

PhD Programme Table - 38th cycle
NRRP “National Recovery and Resilience Plan” Call for Applications



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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 29/08/2022

PROGRAMME’S NAME	FUTURE EARTH, CLIMATE CHANGE AND SOCIETAL CHALLENGES
DURATION	3 years
PROGRAMME START DATE	01/11/2022 (DD/MM/YYYY)
LANGUAGES	English
COORDINATOR	Prof.ssa Nadia Pinardi (nadia.pinardi@unibo.it)
CURRICULA	<ol style="list-style-type: none"> 1. One Health 2. The Earth System 3. Impacts, Adaptation and Vulnerability 4. Technological Innovations for a Decarbonized Society 5. Socio-economic and Legal Studies for Mitigation of Climate Change
RESEARCH TOPICS	Detailed list at the bottom of the present document
PhD POSITIONS	4
ADMISSION PROCEDURE	Qualifications and research proposal evaluation Oral examination

Available Positions and Scholarships

Pos. n.	Financial Support	Description	Positions linked to research topics
1	PhD Scholarship Ex M.D. 351/2022 - PA	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	Life cycle approach applied to dynamic and consequential models for the implementation of innovative policies and technologies within the scopes of decarbonization and sustainable development
2	PhD Scholarship Ex M.D. 351/2022 - NRRP Research	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) – NRRP Research	Remote sensing observations of the Earth System for the derivation of atmospheric variables
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 EUROVO Srl	Development of a vertically integrated laying hen production system with high environmental sustainability and animal welfare level and reduced risk of antimicrobial resistance

4	PhD Scholarship	Funded by Atos Italia SpA	Algorithms development for climate change applications using computer architecture of new generation
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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)
Curriculum Vitae	No specific CV format is required
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)
SUPPORTING DOCUMENTS	
Research proposal	<p>Multi-annual research proposal, with special emphasis on the activities to be completed during the first-year course. The proposal must meet the following requirements:</p> <ul style="list-style-type: none"> - it must mention on the cover page the Curriculum and the main research topic/s the applicant is interested to and the proposal is about; - it cannot exceed 20,000 characters, including spaces and formula possibly used. This figure does not include: the title of proposal, the outline, references and images (such as graphs, diagrams, tables, etc. - if present); - it must include: the state of the art; description of the proposal; expected results; articulation of the proposal and implementation times; outline of the proposed findings assessment criteria; references. <p>The research proposal that successful applicants shall carry out during their PhD career may possibly differ from the one proposed at the application stage. This shall be defined together with the supervisor and approved by the Academic Board.</p>
Thesis abstract	Abstract of the second cycle degree thesis . Graduating applicants may submit the draft of the thesis. Abstracts cannot exceed 5,000 characters, including spaces and formula possibly used. The above figure does not include: the title of the thesis, the outline, references, and images such as graphs, diagrams, tables etc.
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).
Reference letter/s	No more than 2 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 in the scientific research. Letters shall be uploaded following the procedure, detailed in the Call for Applications (Art. 3.2).

Publications	Lists of publications (i.e. monographs, articles on scientific journals), minor publications (conference papers, etc.), abstracts and posters presented during national and international conferences, etc.
Other documents	<ul style="list-style-type: none"> - Postgraduate vocational training programmes and/or specialisation programmes relevant to the PhD Programme main research topics - Specialisation thesis - Teaching activity carried out at academic level - 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 activities - Documents attesting the applicant's foreign languages proficiency - Study periods completed by applicants 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.)

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

Second cycle degree (Master's) final mark. Graduands shall be evaluated according to the Weighted Average Mark (WAM)	9 points max
Thesis abstract	8 points max
Research Proposal	8 points max
Reference letter/s	6 points max
Publications	4 points max
Personal Statement	5 points max
Postgraduate programmes, Teaching and Work activity	4 points max
Foreign languages proficiency and study period abroad	4 points max
Other evaluable documents	2 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 language 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

Curriculum 1. One Health

- Biodiversity loss and environmental impacts on health
- Environmental health risk factors, Nutrition and health/disease determinants
- Antimicrobial resistance at human/animal/environmental interfaces
- Environmental health risks and law
- Climate change and emerging infectious diseases
- Microbiome at human/animal/environmental interfaces
- Food and water safety, sustainable food production, waste management
- Urban environment and human-animal relationships
- Diseases impact and management strategies at socio-economic and environmental levels
- Artificial intelligence applied to epidemiological and environmental data

Curriculum 2. The earth system

- Solid earth physics
- Observations of the atmosphere, oceans and ecosystems
- Climate variations and modeling
- Atmospheric and ocean predictions
- Water and hydrology
- Carbon cycle and biogeochemical cycles
- Paleoclimate
- Hazard mapping and extreme events
- Machine Learning applied to earth system data

Curriculum 3. Impacts, adaptation and vulnerability

- Food production and security
- Water resources and security
- Biodiversity, environment and nature conservation
- Economics of adaptation
- Resilient agriculture
- Cultural heritage conservation
- Recovery and reuse of materials

Curriculum 4. Technological innovations for a decarbonized society

- Energy and environmental efficient systems
- Renewable energy systems and products
- Green/blue/hybrid architecture
- Smart grids and positive energy districts
- Transport innovation
- Low carbon technologies
- Sustainable chemistry and engineering
- Industrial and Urban Symbiosis

Curriculum 5. Socio-economic and legal studies for mitigation of climate change

- Social, Economic, and Ethical Concepts and Methods
- Sustainable Development and Equity
- International Cooperation
- Regional Development and Cooperation
- Cross-cutting Investment and Finance issues
- Environmental law
- Circular economy
- Communicating Climate Change