





CHEMICAL SCIENCES	
CYCLE	XL
COORDINATOR	Prof Giovanni MAESTRI email: giovanni.maestri@unipr.it Department of Chemistry, Life Sciences and Environmental Sustainability
DURATION	3 years
STARTING DATE OF THE PHD PROGRAM	01/11/2024
POSITIONS PUT OUT TO COMPETITION	12
ADMISSION PROCEDURES	Assessment of QUALIFICATIONS and Research Project Oral Exam in PRESENCE or REMOTELY
ADMISSION REQUIREMENTS	Regardless of age and citizenship, applicants holding at least one of the following academic qualifications can apply for admission: <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 Undergraduates can also apply for admission to the selection, with the obligation to obtain the degree by 31.10.2024
TRAINING OBJECTIVES	
<p>The training program aims to allow PhDs in Chemical Sciences to acquire the necessary skills to propose and manage research projects in the advanced sectors of Analytical Chemistry, General and Inorganic Chemistry, Physical Chemistry, Industrial Chemistry, and Organic Chemistry. The Doctorate in Chemical Sciences requires each doctoral student to work within one of the research groups active in the Chemistry Units of the Department of Chemistry, Life Sciences and Environmental Sustainability (SCVSA), and to follow a specific training path within the chosen sector also through the participation to research activities at qualified centers both in Italy and abroad, to national and international schools, to conferences and through the publication of the scientific results achieved in internationally distributed journals. Interdisciplinary training activities are also planned, aimed at developing in PhD students the ability to present, discuss and disseminate the subjects of their work both in an academic and in an industrial context and also, more generally, in the society at large.</p>	
RESEARCH AREAS	
<ul style="list-style-type: none"> • Analytical Chemistry • General and Inorganic Chemistry • Physical Chemistry • Industrial Chemistry • Organic Chemistry 	

Position with Scholarship		
N°	Funding entity	Research Topic, if any
1	Scholarship funded by Department of Chemistry, Life Sciences and Environmental Sustainability (funds of "Departments of Excellence" program)	Separation of 4f transition metals via complexation and liquid-liquid extraction
1	Scholarship partly financed with UNIVERSITY funds and co-financed by the Department of Chemistry, Life Sciences and Environmental Sustainability (funds PNRR –	Photo- and Organo-catalytic radical cascades

	M2C2 Investimento 1.1 PRIN PNRR “Xylonite: the new season of xylochemistry” ID: P2022HSF3R, CUP P2022HSF3R_001)	
		
1	Scholarship partly financed with UNIVERSITY funds and co-financed by the Department of Chemistry, Life Sciences and Environmental Sustainability (funds University call for Research 2023 Action A CUP D93C24000580005)	Novel catalytic approaches for synthesis enabled by emerging technologies
1	Scholarship partly financed with UNIVERSITY funds and co-financed by the Department of Chemistry, Life Sciences and Environmental Sustainability (funds fondi Investimento: PNRR – M2C2 Investimento 3.5 PNRR ART-2-HYDROGEN “ARTIFICIAL ENZYMES FOR THE PHOTOCATALYTIC PRODUCTION OF HYDROGEN IN PHOTOSYNTHETIC BACTERIA” ID: RSH2A_000009, CUP F97G22000270006)	Design of artificial redox metalloproteins using the SPY architecture
		
1	Scholarship funded by ENEA - Agency for new technologies, energy and sustainable economic development as part of the Operational Plan for Research and Development on hydrogen POR H2	Catalytic and Photocatalytic strategies for CO ₂ valorization
1	Scholarship partly financed with UNIVERSITY funds and co-financed by the Department of Chemistry, Life Sciences and Environmental Sustainability (funds PNRR – M4C2 Investimento 3.1 PNRR METROFOOD-IT ID: IR0000033, CUP I83C22001040006)	Piattaforme analitiche integrate per la valutazione della qualità e della sicurezza alimentare - Integrated analytical platforms for food quality and safety assessment
		
1	Scholarship partly financed with UNIVERSITY funds and co-financed by the Department of Chemistry, Life Sciences and Environmental Sustainability (funds PNRR – M4C2 Investimento 1.3 “MEDICINAL CHEMISTRY TECHNOLOGIES FOR THE DEVELOPMENT OF INNOVATIVE ANTIVIRAL AGENTS”, CUP B53C20040570005)	- Design of chelating molecules for the development of antiviral and anticancer compounds
		
1	Scholarship partly financed with UNIVERSITY funds and co-financed by the Department of Chemistry, Life Sciences and Environmental Sustainability (funds (PNRR – M2C2 Investimento 1.1 PRIN 2022 “Crystal Engineering for bees and environmental sustainability (X4BEES)” Codice Cineca 20224NP42W, CUP D53D2301014000 1-)	Crystal Engineering and solid-state reaction via mechanochemistry
		
