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 13/07/2022

Section "Available Positions and Scholarships" integrated on 18/07/2022

Section "Available Positions and Scholarships" integrated on 22/07/2022

PROGRAMME'S NAME	CULTURAL AND ENVIRONMENTAL HERITAGE
DURATION	3 years
PROGRAMME START DATE	01/11/2022 (DD/MM/YYYY)
LANGUAGES	Italian, English
COORDINATOR	Prof. Roberto Pasini (roberto.pasini@unibo.it)
CURRICULA	1. Cultural and environmental heritage: memory, protection, rights 2. Science and Technologies for Cultural Heritage
RESEARCH TOPICS	Detailed list at the bottom of the present document
PhD POSITIONS	5
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 - Cultural Heritage***	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) – Cultural Heritage	Applicants shall choose one among the main research topics of the PhD programme in Cultural and Environmental Heritage
2	***PhD Scholarship***	Funded by Fondazione Carisbo	Italian Judaism between the Middle Ages and the Modern Age in the light of its manuscripts
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 ENI SPA	Waste-to-material recycling aimed to carbon-based second-generation materials: production technology and experimental applications
4	***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 MARE Società Cooperativa a r.l.	Integrative approach to study and preserve local aquaculture heritage

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5	***PhD Scholarship***	Funded by the Department of Physics and Astronomy with funds made available by the project FLEXJET1.	Sequestration capability and persistence of biochar in soil: mechanistic approach and system analysis

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 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)
Research proposal	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: - it must include **a cover page** (see form in Attachment 1 to the present PhD programme table) indicating the **Curriculum and the position related to a research topic** in which the applicant is interested and that is associated to the research proposal (**research proposals without this indication will receive an evaluation of zero points**); - **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; references.
SUPPORTING DOCUMENTS	
Thesis abstract	Abstract of the **second cycle degree thesis.** Graduands 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.
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 on Studenti Online, detailed in the Call for Applications (Art. 3.2).
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).
Publications	Lists of publications (i.e. monographs, articles on scientific journals, book chapters), abstracts and posters presented during national and international conferences, etc.

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Other documents	- Postgraduate vocational training programmes and/or specialisation programmes relevant to the PhD Programme main research topics - Specialisation programmes thesis (in full text) - Teaching activities carried out at university level - Research activities 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 - Curricular and non-curricular training internships - Documents attesting the knowledge of foreign languages - 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

Qualifications evaluation	First (Bachelor's) and second cycle (Master's) degrees final mark/s and Weighted Average Mark (WAM). Graduands shall be evaluated according to the Weighted Average Mark (WAM)	15 points max
	Publications	5 points max
	Reference letters and other supporting documents	5 points max
Research proposal evaluation	Scientific value and ground-breaking nature of the proposal	15 points max
	Structure of the proposal	5 points max
	Proposal feasibility	5 points max

2. Oral examination

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

English language proficiency	5 points max
Research proposal presentation	25 points max
General knowledge of the research topic, selected by the applicant and related to the submitted research proposal	20 points max

Oral examination aims to assess the suitability of the applicant for scientific research as well as the general knowledge of the research topic, selected by the applicant and related to the submitted research proposal (see the list of research topics at the bottom of the present document). **During the oral examination, the applicant's English 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: Cultural and environmental heritage: memory, protection, rights

- **Cultural heritage**: Historic, social, economic, and cultural processes in European, Mediterranean, and Western Asian contexts; public history; conservation of ethno-cultural heritage and management of cultural resources in endangered areas.

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- **Environment, objects, rights**: diagnostic analysis of monumental and portable artefacts of historical interest; musealisation through digital and virtual modelling; promoting the appreciation and use of bio-environmental goods as common goods; legal and regulatory consequences.
- **Environment and landscape, cities and architecture**: tools for the analysis and conservation of the environment, biological and anthropological heritage, archaeology, urban settings, industrial archaeology, consolidation and restoration of historical architecture; the historical relationship between urban areas and their territories, sustainable development of tourism, fruition of historic towns.
- **Governance and management of common goods**: risk assessment and risk management, efficient use of resources, definition and quantification of ecosystemic service value, assessment of natural resource consumption and of production of solid, liquid, and gaseouse waste.

Curriculum 2: Science and Technologies for Cultural Heritage

Production techniques, material characterization, state of conservation:

- Development of: advanced analytical protocols (spectroscopy, immune chemistry, DFT, chemometrics), micro and non-invasive diagnostic methods, intervention methods on humidity phenomena of historical buildings, interaction with pollutants, tomographic systems (digital radiography, X-Ray computer tomography, software for real-time tomography and 3D rendering.
- Development of innovative restoration materials and methods. Design, development, testing and performance evaluation of innovative materials (nanomaterials, polymers, biopolymers, composite materials) and methods for the consolidation, cleaning and protection of both movable and immovable cultural heritage.

Survey, monitoring and representation technologies:

- Definition of protocols and standards for the production of 3D contents aimed at monitoring cultural heritage, methods and protocols for the production of 3D models with semantic structure to be applied to cognitive systems
- Design of web-based application for the archiving and use of technical-scientific data related to conservation and restoration projects
- Production contents and design of augmented reality systems, efficient workflows, survey and monitoring multiscale
- Integrated techniques integrated by topographic, photogrammetric, laser scanner and special positioning
- UAV survey for data management
- Acquisition with multispectral sensors and scanners
- GIS applications
- 3D models (development of new procedures for the collection and optimal elaboration
- ICT methodologies and techniques for the creation, analysis and representation (virtual reality and augmented/ mixed reality) and multi sensorial interaction by means of digital data.

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Attachment 1 – First page of the research proposal

Name:

Surname:

Date of birth:

Title research proposal:

Curriculum of the PhD programme and positions linked to research topic (select only one topic)

POSITION N. 1

1. Cultural and environmental heritage: memory, protection, rights

   - ☐ Cultural heritage
   - ☐ Environment, objects, rights
   - ☐ Environment and landscape, cities and architecture
   - ☐ Governance and management of common goods

2. Science and Technologies for Cultural Heritage

   - ☐ Production techniques, material characterization, state of conservation
   - ☐ Survey, monitoring and representation technologies

OTHER POSITIONS

- ☐ Italian Judaism between the Middle Ages and the Modern Age in the light of its manuscripts tion techniques, material characterization, state of conservation
- ☐ Waste-to-material recycling aimed to carbon-based second-generation materials: production technology and experimental applications
- ☐ Integrative approach to study and preserve local aquaculture heritage