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 18/07/2022

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

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

PROGRAMME'S NAME	INDUSTRIAL CHEMISTRY
DURATION	3 years
PROGRAMME START DATE	01/11/2022 (DD/MM/YYYY)
LANGUAGES	English
COORDINATOR	Prof. Fabrizio Cavani (fabrizio.cavani@unibo.it)
RESEARCH TOPICS	Detailed list at the bottom of the present document
PhD POSITIONS	8
ADMISSION PROCEDURE	Qualifications evaluation Oral examination

Available Positions and Scholarships

Posto n.	Sostegno finanziario	Descrizione	Posizioni a tema vincolato
1	***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 SACMI IMOLA	Development of sustainable packaging from renewable resources and properties tailoring by physico-chemical modifications
2	***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 Versalis Spa	Advanced experimental study of the thermic pyrolysis for the chemical recycling of plastics
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 Versalis Spa	Advanced experimental study of the thermo-catalytic pyrolysis for the chemical recycling of plastics
4	***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 Biolchim Spa	Synthesis and formulation of chelated complexes for innovative applications in the field of fertilizers

5	***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 International Flavors & Fragrances Benincarlo SL	New catalytic processes for a more sustainable industrial chemistry
6	***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 HERAMBIENTE S.p.A.	Technologies development for recovery and recycling of composite materials in the view of closing the life cycle and for the reuse as secondary raw material to produce composites
7	***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 CyTech Srl	Development of innovative and sustainable materials and production methods for the production of sportswear components
8	***PhD Scholarship***	Funded by ENI SpA	Innovative processes for the design of biorefineries with production of suitable pro-Lube and probitumen fractions

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 3-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 - 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 and Weighted Average 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 of the PhD in Industrial Chemistry concern the sectors of **sustainable industrial chemistry**, **the chemistry of polymeric and ceramic materials**, **catalytic processes in their industrial applications and for fine chemistry**.
In all the research topics, a key factor will be the environmental sustainability of the various phases, the improvement or innovation in the industrial production of chemical substances using processes that match the "Green Chemistry" principles and those of circular economy.
Within the main research topics there are

- the development of new catalysts (e.g. organic, metallo-organic or coordination compounds) and catalytic processes (both traditional and based on electro and photo-electrocatalysis);
- production of sustainable hydrogen, fuels and energy on a laboratory and pilot plant scale (including from biomass); activation and transformation of CO2 into chemical compounds, synthesis of complex molecules, (bio) polymers and composites, nano-additives, polymers for organic photovoltaics, photosensitizing compounds;
- modeling and optimization of nanomaterials, recovery and recycling processes using the circular economy approach;
- design of new energy storage techniques such as high-efficiency batteries and supercapacitors.