



UNIVERSITY
OF TRENTO - Italy

Call for Doctoral positions

PhD Programme in

Mathematics

34th Cycle – First call

Departments of Excellence (Italian Law 232/2016)

Biennium 2018-2019

ACADEMIC YEAR 2018/2019

N.B. Please note that only the Italian version of the present call issued by Rector's Decree no. 213 of 05.04.2018 is legally binding; the English version is provided for information only

Art. 1 – SUBJECT OF THE CALL

The University of Trento opens the first call for position for the 34th Cycle (Academic Year 2017/2018) of the Phd Programme in “Mathematics” jointly run with the University of Verona.

The positions in this first call are related to the appropriate funds allocated within the Departments of Excellence (Italian Law 232/2016), for which the Department of Mathematics of the University of Trento was a beneficiary for the development of the project approved. All positions are on a specific topic (as reported below), defined in the approved project, and are therefore conditional on execution of that specific research topic for which certain skills, to be verified on the selection webpage, are required.

The subsequent publication of a second call for applications with positions covered by university scholarships and other funding institutions is envisaged. The registrations for the second call will also be accepted by the participants to this first call, but those who will be winners both in the selection of the first call and in that of the second, will be automatically removed from the second constituting the winnings on the first call considered the first choice for the candidate and therefore binding.

Positions: no. 10

Fellowships (*Assegni di ricerca*): no. 10

	Reserved Topics¹
A	Calculus of variations and geometric measure theory in metric measure spaces
B	Mean field games and applications
C	Multilinear algebra for tensor decomposition
D	Robust Statistics
E	Statistical Data (Local)Depth for high dimension, functional and networks data
F	Mathematical modeling of arterial hypertension
G	Mathematical Physics of Quantum Teories
H1-2	Algebraic Geometry and Topological Data Analysis (<i>2 posizioni</i>)
I	Geometric Analysis

Deadline for application	May 16, 2018, hrs. 04.00 PM (Italian time, GMT +2)
Duration	three years
Start of the Academic Year	November 1, 2018
Selection website	http://www.unitn.it/en/ateneo/1956/announcement-of-selection
PhD School website	http://web.unitn.it/en/drmath (information on the programme, admission to subsequent years and to final examination)
Rights and duties of doctoral students	http://www.unitn.it/en/ateneo/52919/rights-and-duties-of-doctoral-students
Doctoral fellowship	http://www.unitn.it/en/ateneo/1956/announcement-of-selection and Annex B
Official language	English and Italian

¹ Reserved fellowships can only be assigned to those candidates who apply for and obtain the specific eligibility

Scientific areas:

MAT/01 MATHEMATICAL LOGIC
MAT/02 ALGEBRA
MAT/03 GEOMETRY
MAT/05 MATHEMATICAL ANALYSIS
MAT/06 PROBABILITY AND STATISTICS
MAT/07 MATHEMATICS PHYSICS
MAT/08 NUMERICAL ANALYSIS
MAT/09 OPERATIONAL RESEARCH
SECS-S/01 STATISTICS
INF/01 COMPUTER SCIENCE

N.B.

- a. All selection results (interim and final), the possible exclusion from the selection for incomplete application (art. 3), the exclusion for foreign qualification not recognized as suitable (art. 2 c.3), and any general advices will be published only on the selection webpage; the candidates will be identified through the application ID. The publication on the website is to all intents and purposes valid as official notification.
- b. Without exception, all possible communication from the University of Trento to applicants will be managed via e-mail to the email address specified in the application online. Candidates are advised to check their mail box regularly and keep the Doctorate Office S&T (phd.office-st@unitn.it) promptly informed of any change of their email account.

