

DATA SCIENCE AND COMPUTATION

Coordinator	Prof. Marco Rocchetti Department of Computer Science and Engineering - DISI Mura Anteo Zamboni 7 - Bologna marco.rocchetti@unibo.it	
Starting date of the PhD Programme	01/11/2018	
Duration	4 calendar years	
Language of the PhD Programme	Italian and English	
Mandatory stay abroad	Yes (3 months)	
Associated partners pursuant to art. 2, para 2, lett. d) of the M.D. n. 45/2013	Politecnico di Milano and Fondazione Golinelli	
Research topics		
<ul style="list-style-type: none"> - Quantitative Finance and Economics - Materials and Industry 4.0 - Genomics and bioinformatics - Personalised medicine - Hardware and Infrastructure - Machine learning and deep learning - Computational physics - Big Data, Smart Cities & Society 		
PhD positions and scholarships		
Total number of the available PhD positions	15	
Positions with scholarship	<ul style="list-style-type: none"> - 3, totally financed by the University of Bologna general budget - 2, financed by the Politecnico di Milano - 1, financed by the Fondazione M. Golinelli in lieu of the Politecnico di Milano 	
<p>Positions with scholarship linked to specific topics (art. 9 of the Call for applications) During the oral examination, applicants will have the possibility to show their interest for one or more scholarships linked to specific topics. Taking into account the preferences expressed by the applicants and with due consideration of the applicants' skills and expertise, the Admission Board will establish if the applicants can be considered eligible for the allocation of the scholarships linked to specific topics</p>	<ul style="list-style-type: none"> - 4, financed by Fondazione M. Golinelli, focused on the following research topic: <ul style="list-style-type: none"> o Genomics and Bioinformatics o Personalised medicine o Machine Learning e Deep Learning, (thanks to the contribution from CRIF Group SpA) o Machine Learning e Deep Learning, (thanks to the contribution from YOOX - YNAP) - 2, financed by Istituto Nazionale di Fisica Nucleare (INFN), focused on the following research topic: Computational physics - 3 financed by Fondazione Istituto Italiano di Tecnologia - IIT, focused on the following research topic: <ul style="list-style-type: none"> o Genomics and Bioinformatics o Personalised medicine o Computational physics 	
Admission requirements		
Please, see art. 2 of the Call for applications		
Mandatory documents to be attached to the application		
Please, see art. 3 of the Call for applications		
Further qualifications that may be attached to the application, if in possession of the applicant (only qualifications attested by documents drawn up in Italian, English, French, German and Spanish shall be considered as valid and assessed by the Admission Board)		
<ul style="list-style-type: none"> - Abstract of the second cycle master's degree thesis. Undergraduate applicants may submit the draft of the thesis approved by their supervisor (please, note that abstracts cannot exceed 5.000 characters, including spaces and formula possibly used. The above figure does not include: the title of thesis, the outline, and images such as graphs, diagrams, tables etc. - where present); - No more than 3 reference letters signed by Italian and international academics and professionals in the research field, 		

which do not form part of the Admission Board, attesting the suitability of the applicant and his/her interest for the scientific research.

Please, note that the above letters cannot be uploaded by applicants. When filling the online application form on <http://studenti.unibo.it>, applicants will be only allowed to provide the email accounts of the requested academic/professional. The latter shall receive an email from the University of Bologna providing for the instructions for uploading. Only letters in pdf format submitted before the expiry date and time of the Call shall be accepted.

- Multi-annual research project, with special emphasis on the activities to be completed during the first-year course. The proposal must meet the following requirements:
 - o It must indicate in the cover page the research topic of the PhD Programme covered by the research project proposal and for which the applicant is applying
 - o It cannot exceed 20.000 characters, including spaces and formula possibly used. This figure does not include: the title of project, the outline, references and images (such as graphs, diagrams, tables etc - where present);
 - o It must include: the state of the art; description of the project; expected results; lead-time for implementation; (proposed) criteria to be used to assess the findings obtained; references.
- The research projects that successful applicants shall carry out during their doctoral career may possibly differ from the project proposed at the application stage. This shall be defined together with the supervisor and approved by the Academic Board.
- List of the publications (monographs, articles published on scientific journals).
 - List of the minor publications (conference papers, volume's chapters, etc.).
 - Professional Master courses completed in Italy (1st or 2nd level) relevant to the PhD Programme.
 - Postgraduate vocational training programmes/specialisation programmes relevant to the PhD Programme.
 - Research activity of any kind - whether basic, applied, translational, etc. - carried out in any capacity, including when covered by research grants, and as a staff member of research projects.
 - Work activity;
 - Foreign languages
 - Study periods completed by students outside their countries of origin (e.g. Erasmus programme or other similar mobility programmes).
 - Other qualifications attesting the suitability of the applicants (scholarships, prizes, etc).