1	Scholarship partly financed with UNIVERSITY funds and co-financed by the Department of Chemistry, Life Sciences and Environmental Sustainability (funds PNRR – M4C2 Investimento 1.4 “NATIONAL CENTER FOR GENE THERAPY AND DRUGS BASED ON RNA TECHNOLOGY (CN RNA & GENE THERAPY)” - Bando a Cascata Spoke 6 "RNA Drug Development" - Progetto "Polyfunctional PNAs for	Reduction of the environmental impact in the synthesis of modified peptide nucleic acids

	Precision RNA Targeting and modulation of interactions with proteins (POPnART)" – NEXTGENERATIONEU ID: CN00000041, CUP B83C22002860006)	
		
1	Scholarship partly financed with UNIVERSITY funds and co-financed by the Department of Chemistry, Life Sciences and Environmental Sustainability (funds PNRR – M4C2 Investimento 1.1 - PRIN 2022 - "Multifunctional compounds for a multitarget approach against neurodegenerative disorders- MULTIFUN" Codice Cineca 2022N9E847, CUP D53D23010430006)	Multifunctional compounds for a multitarget approach against neurodegenerative disorders and as supramolecular promoters and catalysts
		

Position with Scholarship LINKED TO SPECIFIC TOPICS (art. 6 of the Competition notice)		
N°	Funding entity	BOUND RESEARCH TOPIC
1	Scholarship funded by EMILIA ROMAGNA REGION CUP D92J24000010002 	Sustainable strategies in aquaculture: development of organic-inorganic hybrid materials with antimicrobial activity
1	Scholarship co-financed with funds under the PNRR - Mission 4 component 2 (Ministerial Decree 630/2024) and co-financed by the Company Maselli Misure S.p.A. CUP D92J24000300004 	Preparation of coordination compounds and their use as optical sensors

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

ORAL EXAM PROGRAM			
<p>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)</p>			
<p>The ORAL EXAM includes the presentation of the research project and is intend to assess the suitability of the applicant to pursue scientific research as well as the general knowledge of issues connected to the PhD course.</p>			
<table border="1"> <tr> <td> <p>Foreign Language the fluency of which shall be assessed during the Oral Exam</p> </td> <td style="background-color: yellow;"> <p>ENGLISH</p> </td> <td> <p>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.</p> </td> </tr> </table>	<p>Foreign Language the fluency of which shall be assessed during the Oral Exam</p>	<p>ENGLISH</p>	<p>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.</p>
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SCHEDULE OF THE ADMISSION EXAMS		
ASSESSMENT OF QUALIFICATIONS		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	3 rd September 2024 (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
FURTHER INFORMATION		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. The PhD research topic will be assigned by the Academic Board.
		<p>THE INTERVIEW MAY BE HELD ALSO IN ENGLISH</p> <p>For foreign candidates it is possible to carry out the admission examination exclusively in English. For Italian candidates it will be possible to take the admission examination in Italian or in English at the candidate's choice</p>

LIST OF QUALIFICATIONS TO BE SUBMITTED AND THEIR ASSESSMENT	
MANDATORY DOCUMENTS TO BE ATTACHED TO THE ON-LINE APPLICATION	
ANNEX A	(art. 3.2 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. 3.2 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. 3.2 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. It will have to focus on an original research topic (unpublished, developed personally by the candidate, PENALTY NOT EVALUATION. 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	<p>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.</p> <p>The marks of the exams and the graduation mark will be the most relevant element of the evaluation.</p> <p>Relevance of the academic career as well as postgraduate experiences and other research activities related to Chemical Sciences.</p>	Up to 21 points
Graduation thesis	Consistency of the Master's Degree thesis with the doctoral program research topics (briefly describe the topics in the curriculum vitae)	Up to 10 points
Research Project	<p>Points relating to the research project shall be allocated on the basis of the following criteria:</p> <ul style="list-style-type: none"> ○ Scientific value and originality of the proposal ○ description and structure of the proposal ○ proposal feasibility ○ consistency with the research themes of the PhD course 	Up to 2 points
Statement of Research Interest	Short text – maximum 1 page – in Italian or in English, aimed at explaining the candidate's reasons to attend the PhD programme; the description of specific research interests, with particular reference to the topics relating to the specific topics proposed; the skills possessed that can contribute to a research project in the field of Chemical Sciences.	Up to 3 points
Scientific Publications	<p>Articles on national and international journals, papers presented at conferences or symposia, book chapters etc</p> <p>Impact and relevance of the qualifications presented related to Chemical Sciences</p>	Up to 4 points
EVALUATION ORAL EXAM		
Interview Program	Evaluation CRITERIA	POINTS
The ORAL EXAM includes the presentation of the research project and is intended to assess the suitability of the applicant to pursue scientific research as well as the general knowledge of issues connected to the PhD course	<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