



CALL FOR PHD POSITIONS – 35 cycle PHD PROGRAMME in MODELING AND DATA SCIENCE

PhD Programme Coordinator	Prof. Laura Lea Sacerdote
Department	Mathematics “G.Peano”
PhD Programme Length	3 years
PhD web site	http://dottorato-mds.campusnet.unito.it/do/home.pl
Course start date	November 1 st , 2019
Departments involved in PhD programme	Departments of Mathematics, Physics, Computer Science, Economic Social Mathematical and Statistical Sciences, Clinical and Biological Sciences, Philosophy and Education Sciences, Law, Psychology.

Positions offered ¹	
n. 5 positions with scholarship, of which n. 1 position reserved to candidates with international qualifications	of which: - n. 4 scholarships funded by the University - n. 1 scholarship funded by Dipartimento di Filosofia e Scienze dell'Educazione (excellence Department project)
n. 3 positions reserved to employees of companies or public bodies	of which: - n. 1 position reserved to employees of INTESA SAN PAOLO - separate ranking - <i>The awarding of the position is subject to formalization of the agreement with the company;</i> - n. 1 position reserved to employees of GENERAL MOTORS GLOBAL PROPULSION SYSTEMS-TORINO S.R.L. – separate ranking - <i>The awarding of the position is subject to formalization of the agreement with the company;</i> - n. 1 position reserved to employees of CONSORZIO CSI PIEMONTE - separate ranking - <i>The awarding of the position is subject to formalization of the agreement with the company.</i>

¹ All additional scholarships and apprenticeship contracts (Legislative Decree no. 81/2015 art.45), which may become available after the publication of this Call, will be announced on the University websites <http://www.unito.it/ricerca/fare-ricerca-unito/dottorati-di-ricerca> and <http://en.unito.it/research/phd/phd-programmes> until Call's deadline.



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Titles of Research Projects / Research Fields

The list of research projects/research fields is available at the end of this Information Sheet. This list may be updated until the deadline of Call for Admission to PhD positions.

Entrance examinations

Schedule with information on dates and venues of entrance examinations will be published on the websites: <http://www.unito.it/ricerca/fare-ricerca-unito/dottorati-di-ricerca> and <http://en.unito.it/research/phd/phd-programmes>, starting from **9th April 2019**.

Application fee

Application fee is €50.00 for each application submitted. Candidates with international qualifications are exempted from paying the application fee.

Application fee deadline: 16th April 2019 (mandatory deadline).

Candidates who do not pay the application fee within the deadline will be excluded from the competition.

CALL FOR ALL POSITIONS	
Admission procedure	
Assessment of qualifications, research project and interview.	
Qualifications to be uploaded in the on-line application	
• Application form (duly signed and including identification document/passport); • For applicants with international qualifications: submit on-line documentation as specified in Art. 4 of this Call; • For applicants under condition: provision of Bachelor's degree grade, certificate or self-certification with a complete list of academic transcripts concerning the 1st cycle degree (Laurea Triennale) and 2nd cycle degree (Laurea Magistrale) with marks, weighted average and credits. For applicants applying under condition, please also check Art. 5 of the Call. • Research project: provide a research project, written in Italian or English by the candidate, and consistent with the Modeling and Data Science Doctoral Program. The research project shall not exceed 15000 characters. (the proposed project does not necessarily have to coincide with one of the proposed themes) • Abstract of Master Degree thesis (if the program included the defense of a thesis), written in English (up to 2500 characters) considering the scientific relevance to the PhD themes. • Publications	
Assessment criteria	Maximum score 100 points
Assessment of qualifications	Maximum score 30 points
Final grade of Master's/second cycle Degree (or weighted average of list of examinations taken during the Laurea Triennale/1 st cycle degree and Laurea Magistrale/2 nd cycle degree for candidates applying under condition):	maximum score 15 points



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(considering the scientific relevance to the themes of the doctorate) 110-110 cum laude up to 15 points From 107 to 109 up to 10 points From 104 to 106 up to 5 points From 100 to 103 up to 3 points 99 or under 0 points For applicants holding an international qualification: Curriculum Studiorum (as per application form and transcripts)	
Abstract of Master Degree thesis	maximum score 5 points
Publications and other qualifications - Publications: up to 10 points - Other qualifications: up to 10 points (Qualifications relative to professional activities only and not related to a research activity will not be considered)	maximum score 20 points
<i>Minimum threshold for admission to the next step</i>	15 points
Research project	Maximum score: 30 points
<i>Minimum threshold for admission to the next examinations</i>	15 points
Interview	Maximum score 40 points
<i>Minimum threshold for passing the interview</i>	20 points
Further information about the examination: The interview will include questions on applied mathematics, statistics and computer science together with a discussion on the proposed project. The interview, after prior authorisation by the Commission, can be performed telematically (refer to Article 8 of this Call).	

Titoli dei progetti di ricerca / Titles of research projects



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Posti con/senza borsa

1. A multi-agent system (MAS) approach to model news spreading
2. A multi-agent system (MAS) modelisation of the mobility by public transport in the City of Turin
3. Quickest detection and failure time problems for industrial data
4. Machine learning in public health
5. Time changed multivariate stochastic models: calibration and fit on financial data.
6. Computable inference for hidden Markov models with orthogonal polynomial eigenstructure
7. Parallel programming models for modern applications: AI and Big Data
8. Privacy-preserving machine learning in complex domains
9. Algorithms and techniques for analyzing vast non-specialized textual corpora in order to extract complex features relevant to conceptual history and the history of argumentation. (research project linked to the scholarship funded by *Dipartimento di Filosofia e Scienze dell'Educazione – excellence Department research*)

Position reserved to employees of INTESA SAN PAOLO

- Machine learning, deep learning and artificial intelligence applications in banking and finance

Position reserved to employees of General Motors Global Propulsion Systems-Torino srl

- Data analytics and modeling of complex systems in the Automotive and Transportation field

Position reserved to employees of Consorzio CSI Piemonte

- Novel advancements in methodologies and modeling of data and phenomena