Admission exams (art. 4 of the call for applications)

Examination type	Schedule (please, note that applicants shall not receive any communication concerning the exams schedule)	Examination results publication (please, note that applicants shall not receive any communication concerning the publication of results)						
Qualifications and research project evaluation	Non-presential.	The results of the qualifications and research project evaluation shall be available online starting from the 20/06/2018 at the page http://studenti.unibo.it (please, select: (please, select "summary of the requests in progress" - "see detail" and open the pdf file "risultati valutazione titoli e progetto")						
Oral examination	<table border="1" style="width: 100%;"> <tr> <td style="background-color: #d3d3d3;">Date</td> <td>03/07/2018 In case that the oral examination cannot be completed in one day due to the large number of applicants, the oral exam schedule shall be made available at the webpage http://studenti.unibo.it together with the results of the qualifications and research project evaluation</td> </tr> <tr> <td style="background-color: #d3d3d3;">Place</td> <td>Bologna - Mura Anteo Zamboni 7 Dipartimento di Informatica - Scienza e Ingegneria</td> </tr> <tr> <td style="background-color: #d3d3d3;">Time</td> <td>12 a.m.</td> </tr> </table>	Date	03/07/2018 In case that the oral examination cannot be completed in one day due to the large number of applicants, the oral exam schedule shall be made available at the webpage http://studenti.unibo.it together with the results of the qualifications and research project evaluation	Place	Bologna - Mura Anteo Zamboni 7 Dipartimento di Informatica - Scienza e Ingegneria	Time	12 a.m.	The results of the oral examination shall be available on the webpage http://studenti.unibo.it starting from 05/07/2018 (please, select "summary of the requests in progress" - "see detail" and open the pdf file "risultati prova orale")
Date	03/07/2018 In case that the oral examination cannot be completed in one day due to the large number of applicants, the oral exam schedule shall be made available at the webpage http://studenti.unibo.it together with the results of the qualifications and research project evaluation							
Place	Bologna - Mura Anteo Zamboni 7 Dipartimento di Informatica - Scienza e Ingegneria							
Time	12 a.m.							
Pursuant to art. 4 of the call for applications, applicants residing regularly abroad can ask to take the exam remotely using videoconferencing tools (e.g. Skype). Please, for further details refer to the relevant provision laid down in the Call for applications.								

Evaluation criteria

Points will be allocated to applications out of a total of 100 on the basis of the following weighting:

1. Qualifications and research project

- Minimum for admission to the oral exam: 30 points
- Maximum: 50 points

Only qualifications relating to the last 5 years shall be taken into consideration, with the exception of the University Degree (Diploma di laurea). Please, note that qualifications must be consistent with the PhD course.

Points relating to qualifications shall be allocated on the basis of the following criteria:

- Graduation final mark. Undergraduates shall be evaluated on the basis of the Weighted Average Mark (WAM): max 20 points
- Publications: max 3 points
- Other qualifications: max 2 points

Points relating to the research project shall be allocated on the basis of the following criteria:

- Scientific value and ground-breaking nature of the proposal: max 10 points
- description and structure of the proposal: max 10 points
- proposal feasibility: max 5 points

2. Oral examination

- Minimum for inclusion in the final ranking list: 30 points
- Maximum: 50 points

Oral examination 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.

During the oral examination, knowledge of the following foreign language shall be assessed: English.

The oral examination is carried out in Italian.

Points relating to the oral examination shall be allocated on the basis of the following criteria:

- knowledge of foreign languages: max 10 points
- research project presentation: max 20 points
- general knowledge of issues connected to the PhD course: max 20 points

Possible evaluation sub-criteria shall be made public on <http://studenti.unibo.it> (select: "summary of the requests in progress" - "see detail" and open the pdf file named "sub-criteri di valutazione").

Final ranking list and enrolment (arts.6 and 7 of the call for applications)

Only after the publication of the results relating to the oral exam, the final ranking list shall be available at the page <http://studenti.unibo.it>. In the section "Summary of requests in progress", the status of the application submitted shall be "Final ranking List available". A click on "See detail", will open the webpage where the pdf file "Graduatoria" can be downloaded (at the bottom of the page).

Please, note that written communication about the final results and the deadlines for the enrolment shall not be sent to the applicants.

The enrolment of successful applicants must be completed by the deadline laid down at the bottom of the final ranking list.