Art. 2 – ADMISSION REQUIREMENTS

1. Applications for doctoral positions are accepted from applicants, regardless of gender, age and nationality, who hold:
 - a. an Italian “Laurea Magistrale”, according to the Ministerial Decree no. 270 of 22.10.2004 and subsequent amendments, or
 - b. an equivalent Italian university degree (previous regulations in force, “specialistica”, AFAM), or
 - c. an equivalent foreign degree (*Master’s degree*) obtained at an officially acknowledged academic institution, valid for admission to PhD studies in the Country of issue (except for substantial differences) and similar (duration and level) to the Italian degree, recognized as equivalent by the Admissions Committee for the sole purpose of access to the present Phd Programme².
2. Applications are also accepted from students expecting to obtain the necessary degree **by October 31, 2018**. Admission to the Doctoral Programme for successful applicants who have not yet graduated will be “conditional” and the applicant will have to submit to the Doctorate Office S&T (via email to: phd.office-st@unitn.it) **by November 6, 2018**, on penalty of exclusion, awarding certificate or a self-declaration (by using Annex A).
3. Applicants with a foreign qualification that has not been officially recognised as equivalent³ to an Italian degree (*Laurea Magistrale/Specialistica/vecchio ordinamento*) will be considered as requesting equivalence in their application, attaching the necessary supporting documents. The eligibility of foreign academic degrees is assessed by the Admissions Committee, following the rules in force or the international treaties on recognition of academic qualifications. The Admissions Committee may require the applicant to provide additional documentation if deemed necessary for the purpose of assessing the suitability.

Art. 3 – APPLICATION PROCEDURE

1. The application⁴ must be **completed and submitted by hrs. 04.00 PM Italian time (GMT +2) of May 16, 2018, solely by the online system:** <http://www.unitn.it/en/apply/dott>. Applicants who do not have an account at the University of Trento must register in advance at⁵: <http://www.unitn.it/account>.

² Details at: <http://www.cimea.it/en/servizi/il-sistema-italiano-di-istruzione-superiore/qualifiche-del-sistema-universitario.aspx>.

³ For further information see at <http://www.cimea.it/en/servizi/procedure-di-riconoscimento-dei-titoli/procedure-di-riconoscimento-accademico-dei-titoli.aspx>

⁴ The candidate can choose either Italian or English to fill in the application online.

⁵ Candidates are advised to register well in advance of the deadline as the issue of the username and password (sent via email), necessary to enter UNITN's online services, may require up to 2 working days.

2. The application is subject to the payment of an application fee - non-refundable - amounting to € 15 to be paid by credit card according to the instructions given in the appropriate section of the online application. The application online can be saved and modified several times until the submission. Afterwards it can no longer be changed.
3. It is the sole responsibility of the applicant to verify and submit with correct closure the online application (ensuring reception of the email notification). The University refuses any liability for all applications not properly submitted by candidates. The online application is considered to be a self-declaration of personal data and qualifications with full legal effect.

4. MANDATORY ATTACHMENTS (failure to upload one or more mandatory attachments results in automatic exclusion from the selection)

1) Identifying document (ID):

- a copy of the applicant's valid **identity card** (only EU citizens) or **passport** (extra EU applicants), in particular of the pages reporting his/her photograph, personal data, number, place and date of issue, expiry date and signature.

2) Academic degree for admission to PhD:

- **Italian qualification:**
already obtained: a self-declaration, in accordance with Presidential Decree art. 46 no. 445 of 28.12.2000 and subsequent amendments, declaring the possession of a degree (art.2 of this Call), "*Classe di Laurea*", award date, issuing University, final grade, examinations taken, grades and credits obtained (by using Annex A); graduates from the University of Trento may only declare the place and the date of award as the other information can be collected ex officio;
to be obtained: a self-declaration, in accordance with Presidential Decree art. 46 no. 445 of 28.12.2000 and subsequent amendments, declaring the possible award date, issuing University, "*Classe di Laurea*", examinations taken, grades and credits obtained (by using Annex A); future graduate of the University of Trento may only declare the place and the foreseen date of award as the other information can be collected ex officio;
- **foreign qualification⁶:**
already obtained: copy of the academic certificate accompanied by a list of exams with their credits and grades and, if available, the Diploma Supplement⁷ / transcript of records or Declaration of value⁸ or Rector's Decree of equivalence⁹;
to be obtained:
 - a certificate of enrolment with a list of the examinations successfully passed and marks and credits obtained in each examination; if this document is not in English, the applicant must provide, in the same file, a translation of the same duly undersigned;
 - a statement declaring that the student will complete his/her degree by October 31, 2017.

