

**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 19/07/2022

Section “Available Positions and Scholarships” integrated on 22/07/2022

Section “Available Positions and Scholarships” integrated on 28/07/2022

|                      |  |
|----------------------|--|
| PROGRAMME’S NAME     | <b>STATISTICAL SCIENCES</b>  |
| DURATION             | 3 years  |
| PROGRAMME START DATE | 01/11/2022 (DD/MM/YYYY)  |
| LANGUAGES            | Italian, English   |
| COORDINATOR          | Prof.ssa Monica Chiogna ( <a href="mailto:monica.chiogna2@unibo.it">monica.chiogna2@unibo.it</a> )   |
| RESEARCH TOPICS      | <ul style="list-style-type: none"> <li>- Statistical methods</li> <li>- Economic statistics and econometrics</li> <li>- Biostatistics</li> <li>- Demography and social statistics</li> </ul> |
| PhD POSITIONS        | 4  |
| ADMISSION PROCEDURE  | Qualifications evaluation<br>Oral examination  |

**Available Positions and Scholarships**

| Pos. n. | Financial Support                               | Description  | Positions linked to research topics   |
|---------|---|--|---|
| 1       | <b>PhD Scholarship<br/>Ex M.D.<br/>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 ARITHMOS         | Artificial Intelligence and Machine Learning in Life Sciences   |
| 2       | <b>PhD Scholarship<br/>Ex M.D.<br/>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 Alira Health Srl | Analysis of the impact of environmental and social trends on the Life Science Industry with a particular focus on the study of the impact of climate change and postCovid recovery on the evolution of population medical needs |
| 3       | <b>PhD Scholarship</b>                          | Funded by the Department of Statistical Sciences with funds made available by the project H2020 ERC POPCLIMA in collaboration with Istituto Max Planck Institute for Demographic Research      | Assessing the impact of climate change on demographic behaviour   |

|   |                      |  |   |
|---|----------------------|--|---|
| 4 | <b>Executive PhD</b> | Position reserved for employees of Unicredit SpA | Alternative credit scoring model by absorbing social media information and inspecting network among borrowers |
|---|----------------------|--|---|

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.

## 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>   | The Curriculum Vitae must be drawn up using exclusively the <a href="#">Curriculum Vitae form</a> , in Attachment 1 to the present PhD programme table and downloadable in .docx from the <a href="#">University Website</a> (select the PhD Programme → “More information”, then check “Notices” at the bottom of the page).. <b>A 5 points penalty on the total qualification evaluation score shall be applied to applicants not using the attached form.</b>  |
| <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)  |
| SUPPORTING DOCUMENTS      |   |
| <b>Thesis abstract</b>    | Abstract of the <b>second cycle degree thesis</b> . Graduands applicants may submit the draft of the thesis. Abstracts cannot exceed 5 pages, including references and images such as graphs, diagrams, tables etc. – if present. Applicants awarded a second cycle degree in a foreign university, where the research thesis was not part of the programme, shall submit a <b>research proposal</b> (max 5 pages, including references and images such as graphs, diagrams, tables etc. – if present).   |
| <b>Reference letter/s</b> | <b>No more than 1 reference letter, drawn up using the <a href="#">Reference Letter form</a></b> , in Attachment 2 to the present PhD programme table and downloadable in .docx from the <a href="#">University Website</a> (select the PhD Programme → “More information”, then check “Notices” at the bottom of the page). The letter shall be signed by Italian and international academics and professionals in the research field, which do not form part of the Admission Board, and shall attest the suitability of the applicant and his/her interest in the scientific research. Letters shall be uploaded following the procedure detailed in the Call for Applications (Art. 3.2). |
| <b>Publications</b>       | Full text publications, as listed in the Curriculum Vitae (i.e. monographs, articles on scientific journals). Publications with ISSN or ISBN only, and relevant to the PhD programme, shall be evaluated.   |
| <b>Other documents</b>    | Documents showing the applicant is in possession of the qualifications listed in the Curriculum Vitae: <ul style="list-style-type: none"> <li>- periods of study abroad, completed by applicants outside their countries of origin (e.g. Erasmus programme or other similar mobility programmes)</li> <li>- tutorship activity carried out at academic level</li> </ul>   |

