



CHEMICAL SCIENCES	
Cycle	XXXVI
Coordinator	Prof.ssa Alessia BACCHI Department of Chemistry, Life Sciences and Environmental Sustainability email: alessia.bacchi@unipr.it
Duration	3 years
Starting date of the PhD program	01/11/2020
Research Topics	
<p>A) A bio-inorganic approach to the design and development of substances with antibacterial, antifungal, antiviral and anticancer properties</p> <p>B) Synthesis and study of multivalent ligands for biomacromolecules and pathogens</p> <p>C) Nanostructured functional materials containing peptide nucleic acids (PNA) for biomedical applications and precision nanomedicine.</p> <p>D) Design and fabrication of stimuli responsive crystalline functional materials</p> <p>E) From linear molecules to complex fused polycycles via domino reactions –</p> <p>F) Development and validation of smart and portable biosensing devices for Point of Care Testing applications</p> <p>G) Innovative analytical strategies for food quality and safety assessment (within the project PRIN 2017, 2017YER72K: Development of novel DNA-based analytical platforms for the rapid, point-of-use quantification of multiple hidden allergens in food samples)</p> <p>H) Enhancing stability and physical and technological properties of APIs through the design and synthesis of binary systems with endogenous (bound research topic)</p>	
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>	
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>Undergraduate applicants may also submit applications with the obligation of getting their degree by October 31st 2020.</p>	



POSITIONS PUT OUT TO COMPETITION		
With Scholarship		8
TOTAL		8
Positions with University Scholarship		
N°	Funding entity	Research Topic
3	Scholarship Ministerial funds	<ul style="list-style-type: none"> • see topics at points A) – E) above
1	Scholarship University funds	<ul style="list-style-type: none"> • see topics at points A) – E) above
1	Funded by the Department of Chemistry, Life Sciences and Environmental Sustainability (within the project PRIN 2017, 2017YER72K: Development of novel DNA-based analytical platforms for the rapid, point-of-use quantification of multiple hidden allergens in food samples)	<ul style="list-style-type: none"> • topic G) "Innovative analytical strategies for food quality and safety assessment"
1	Funded by the Department of Chemistry, Life Sciences and Environmental Sustainability (funds of Departments of Excellence program)	<ul style="list-style-type: none"> • see topics at points A) – E) above
1	Scholarship co-funded by Fondazione Cariparma	<ul style="list-style-type: none"> • topic F) "Development and validation of smart and portable biosensing devices for Point of Care Testing applications"
Position with Scholarship LINKED TO SPECIFIC TOPICS (art. 11 of the Call for applications)		
<p>Research topic H requires the assessment of specific skills, experience and competences for the applicants. During the Oral Exam, applicants may express their interest in being assigned the scholarship linked to the research topic H. The Board will evaluate the eligibility of the applicant.</p>		
N°	Funding entity	BOUND RESEARCH TOPIC
1	Funded by Biopharmanet TEC – Centro Interdipartimentale di Ricerca per l'Innovazione dei Prodotti per la Salute	<ul style="list-style-type: none"> • topic H) "Enhancing stability and physical and technological properties of APIs through the design and synthesis of binary systems with endogenous
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>		
Foreign Language	<p>Language the fluency of which shall be assessed during the Oral Exam: ENGLISH. 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>	
<p>APPLICANTS SHALL TAKE THE EXAM REMOTELY.</p> <p>For further details please refer to the relevant provision laid down in art. 7 of the Call for applications.</p>		
<p>THE INTERVIEW MAY BE HELD ALSO IN ENGLISH</p>		



LIST OF QUALIFICATIONS TO BE SUBMITTED AND THEIR ASSESSMENT

Mandatory documents to be attached to the on-line application

- **ANNEX A** (art. 5 of the Call for Applications)
- Scanned Copy of a **valid identification document** with photo
- **Curriculum Vitae et studiorum** (art. 4 of the Call for Applications)
- **Abstract of the second cycle master's degree thesis.** Undergraduate applicants may submit the draft of the thesis approved by their supervisor (abstract/draft of the thesis: 10.000 characters including spaces)
- **Certificates and academic transcript of records for both Bachelor' and Master' degrees** containing the following details for each degree held: (art. 4 of the Call for Applications):
 - 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)
- **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.

Further qualifications that may be attached to the application, if in possession of the applicant

(only qualifications attested by a document drawn up in Italian or in English)

- **Scientific Publications:** Articles on scientific journals with referees, communications presented at conferences or symposia, book chapters etc.;
- **Participation in Schools or training courses** related to Chemical Sciences
- **Any awards** received related to Chemical Sciences

EVALUATION CRITERIA

QUALIFICATION	EVALUTATION CRITERIA	POINTS
Curriculum Vitae et studiorum	Relevance of the academic career as well as postgraduate experiences and other research activities related to Chemical Sciences	Up to 15 points
Graduation mark or Average of the exam marks (if the candidate will attain the degree no later than 31 October 2020)	Assignment of a score related to the final mark or, for candidates who will attain the degree no later than 31 October 2020, 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
Statement of Research Interest	Motivation and competence proved in the text presented	Up to 5 points
Scientific publications and other qualifications	Impact and relevance of the qualifications presented related to Chemical Sciences	Up to 5 points



ORAL EXAMINATION		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			
ORAL EXAM	DATE	14 September 2020 (with possible extension in the following days)	
	TIME	09:00 am (Italian time)	
	PLACE	remotely using the Microsoft Teams platform	