3) Bachelor's degree certificate (or equivalent), with academic transcript of exams, credits and grades obtained (only for Italian degrees a self-declaration can be attached); in case of single-cycle Master's Degree or Italian "*Diplomi di laurea vecchio ordinamento*", attach a declaration to that effect;

4) curriculum vitae et studiorum (in Italian or English), preferably using the Europass format: <http://europass.cedefop.europa.eu/en/documents/curriculum-vitae> ;

5) summary of the Master's thesis in English (maximum 10.000 characters, spaces included) structured as follows: motivations of the thesis and final results;

⁶ It is in the interest of the applicant to provide all information relevant for the assessment, especially if the country where the qualification was obtained has an education system not comparable to the Italian one.

⁷ The Diploma Supplement accompanies a higher education diploma, providing an improvement in international "transparency" and promotion of the academic and professional qualifications obtained (diploma, degrees, certificates, etc.). The Diploma Supplement must be issued by the same institution that issued the qualification. Further information at <http://www.cimea.it/en/servizi/il-sistema-italiano-di-istruzione-superiore/diploma-supplement.aspx> and http://ec.europa.eu/education/resources/diploma-supplement_en

⁸ Further information about DoV and equivalence: <http://www.cimea.it/en/servizi/procedure-di-riconoscimento-dei-titoli/glossario.aspx>

⁹ Delivery of the Diploma Supplement, Declaration of value or decree of equivalence, optional at the application stage, will be mandatory for the winners at the time of actual enrolment.

6) statement of purpose (in English, max 3.000 characters, including spaces): it is required to clearly specify: 1. your scientific motivations avoiding generic statements 2. your personal motivations and your interest towards research in general; 3. the reason why you have chosen the research topic/s proposed;

7) research proposal/s: attach the research proposal (in English, written on the form available in the application online) referred to one or more (maximum 3) topics listed in art. 1; applicants can express their preference but it is not binding. Please note that the description of the project proposed by the applicant is in no way binding for the research that will be carried out in case of admission, while the chosen research topic assigned by the Admissions Committee will be mandatory.

5. OPTIONAL ATTACHMENTS:

- copy of scientific publications, if any;
- any additional documents which may be useful for the assessment of qualifications (awards, scholarships, post-graduate research activity, etc.);
- up to two (2) names of contact persons (referees, experts in the fields of the PhD Programme), with details of their e-mail addresses.

6. The University will accept any additional documents to the submitted application if sent by email to ateneo@unitn.it (**Subject:** "Application ID - Applicant's Surname and Name – PhD Programme in Mathematics – 34th Cycle, First call - Supplement to application") **by May 16, 2018, hrs. 04.00 PM (GMT +2) Italian time.** Additional documents submitted by different means will be disregarded.
7. Only documents in English, Italian, French and Spanish will be taken into consideration for the selection by the Admissions Committee; for all other languages it is compulsory to attach a translation into English signed by the candidate. The attachments required at previous points 4.5, 4.6 and 4.7 must be submitted in English by all applicants.
8. All applicants are admitted to the selection procedure conditionally upon ascertainment that they fulfill the admission requirements. The University of Trento has the right to verify the documents delivered pursuant to articles 71 et seq. of the Presidential Decree no. 445 of 28.12.2000. The University can at any time, even after enrolment and upon justified reasons, decide the exclusion of candidates lacking the requirements specified in the present call.

Art. 4 – EVALUATION OF APPLICATIONS

1. The evaluation is made by an Admissions Committee for access to the PhD Programme appointed by the Rector upon advice of the PhD Programme Committee, in accordance with the University doctoral regulations. The Committee sets the evaluation criteria during the preliminary meeting.
2. The selection procedure is designed to ensure, comparatively, the knowledge and aptitude of the candidates to carry out research in areas related to the PhD programme. The selection is made on the basis of the assessment of:

- the applicant's qualifications according to previous art. 3
- an interview. The oral examination is designed to assess the candidate's general background about the Doctorate scientific areas and the specific research topics, to discuss past research – included Master's thesis – and professional experience, the research proposal/s, and qualifications submitted. During the interview, the candidate's knowledge of English language will be also verified. In order to be allowed to oral examination the candidate must provide a valid ID/passport with photo. Applicants residing or domiciled abroad, or otherwise unable to proven reasons to take the interview in person, may be authorized – upon request – to conduct the oral examination in another seat by video-conference. The Committee will guarantee that all the regularity requirements are fulfilled during the examination (verifying the candidate's identity and the accuracy of the interview).

