

PHD PROGRAMME TABLE
Announcements of competition for admission to PhD Courses
41st cycle, Academic Year 2025/2026

PhD Course: MATHEMATICS

PhD Programme in association with the University of Ferrara and the University of Parma

Available positions: 14

Evaluation Methods: based on academic and research records and interview

Available positions:

Place n.	Description	Financial support	Specific research topic
1	Scholarship	University of Modena and Reggio Emilia scholarship	-
2	Scholarship	University of Modena and Reggio Emilia scholarship	-
3	Scholarship	University of Modena and Reggio Emilia scholarship	-
4	Scholarship	University of Ferrara scholarship	-
5	Scholarship	University of Ferrara scholarship	-
6	Scholarship	University of Ferrara scholarship	-
7	Scholarship	University of Parma scholarship	-
8	Scholarship	University of Parma scholarship	-
9	Scholarship	University of Parma scholarship	-
10	Scholarship	Scholarship funded by INdAM - Istituto Nazionale di Alta Matematica	The Geometry of Deep Learning
11	Scholarship	Scholarship funded by Emilia Romagna Region in implementation of the program "High-Level Skills to Address the Challenges of the Technological, Cultural, Economic, and Social Transition Towards Sustainability"- PR ESF+ 2021/2027 CUP E83C25002380002	Towards greener AI: optimising hyperparameters for sustainable and adaptive intelligence
12	Scholarship	Scholarship funded by ADAMUS Project - CUP F53C25000210001, FIS 2 - Prof. Lorenzo Pareschi, University of Ferrara	Scientific machine learning for partial differential equations
13	Scholarship	Scholarship funded by ADAMUS Project - CUP F53C25000210001, FIS 2 - Prof. Lorenzo Pareschi, University of Ferrara	Stochastic particle methods for optimization problems
14	Scholarship	Scholarship funded by Emilia Romagna Region in implementation of the program "High-Level Skills to Address the Challenges of the Technological, Cultural, Economic, and Social Transition Towards Sustainability"- PR ESF+ 2021/2027 CUP F71J25000100009	Logic and symbolic systems for rule extraction and information treatment from text in an agentic context: an integrated approach

Areas of the PhD Programme: The PhD program in Mathematics is based on a close collaboration among the Universities of Ferrara, Modena and Reggio Emilia, and Parma,

and has represented a well-established reality at both regional and national levels since 2013.

PhD students benefit from the educational offerings provided by all three institutions in various areas of Mathematics, as well as from the diverse expertise within the teaching board. Through an extensive network of national and international contacts and the high qualification of its academic staff, the program offers a top-tier educational path in every specific area of mathematical sciences.

The primary goal is to train highly qualified professionals in the field of Mathematics, with advanced knowledge of mathematical models and methodologies, also applicable in interdisciplinary contexts. This objective is achieved through a combination of lectures, seminars, participation in workshops, and research periods at external institutions. These experiences not only introduce PhD candidates to the world of academic and non-academic research but also help them build professional networks that will support them in the years following the completion of their degree.

In addition to study periods, presentations at internationally recognized conferences and workshops are organized to assist PhD candidates in their future entry into the job market. The training is specifically designed to develop the ability to identify significant research problems in mathematics, to formulate solutions to these problems, and to effectively communicate results through oral presentations or written work.

At the end of the program, PhD graduates will be able to conduct independent research, produce original and relevant results, and integrate into the international scientific community. They will possess the necessary skills to work not only in universities and research institutes but also in industry, public administration, and private commercial enterprises.

The PhD Programme is activated by the University of Modena and Reggio Emilia in agreement with the University of Parma and the University of Ferrara. For the XLI cycle, the administrative office is the University of Modena and Reggio Emilia. Students will be placed in the research groups of the two partner universities according to the seat of the supervisor (tutor) that will be assigned by the Faculty Board.

At the end of the Programme the University of Modena and Reggio Emilia confers a joint degree with the University of Parma and the University of Ferrara.