|  |  |
|--|--|
|  | <ul style="list-style-type: none"> <li>- internship in scientific institutions or Research Assistantship</li> <li>- research grants or postgraduate scholarship payed by a University or other research institution</li> <li>- relevant work activity</li> <li>- relevant prize awards</li> <li>- TOEFL/CAE/CPE/IELTS or other language proficiency certificate</li> <li>- other qualifications attesting the suitability of the applicants</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>Academic path, assessed according to the relevance to the PhD programme's main topics</b> | <b>5 points max</b> distributed as follows: <ul style="list-style-type: none"> <li>- 0 points: no relevance</li> <li>- up to 3 points: partial relevance</li> <li>- up to 5 points: full relevance</li> </ul>   |
| <b>Main topics exams (see point 3, in the Curriculum Vitae form)</b>                         | <b>24 points max</b> distributed as follows: <ul style="list-style-type: none"> <li>- up to 2 points for each relevant exam listed in the CV</li> <li>- up to 14 points for the average mark for the selected exams</li> </ul>  |
| <b>Publications</b>  | 2 points max  |
| <b>Other documents</b>   | <b>6 points max</b> distributed as follows <ul style="list-style-type: none"> <li>- up to 2 points for vocational activity (study periods abroad, tutoring activity)</li> <li>- up to 2 points for internship in scientific institutions or Research Assistantship</li> <li>- up to 2 points for research grants or postgraduate scholarship payed by a University or other research institution</li> <li>- up to 2 points for relevant work activity</li> <li>- up to 2 points for relevant prize awards</li> <li>- up to 2 points for TOEFL/CAE/CPE/IELTS or other language proficiency certificate</li> <li>- up to 1 point for other study or research qualification</li> </ul> |
| <b>Further evaluation elements</b>   | <b>13 points max</b> distributed as follows: <ul style="list-style-type: none"> <li>- up to 3 points for the reference letter</li> <li>- up to 10 points for the thesis abstract (or research proposal)</li> </ul>  |

### 2. Oral examination

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

|  |               |
|--|---------------|
| General knowledge of issues encompassed by the PhD Programme | 40 points max |
| Personal statement   | 10 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). The oral examination is carried out in English.

#### Suggested readings for the interview:

- Casella, G., & Berger, R. L. (2002), *Statistical inference (Vol. 2)*. Pacific Grove, CA: Duxbury.
- Mood A. Graybill F.A., Boes D.C. (1974), *Introduction to the Theory of Statistics*, McGraw Hill College.

For further details, see <https://phd.unibo.it/statistics/en/admissions>

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

**CURRICULUM FOR APPLICATION TO THE PHD COURSE IN STATISTICS  
UNIVERSITY OF BOLOGNA – A.Y. 2022/23**

**NAME:**

\_\_\_\_\_

*Surname*

\_\_\_\_\_

*Name*

**1. IDENTIFY YOUR CURRENT POSITION**

*Write the position which best describes the activity in which you are currently involved.*

\_\_\_\_\_

\_\_\_\_\_

**2. LIST EDUCATIONAL INSTITUTIONS ATTENDED, IN REVERSE CHRONOLOGICAL ORDER, INCLUDING THE ONE(S) WHERE YOU ARE CURRENTLY ENROLLED.**

| INSTITUTION AND LOCATION<br><i>(List in reverse order. Write name in full. Do not abbreviate)</i> | MAIN FIELD(S)<br>OF STUDY | DATES (Monthly/Year) |    | NAME OF QUALIFICATION,<br>TITLE CONFERRED and GRADE | DATE OF ATTAINMENT<br>(or expected date if not attained yet) |
|---|---------------------------|----------------------|----|---|--|
|   |                           | From                 | To |   |  |
|   |                           |                      |    |   |  |
|   |                           |                      |    |   |  |
|   |                           |                      |    |   |  |
|   |                           |                      |    |   |  |
|   |                           |                      |    |   |  |
|   |                           |                      |    |   |  |

**Instructions for foreign students:**

Do not try a conversion of your university grading scale. Indicate the grades as granted by your school and give us a brief explanation of your school's grading system. Please describe the grading system(s) used at all colleges and universities you have attended. Explain the specific meaning of any numeric values, letter grades, and rankings.

