CHEMISTRY

Section “Positions and scholarships” revised on 04/09/2013 and on 10/09/2013

Section “Positions and scholarships” revised on 18/09/2013

Coordinator
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Website
http://www2.fci.unibo.it/~dcor/index.html

Duration
3 years

Academic year
2013/2014

Programme start date
01/01/2014

Programme held in
Italian

Main Department
Department of Chemistry «Giacomo Ciamician»

Associated Unibo Department
Department of Industrial Chemistry «Toso Montanari»

Research topics

- Curriculum in Chemical Sciences
  - Organic Chemistry
  - Physical Chemistry
  - Analytical Chemistry
  - Inorganic Chemistry
  - Innovative Chemical Processes
  - Nanosciences and Nanotechnologies
  - Advanced Materials for Structural and/or Functional Applications

- Curriculum in Industrial Chemistry
  - Chemistry and Technology of Polymeric and Ceramic Materials and Products
  - Chemistry and Technology of Processes for Industrial Production and Environmental Protection

Requirements and admission procedures

Requirements
An Italian university degree (laurea specialistica/magistrale - 3+2 years) or pre-reform degree (vecchio ordinamento - 4 years) or an equivalent degree obtained abroad. Also applicants whose degree will be awarded no later than December 31, 2013 can participate to the selection procedures.

Admission procedures
For applicants residing abroad, the oral examination can be done remotely through video-conference based on the IP protocol (such as through Skype with webcam). In this case, at the time of application for admission, applicants should indicate the choice of this mode for the oral examination and indicate a valid address/contact. The request must be authorized by the Admission Board upon verification of the conditions needed to ensure the proper conduct of the test (verification of the identity of the applicant). The applicant should contact the Admission Board at Skype aldo_roda and agree a timetable to carry out the oral examination, on days specified for the oral examination. The applicant must ensure his/her availability to the address indicated in the application beginning at the agreed hour and for the next three hours. In case the applicant is not found for three times by members of the Admission Board, he/she will be considered as definitely not registered with the oral examination.

Notes on admission
Mandatory documents to be enclosed with the online application (failure to comply with such requirements will result in the exclusion from the competition)
1. CV
2. copy of Bachelor’s and Master’s degree, list of exams taken with grades and final mark (in Italian or English)
3. only for those who do not hold a Master’s degree when submitting the application: copy of the exams taken with grades
   - for degrees obtained in Italian Universities: upload a SIGNED self-declaration;
   - for degrees obtained in non-EU Countries: upload the degree certificate issued by the relevant University;
   - for degrees obtained in EU countries (except Italy): you can either upload a SIGNED self-declaration or the degree certificate issued by the relevant University, translated in Italian or English;
   - all documents must contain the following information: personal data, name of the University, degree name, final score, transcript (see art. 2 of the call).

Other documents to be enclosed, if available
- Publications
- Further education titles/diploma

Agenda

<table>
<thead>
<tr>
<th>Description</th>
<th>When</th>
<th>Where</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment of qualifications</td>
<td>29/10/2013</td>
<td>Department of Chemistry «Giacomo Ciamician»</td>
<td>applicant presence not requested</td>
</tr>
<tr>
<td>Oral examination</td>
<td>07/11/2013</td>
<td>Department of Chemistry «Giacomo Ciamician»</td>
<td>9 a.m.</td>
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**Assessment criteria**

**Total score: 100/100**

1. **Assessment of qualifications**
   - minimum score required for the admission to the oral examination: 30
   - maximum score: 50
   Score is assigned as follows:
   - evaluation of the degree mark (for applicants who have a university degree at the time of submission of the application) or evaluation of the university exams taken with grades (for applicants who still do not have a university degree at the time of submission of the application): max 20 points;
   - graduation thesis work: max 20 points
   - publications: max 5 points
   - further education titles/diploma: max 5 points

   The results of the assessment of qualifications will be made public by posting them on the bulletin board of the Department where the examination took place and on the site [http://studenti.unibo.it](http://studenti.unibo.it), restricted access by University credentials (by selecting: sintesi delle richieste in corso → vedi dettaglio → risultati prova).

2. **Oral examination**
   - minimum score required in order to be listed in the final ranking: 30
   - maximum score: 50
   The oral examination will focus on the explanation and discussion of the applicant's qualifications and will assess the applicant's aptitude for scientific research, as well as her/his general knowledge about the following topics: Inorganic Chemistry, Organic Chemistry, Physical Chemistry, Analytical Chemistry, Industrial Chemistry.

   The results of the oral examination will be made public by posting them on the bulletin board of the Department where the examination took place and on the site [http://studenti.unibo.it](http://studenti.unibo.it) (by selecting: sintesi delle richieste in corso → vedi dettaglio → risultati prova). The Admission Board will not send any communication to the applicants about the outcome of the tests. It is the responsibility of the applicants to be informed on the outcome (see art. 6 of the call).

**Language requirements**

During the oral examination, the knowledge of English will be tested. The oral examination will be held either in English or Italian, depending on the applicant’s choice. For foreign applicants the knowledge of Italian is not mandatory.

**Positions and scholarships**

**Total number of positions: 44, of which:**

- **16 positions with scholarship granted by the University of Bologna** (5 scholarships are fully made available by the Department of Chemistry “Giacomo Ciamician” and by the Department of Industrial Chemistry “Toso Montanari”;
  another one is made available with funds provided in part by the Department of Chemistry “Giacomo Ciamician” and by Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali – INSTM)
- **1 position with scholarship granted by Université Franco Italienne** (Chapter III - Call Vinci 2013), for the setting-up of a cotutelle agreement in partnership with the Université Bordeaux 1 for the implementation of the following research project: “Development of quantum dot functionalised for photoinduced applications in nanomedicine”. The PhD applicant assigned to the project has to spend a research period of 15 months at the Université Bordeaux 1.
- **1 position with scholarship granted by private research institutions** (Fraunhofer UMSICHT - Institute Branch Sulzbach-Rosenberg), committed to the research topic “Developing chemical analysis systems for the characterization of pyrolysis oil and biochar”. Part of the research activity will be conducted at the Fraunhofer Institute for Environmental, Safety and Energy Technology UMSICHT, Institute Branch Sulzbach-Rosenberg, Germany.
- **2 positions with scholarship granted by private institutions** (Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali - INSTM), committed to the following research projects:
  - “Development of heterogeneous catalytic processes for the transformation of fluorinated intermediates into monomers of industrial interest”
  - “Study of new gas-phase catalytic oxidation processes”.
- **2 positions with scholarship granted by Fondazione Toso Montanari**, one of which devoted to the Curriculum in Chemical Sciences; the other one devoted to the Curriculum in Industrial Chemistry
- **1 position with scholarship granted by the Department of Chemistry “Giacomo Ciamician”**, the topic of the research project of the PhD student will be the design and characterization of nano-materials based on the integration of fluorescent molecules with carbon (fullerene, graphene, nanotubes) and metal (in particular gold) nanostructures. The use of these materials as sensor for real-time, real space analysis will be investigated with particular attention for systems suitable for the detection of biological processes at cellular (interaction with proteins) and organismal level (parameters for coral growth such as acidity and temperature).
- **21 positions without scholarship**