 of the Competition notice)		
N°	Funding entity	BOUND RESEARCH TOPIC
1	Scholarship financed with funds under the PNRR– Mission 4 component 1 (Ministerial Decree 118/2023 art. 8 "PNRR Research") CUP D92J23000210006	Innovative one-part alkaline activated materials (AAM) to be used as binder in sustainable constructions



1	Scholarship financed with funds under the PNRR – Mission 4 component 1 (Ministerial Decree 118/2023 art. 8 “PNRR Research”) CUP D92J23000210006	Integrated approaches with low environmental impact for the design and preparation of responsive crystalline materials
1	Scholarship co-financed with funds under the PNRR - Mission 4 component 2 (Ministerial Decree 117/2023) and co-financed by the Company Chiesi Farmaceutici S.p.A. CUP D92J23000350004	Exploration of amorphous and co-amorphous state of drugs to enhancing stability and solubility of APIs for pulmonary drug delivery
1	Scholarship co-financed with funds under the PNRR - Mission 4 component 2 (Ministerial Decree 117/2023) and co-financed by the Company Versalis S.p.A. CUP D92J23000350004	Development of alternative processes for the synthesis of bulk chemicals from decarbonised feedstocks

ADMISSION PROCEDURES

Assessment of QUALIFICATIONS: up to 40 points
(a minimum score of 20 points shall be required to be admitted to the Oral Exam)
ORAL EXAM: up to 80 points
Minimum score for ELIGIBILITY: 70/120

Foreign Language	Language the fluency of which shall be assessed during the Oral Exam The evaluation of the knowledge of this language will be oral and will consist in the discussion of part of the research topics in English.	ENGLISH
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ORAL EXAMINATION INDICATION

Applicants admitted to the ORAL EXAM can take it either in PRESENCE or REMOTELY in Audio and Video Teleconference
(Applicants who intend to take the Oral Exam remotely must submit a formal request, using the form attached to the competition notice)

THE INTERVIEW MAY BE HELD ALSO IN ENGLISH

LIST OF QUALIFICATIONS TO BE SUBMITTED AND THEIR ASSESSMENT

MANDATORY DOCUMENT, PENALTY NOT EVALUATION, S TO BE ATTACHED TO THE ON-LINE APPLICATION

ANNEX A	(art. 5 of the Competition notice)
Identification Document	Scanned Copy of a valid identity document with photo (i.e. identity card, passport)
Curriculum Vitae et studiorum	No specific CV format is required (see art. 4 of the Competition notice)
Abstract of degree thesis	Abstract of the second cycle master’s degree thesis. Undergraduate applicants must submit the draft of the thesis approved by their supervisor (abstract/draft of the thesis: 10.000 characters including spaces)



Academic Qualifications	Certificates and academic transcript of records for both Bachelor' and Master' degrees containing the following details for each degree held: (art. 4 of the Competition notice): University that granted the degree - Type of degree (first cycle/second cycle/single cycle) Name of the degree program - Date of graduation - Final mark - List of exams and corresponding scores (academic transcript of records) - Translation into Italian or English (only for degrees issued in languages other than Italian or English).	
Research Project	Written in Italian or in English, according to the format attached to the competition notice (maximum 2 pages). It will have to focus on an original research topic (unpublished, developed personally by the candidate. It should be noted that the Examination Board can use of IT tools useful for verifying the originality of the submitted Project) <u>It does not represent a constraint with respect to the following choice of the doctoral thesis, which will be assigned by the Academic Board</u>	
LIST OF EVALUABLE QUALIFICATIONS (only qualifications attested by a document drawn up in Italian or in English)		
Curriculum Vitae et studiorum	Including academic career and postgraduate experience, accompanied by a statutory declaration in lieu of the certification of the exams passed with the relevant marks, as well as the final graduation mark. Relevance of the academic career as well as postgraduate experiences and other research activities related to Chemical Sciences	Up to 16 points
Graduation mark or Average of the exam marks (if the candidate will attain the degree no later than 31 October 2023)	Assignment of a score related to the final mark or, for candidates who will attain the degree by 31 October 2023, a score related to the average of the exam marks	Up to 5 points
Graduation thesis	Consistency of the Master's Degree thesis with the doctoral programme research topics	Up to 10 points
Research Project	Score related to the evaluation of the Project based on originality, impact and scientific substantiation.	Up to 2 points
Statement of Research Interest	Short text – maximum 1 page – in Italian or in English, aimed at: 1) explaining the candidate's reasons to attend the PhD programme; 2) research interests, with particular reference to topics of interest in the specific topics proposed; 3) skills that can contribute to a research project in the field of Chemical Sciences. Motivation and competence proved in the text presented	Up to 3 points
Scientific Publications	Articles on national and international journals, papers presented at conferences or symposia, book chapters etc Impact and relevance of the qualifications presented related to Chemical Sciences	Up to 4 points
ORAL EXAM		
Interview Program	Evaluation CRITERIA	POINTS
The ORAL EXAM takes place in Italian or in English for foreign candidates. It includes a discussion of the qualifications presented by the candidate and an assessment of their scientific profile and design skills.	<ul style="list-style-type: none"> ○ knowledge of the subject and skills of the candidate for the proposed research activities are assessed by a discussion on the qualifications submitted for evaluation ○ knowledge of English is assessed by discussion of topics of research and by understanding of scientific texts. 	Up to 80 points

SCHEDULE OF THE ADMISSION EXAMS



It is the candidate's responsibility to verify the outcome of the evaluation of qualifications, which can be consulted in their reserved area by connecting to the page <http://unipr.esse3.cineca.it/Home.do> in the days preceding the date of the Oral Exam.

ORAL EXAM	DATE	11 September 2023 (with possible extension in the following days)
	TIME	10:00 AM (Italian Time)
	PLACE	Department of Chemistry, Life Sciences and Environmental Sustainability CHEMISTRY BUILDING Parco Area delle Scienze, 17/A – Campus 43124 PARMA - ITALY
ALTRE INDICAZIONI	<p>The choice of the Research Topic to be expressed in Annex A is not binding on the assignment of the research project, and it is intended to assess candidates skills during the admission exam. <u>The PhD research topic will be assigned by the Academic Board.</u></p> <p>It is possible to carry out the admission examination in Italian or in English at the candidate's choice.</p>	