Admission requirements: Italian second cycle master's degree ("Laurea Magistrale", under D.M. 270/04 or "Laurea Specialistica", under D.M. 509/99) or Italian degree obtained prior to D.M. 509/99 (the previous Italian regulations) or Second cycle non-Italian Master's degree, equivalent to the Italian degrees mentioned above, in accordance with Article 2 of this Call.

Documents to be attached to the application:

- 1) In order to express interest in also competing for the scholarships linked to a specific research topic, candidates must complete and attach the file "[Declaration of priority interest to compete for scholarships linked to a specific research topic](#)"
- 2) Degree certificate (or self-certification for Italian degrees) and Transcript of Records including the full list of examinations. Applicants with a non-Italian degree must attach their certificate (including the full list of examinations with corresponding marks) and a legalized translation or Diploma Supplement and, if available, the Declaration of Value ("Dichiarazione di Valore in loco") issued by the competent Italian diplomatic-consular Representation, or the certificates issued by the CIMEA - ENIC-NARIC centre. If the degree certificate is not yet available or if the degree has not yet been

obtained, the candidate must attach a description of the degree with a list of the examinations taken using [Annex A](#);

- 3) a short text in English (Statement of Research Interest), no longer than two pages, using the form in [Annex C](#), in which the candidate illustrates her/his motivation for attending the Course and the description of her/his specific research interests;
- 4) a project of no more than 10,000 characters including spaces, written in English or Italian, on an original research topic. The structure should include: an introduction of the research problem within the international scientific context, the relevance of the problem, the methodology to be used to address it, and the expected results; this project is not binding with respect to the subsequent choice of the doctoral thesis topic, except for positions with a defined research theme;
- 5) a summary of the Master's thesis, in Italian or English, with a maximum length of 3 pages, structured as follows: thesis motivations, research methods, and results obtained;
- 6) two letters of recommendation/reference; in the online application, applicants must enter all the personal data of the professor/researcher/expert who will send the letter of recommendation. After the submission of the application, the computer system will send an automatic e-mail to the contact person requesting the letter of recommendation. The deadline for uploading letters is 30 June 2025, 11.59 pm (CET); applicants can check on the application summary page whether the contact person has sent the cover letter/recommendation. Within this deadline, applicants may send a reminder to the contact person who has not yet sent a letter by selecting the 'reminder' item on the application summary page;
- 7) academic, professional, teaching, and certified language qualifications, as well as publications (including abstracts and/or papers presented at conferences or symposia);
- 8) copy of a valid identity document.

Evaluation Criteria:

The Selection Committee has the capacity to assign scores up to a total of 80 points.

In the evaluation of candidates' qualifications, the Selection Committee assigns scores up to a total of 40 points, as follows:

- Academic curriculum: from 0 to 20 points
- Research project: from 0 to 6 points
- Master's thesis: from 0 to 6 points
- Statement of Research Interest: from 0 to 3 points
- Letters of reference: from 0 to 5 points

Minimum score required to be admitted to the interview: 28 points.

The list of the candidates admitted to the interview, and any variation in the selection procedure, will be published before July 15th, 2025 at the following University website address <https://www.unimore.it/en/bando-phd-41>.

In the interview, the Selection Committee assigns scores up to a total of 40 points, as follows: The interview will focus on the candidate's scientific interests, with particular reference to the work carried out in their Master's thesis, scientific qualifications, and any submitted publications. Knowledge of the English language will also be assessed through the reading and translation of a short scientific text.

After the evaluation of qualifications and the interview, the Committee will compile a ranking list based on the scores assigned to each candidate.

Candidates who obtain a minimum score of 60/80 will be considered eligible.

INTERVIEW SCHEDULE

In-person interview: July 24th, 2025 at 9.30 am. The examination will be held at the Department of Physics, Computer Science, and Mathematics of the University of Modena and Reggio Emilia, room M1.1 (Mathematics building, first floor).

In case of a high number of candidates, the interviews will continue on **July 25th, 2025, at 9:30 a.m.**

Candidates with justified reasons (e.g. residents abroad) may request the remote interview (which will take place via the Google Meet, at following the link <https://meet.google.com/zyc-xeip-wrs>). In this case, instructions on how to conduct the interview will be communicated following the publication of the ranking list of candidates admitted to the interview.