N.B.! The choice made by the candidate to compete for the reserved fellowships available in this first call implies a preference on his/her part for the allocation of that specific fellowship with respect to the others, included the ones that will be made available in the subsequent call.

3. The Admissions Committee will award each candidate a maximum of 100 points as follows:
 - 40 points: assessment of qualifications

- 60 points: interview.
4. Candidates obtaining a minimum score of 25/40 for the assessment of qualifications will be admitted to the oral examination. The interview is successfully passed with a minimum score of 38/60. Applicants obtaining an overall score of 63/100 will be short-listed.
 5. The assessment of qualifications will start from May 28, 2018; interviews will be held on June 5-8, 2018.

Art. 5 – RANKING

1. At the end of the selection procedure the Admissions Committee draws up one ranking.
2. Fellowships are assigned to short-listed applicants according to:
 - a) the position in the ranking;
 - b) the applicant's eligibility for that specific fellowship/research topic.
Please note that reserved fellowships are assigned at the discretion of the Admissions Committee and, where possible, according to the preference expressed by the applicant in the online application.
3. The non-allocation of fellowships on reserved topics concerning previous point b) will result in the reduction of the available positions.

Art. 6 – ADMISSION TO THE DOCTORAL PROGRAMME AND ACCEPTANCE OF THE POSITION

1. Short-listed applicants are admitted to the PhD Programme according to their position in the final ranking until all available places have been filled. The applicant who has been awarded a fellowship on a specific reserved topic must accept it. Renunciation of the reserved fellowship implies the exclusion of the applicant from the right to enrol.
2. Admitted applicants must send the acceptance of the position following the instructions at <http://www.unitn.it/en/ateneo/1928/enrolment-1-2-3-year>:
 - **within 8 days** starting from the day following publication of the final ranking on the Selections website;

N.B.! Admitted applicants with a foreign qualification must deliver the Diploma Supplement (qualifications obtained in countries of the European Research Area) or the Declaration of value together with the copy of the final Diploma with a complete transcript of records, translated and authenticated by the Italian diplomatic representatives in the Country of issue; the Declaration of Value may be replaced by a certificate issued by ENIC-NARIC¹⁰ centers containing all the information necessary for the assessment of the qualification. If these documents are not available at the time of the acceptance of the position, they must be delivered by November 6, 2018. The non-delivery may result in exclusion from the Doctorate.

3. The acceptance of the position must include the payment of stamp duty and, where applicable, the payment of the "provincial tax for the right to higher education" - TDS¹¹. At present, no fees are charged to doctoral students to access courses and attend them, with the exception of the aforementioned annual provincial tax for the right to study (TDS).
4. Admitted applicants **who do not accept the position by the above mentioned deadline** will lose their right to enrol and their places will be offered to the next applicants on the ranking.
5. If a successful applicant withdraws before the beginning of the PhD Programme (November 1, 2018), the next applicant on the ranking will be offered the place. The latter must submit his/her enrolment **within 4 days** starting from the day after the day in which the communication from the Doctorate Office S&T is sent.

¹⁰ Enic-naric website: <http://www.enic-naric.net/>

¹¹ Note that the total amount of TDS + stamp duty must be paid only by credit card following the instruction. Page <http://www.unitn.it/en/ateneo/1931/education-tax-tds-and-revenue-stamp> provides information on exemption from TDS.

6. If a successful applicant withdraws or is excluded after the beginning of the PhD Programme and during the first quarter of the first year (three months), the PhD Programme Committee may decide to fill the vacancy with the next applicant on the list.

Art. 7 – ENROLMENT ON THE PHD PROGRAMME

1. According to Ministerial Decree no. 45 of 08.02.2013 the PhD programme can only be activated upon accreditation or its confirmation by the Ministry of Education. Therefore enrolment on the PhD Programme, only for admitted candidates who have accepted the position as mentioned above in art. 6, will be automatically formalized as soon as the aforementioned accreditation has been received or its confirmation has been approved. If accreditation is not confirmed, candidates who have accepted a place will receive timely notification via email and the fee for the Right to Education (TDS) will be refunded.