### 3. RECORD OF COURSES TAKEN IN PREPARATION FOR GRADUATE STUDY

Based on your transcript(s), please complete the following summary of your college and university classes. In particular, you are required to list the **five courses** that you consider most relevant to certify basic knowledge in Mathematics, Probability and Statistics.

#### Instructions for foreign students:

Do not try a conversion of your university grading scale or GPA. Indicate the grades/GPA as granted by your school and give us a brief explanation of your school's grading system. Please describe the grading system(s) used at all colleges and universities you have attended. Explain the specific meaning of any numeric values, letter grades, and rankings.

| Course name<br>(and number,<br>if available) | Principal teaching<br>material used (if any<br>book indicate author<br>and title) | Year<br>taken | Credits | Official course<br>grade<br>(if applicable) |
|--|---|---------------|---------|---|
|  |   |               |         |   |
|  |   |               |         |   |
|  |   |               |         |   |
|  |   |               |         |   |

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  |  |
|--|--|--|--|--|

**4. LIST ANY PUBLICATIONS AUTHORED BY YOU, ESPECIALLY IN YOUR PROPOSED FIELD OF STUDY**

*Give title, place, date, and all authors of publication (Only publications with ISSN or ISBN a relevant for the PhD course will be evaluated).*

**5. LIST SCHOLARSHIPS OR FELLOWSHIPS HELD AT PRESENT OR IN THE PAST FOR STUDY**

*Give source or sponsor, amount, place and duration, for instance: ERASMUS Scholarship, 6 months, University of Aarhus.*

## **6. TEACHING OR TUTORING EXPERIENCE**

*Indicate any teaching qualification, teaching or tutor position you have hold or you are currently holding.*

## **7. RESEARCH ASSISTANTSHIPS OR INTERNSHIP AT SCIENTIFIC INSTITUTIONS**

*Indicate place, duration and a brief description of the research activity developed during the internship.*

## **8. RESEARCH GRANTS OR SCHOLARSHIPS FOR RESEARCH**

*Indicate any grants, scholarships for research you have completed or in which you are currently involved. Give source or sponsor, amount, place and duration.*

**9. WORK EXPERIENCE**

List the positions held, beginning with the most recent employment.

| NAME AND ADDRESS OF THE EMPLOYER | TITLE/TYPE OF WORK | DATES (Month/Year) |    |
|----------------------------------|--------------------|--------------------|----|
|                                  |                    | From               | To |
|                                  |                    |                    |    |
|                                  |                    |                    |    |
|                                  |                    |                    |    |
|                                  |                    |                    |    |
|                                  |                    |                    |    |
|                                  |                    |                    |    |

**10. INDICATE ANY ACADEMIC HONOR OR PRIZE WHICH YOU HAVE RECEIVED, WITH TITLES AND DATES****11. LANGUAGE SKILLS**

Rate yourself Excellent, Good, Fair or Poor. Include all languages in which you have some competence.

Mother Tongue \_\_\_\_\_



| LANGUAGE | READING | WRITING | SPEAKING |
|----------|---------|---------|----------|
| English  |         |         |          |
| Italian  |         |         |          |
|          |         |         |          |
|          |         |         |          |

Language certifications

TOEFL: Date taken: \_\_\_\_\_ Scores: \_\_\_\_\_

IELTS: Date taken: \_\_\_\_\_ Scores: \_\_\_\_\_

\_\_\_\_\_ Date taken: \_\_\_\_\_ Scores: \_\_\_\_\_

\_\_\_\_\_ Date taken: \_\_\_\_\_ Scores: \_\_\_\_\_

**12. FURTHER TITLES OR RESEARCH ACTIVITIES**

*Include any further significant activity or research stage experience you have completed or in which you are currently involved.*

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

Allegato 2

**CONFIDENTIAL LETTER OF REFERENCE  
FOR APPLICATION TO THE PHD COURSE IN STATISTICS  
UNIVERSITY OF BOLOGNA – A.Y. 2022/23**

*(to be filled either in English or in Italian)*

This letter of reference must be written by an instructor under whom the applicant has studied or pursued research in the proposed field of study or by someone who has supervised the applicant in work related to the proposed field of study. This letter must be signed, and uploaded.

