

**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 18/07/2022

Section “Available Positions and Scholarships” integrated on 01/08/2022

PROGRAMME’S NAME	<b>DATA SCIENCE AND COMPUTATION</b>
ASSOCIATED PARTNERS <i>Pursuant to art. 3 para 2 lett. b) of the MD n. 226/2021</i>	Istituto Italiano di Tecnologia - IIT
DURATION	4 years
PROGRAMME START DATE	01/11/2022 (DD/MM/YYYY)
LANGUAGES	Italian, English
COORDINATOR	Prof. Andrea Cavalli ( <a href="mailto:andrea.cavalli@unibo.it">andrea.cavalli@unibo.it</a> )
RESEARCH TOPICS	<a href="#">Detailed list at the bottom of the present document</a>
PHD POSITIONS	3
ADMISSION PROCEDURE	Qualifications and research proposal evaluation Oral examination

### Available Positions and Scholarships

Pos. n.	Financial Support	Description	Positions linked to research topics
1	<b>PhD Scholarship Ex M.D. 351/2022 - PA</b>	Funded by the EU - NextGenerationEU with funds made available by the National Recovery and Resilience Plan (NRRP) Mission 4, Component 1, Investment 4.1 (MD 351/2022) – Public Administration	Machine Learning Methods in Digital Health
2	<b>PhD Scholarship Ex M.D. 352/2022</b>	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 Leonardo	Advanced genomics data analysis using Big Data
3	<b>Executive PhD</b>	PhD position reserved for employees of CINECA Consorzio Interuniversitario	Study of metal ion trafficking within protein supercomplexes and force field optimization, using HPC solvers and machine learning algorithms

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 12<sup>th</sup>, 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	
<b>Identity document</b>	Valid identity document with photo (i.e. identity card, passport)
<b>Curriculum Vitae</b>	No specific CV format is required
<b>Degrees</b>	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). Applicants are required to indicate the Weighted Average Mark (WAM) for each degree submitted.
<b>Research proposal</b>	Brief research statement (2 pages maximum in Times New Roman 11, with references including maximum 20 articles)
SUPPORTING DOCUMENTS	
<b>Publications</b>	Lists of publications (i.e. monographs, articles on scientific journals), minor publications (conference papers, book’s chapters etc.), abstracts and posters presented during national and international conferences, etc.
<b>Other documents</b>	<ul style="list-style-type: none"> <li>- Postgraduate vocational training programmes relevant to the PhD Programme main research topics</li> <li>- Teaching activity carried out at university level</li> <li>- 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</li> <li>- Work activity</li> <li>- Curricular or non-curricular professional internships</li> <li>- Other qualifications attesting the suitability of the applicants (scholarships, prizes, etc.)</li> </ul>

## Evaluation criteria\*

Scores will be expressed in points out of 100, as follows.

### 1. Qualifications and research proposal evaluation

Minimum score for admission to the oral examination: 30 points, Maximum score: 50 points

<b>Qualifications evaluation</b>	First cycle degree Weighted Average Mark (WAM) - 50% Second cycle degree Weighted Average Mark (WAM) - 50% Or Single cycle degree Weighted Average Mark (WAM) - 100% Or “Vecchio ordinamento” Italian degree (pre-1999 reform) average mark - 100% For degrees awarded abroad – CGPA - 100%	25 points max
	Publications	4 points max
	Postgraduate scholarships, research grants, research activity carried out in Universities, public or private bodies, in the last 5 years and after being awarded a second cycle degree	2 points max

	Other qualifications attesting the applicant's training and skills	3 points max
	Participation in conferences as a speaker or author/co-author of original contributions	1 points max
<b>Research proposal evaluation</b>	Scientific value and ground-breaking nature, structure and feasibility of the proposal	15 points max

## 2. Oral examination

Minimum score for eligibility: 30 points, Maximum score 50 points

English language proficiency	10 points max
Research proposal presentation	15 points max
General knowledge of issues encompassed by the PhD Programme	25 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 language proficiency shall be assessed.**

The oral examination is carried out in Italian or in English.

\* Possible further evaluation criteria will be available on the [University website](#), selecting the relevant PhD Programme > "More information".

## Research Topics

- Quantitative Finance and Economics
- Materials and Industry 4.0
- Genomics and bioinformatics
- Personalised medicine
- Hardware and Infrastructure
- Machine learning and deep learning
- Computational physics
- Computational chemistry
- Big Data, Smart Cities & Society