NAME OF APPLICANT \_\_\_\_\_

NAME OF REFEREE \_\_\_\_\_

TITLE \_\_\_\_\_

INSTITUTION OR COMPANY \_\_\_\_\_

CITY AND COUNTRY \_\_\_\_\_

1. HOW LONG HAVE YOU KNOWN THE APPLICANT? \_\_\_\_\_

2. IN WHAT CAPACITY HAVE YOU KNOWN THE APPLICANT?

Instructor or Professor

Employer or Job Supervisor

Research Advisor

Other (Please specify) \_\_\_\_\_

3. IN THIS RATING CHART, PLEASE EVALUATE THE APPLICANT COMPARED TO OTHER STUDENTS THAT YOU HAVE KNOWN DURING YOUR PROFESSIONAL CAREER

|  | Excellent | Very Good | Average | Below Average | Not Applicable |
|--|-----------|-----------|---------|---------------|----------------|
| Intellectual ability                                   |           |           |         |               |                |
| Knowledge of field                                     |           |           |         |               |                |
| Work habits  |           |           |         |               |                |
| Motivation to pursue graduate study                    |           |           |         |               |                |
| Seriousness of study                                   |           |           |         |               |                |
| Potential for significant future contribution in field |           |           |         |               |                |
| Resourcefulness and initiative                         |           |           |         |               |                |
| Emotional maturity                                     |           |           |         |               |                |
| Adaptability to new situations                         |           |           |         |               |                |
| Leadership qualities                                   |           |           |         |               |                |
| Teaching potential                                     |           |           |         |               |                |

4. HOW DOES THIS APPLICANT COMPARE WITH HIS OR HER PEER GROUP IN ACADEMIC ABILITY?

- |  |  |  |  |
|--|--|--|--|
| <input type="checkbox"/> Truly exceptional<br><i>Equivalent to the very best you have known – a person who, in your experience, appears only every few years</i> | <input type="checkbox"/> Outstanding<br><i>Comparable to the best student in a current class</i> | <input type="checkbox"/> Well above average<br><i>Top 25%</i>        | <input type="checkbox"/> Above average<br><i>Demonstrated high ability</i> |
| <input type="checkbox"/> Average<br><i>Able to complete work to the PhD</i>  | <input type="checkbox"/> Below average<br><i>Lower 50%</i>                                       | <input type="checkbox"/> Inadequate<br><i>Opportunity to observe</i> |  |

5. IN YOUR OPINION, HOW WOULD THIS STUDENT COMPARE TO OTHER STUDENTS IN THE GRADUATE PROGRAMME IN STATISTICS?

- |  |  |   |  |
|--|--|---|--|
| <input type="checkbox"/> Truly exceptional | <input type="checkbox"/> Outstanding   | <input type="checkbox"/> Well above average | <input type="checkbox"/> Above average |
| <input type="checkbox"/> Average           | <input type="checkbox"/> Below average | <input type="checkbox"/> Inadequate         |  |

6. PERSONAL EVALUATION OF THE APPLICANT. WHAT PARTICULARLY QUALIFIES THIS STUDENT FOR A PHD IN STATISTICS? INFORMATION ABOUT ACCOMPLISHMENTS IN RESEARCH OR INDEPENDENT PROJECTS WILL BE PARTICULARLY HELPFUL. IF YOU KNOW OF OTHER STUDENTS WHO HAVE ENTERED THE BOLOGNA PhD PROGRAMME, A COMPARISON WILL BE ESPECIALLY VALUABLE.

7. EXPERT'S DATA

We would be most grateful if you could provide us some information on your cv.

PERSONAL WEB PAGE \_\_\_\_\_

EDUCATION \_\_\_\_\_

\_\_\_\_\_

CURRENT POSITION \_\_\_\_\_

\_\_\_\_\_

FIELD OF EXPERTISE \_\_\_\_\_

\_\_\_\_\_

ADVISED PHD STUDENTS (NUMBER OF) \_\_\_\_\_

\_\_\_\_\_

RESEARCH PAPERS (MAX 5) IN ISI REFEREED JOURNALS

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SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