Art. 8 – INTELLECTUAL PROPERTY RIGHTS ON RESEARCH RESULTS AND PUBLICATIONS

1. Without prejudice to the moral right recognized by the law to the author of the work or invention, the University will be the exclusive owner of the economic rights deriving from the activity carried out by the researcher (*assegnista di ricerca*) in execution of the doctoral research project and the related thesis or other research production.

Art. 9 – PERSONAL DATA

1. The University of Trento, in compliance with Legislative Decree 196/2003 and subsequent amendments, shall use the personal data of the applicants only for the purpose of the selection procedures and for institutional reasons.
2. Participation in the present selection entails, in observance of the above-mentioned law, that the applicant allows the University of Trento to publish his/her personal data concerning the results of the selection procedure on the University website.
3. Data are treated by the University of Trento, via Calepina, 14 – 38122 Trento (Italy).

Art. 10 – REFERRAL RULES

1. For matters not explicitly mentioned in the present call, refer to Law no. 398 of 30.11.1989, art. 4 of Law no. 210 of 3.07.1998 as amended by art.19, par. 1, of the Law no. 240 of 30.12.2010, to Ministerial Decree no. 45 of 08.02.2013 and to the University Regulations for Doctoral Programmes issued with the Rector's Decree no. 383 of 04.07.2013 and subsequent amendments, to the Code of Ethics of the University of Trento, to the Internal Regulations in force of the PhD Programme in Mathematics, and to the other relevant provisions contained in the current legislation.
2. This call, accompanied by its translation into English, is published on the University website, on the website of the Italian Ministry of Education and on Euraxess. Any changes or additions to the call will be made available only on the selection website specified in art. 1.

On behalf of
The Rector

The Head of Education and Student Services
Dott. Paolo Zanei

Declaration substituting
DEGREE CERTIFICATE¹²

(Article 46 - letters l, m, n - D.P.R. 28 December 2000, No. 445)

The undersigned _____

Place of birth (*city+country*) _____ date of birth _____

Official postal address (*street, number, zip code, city, country*) _____

Mob. _____ e – mail _____

aware of the penal sanctions pursuant to Article 76 of the Italian Presidential Decree No. 445 of 28.12.2000 for falsifying documents and making mendacious declarations

DECLARES

A. TO HAVE GRADUATED (click the corresponding box):

- Type of degree Master's degree
 Laurea specialistica/magistrale
 Italian University degree of the previous regulations in force
 Other (specify) _____

Degree title: _____

on ____ / ____ / ____ University of¹³ _____

Country _____

with mark _____ out of _____

AND TO HAVE PASSED THE FOLLOWING EXAMS (fill out the following section C, **obligatory in either case A) or B)**

Alternately:

B. TO HAVE NOT YET GRADUATED and to be aware that admission to the Doctorate is conditional upon submission of the degree certificate by the date cited in the announcement.

- Type of degree Master's degree
 Laurea specialistica/magistrale
 Other (specify) _____

¹² (*) **To be noted:**

- Foreign applicants can provide self-declarations only concerning facts and information which can be verified by an Italian public administration and only if they are in possession of a valid residence permit, to be attached to the declaration;
- The self-declaration shall provide all the information required, in particular the admission requirements and those related to the mark, date and place of award of the degree and/or English certificate;
- The self-declaration shall be duly signed and dated.

¹³ Graduates of the University of Trento may only declare the date of award of the title; other information will be collected automatically.

ANNEX A

Degree in _____

University of: _____ Country: _____

Expected graduation date: _____

AND TO HAVE PASSED THE FOLLOWING EXAMS (fill out the following section C, **obligatory in either case A) or B)**

SECTION C: List of exams taken (marks and dates mandatory):

Course Title	Mark/Out of	Number of credits	Date

Date and place, _____

**Signature of the declarant
 (full and readable)**

This declaration is exempt from stamp duty, pursuant to Article 37 of the Italian Presidential Decree No. 445 of 28.12.2000.

PhD in Mathematics – Cycle 34

First Call 2018

Departments of Excellence 2018

Research fellowship (Assegno di ricerca) description

1. Amount and payment of research fellowships

The annual gross amount of the research fellowship is € 22.800,00, including social security contributions to be paid by the recipient. The fellowship is subject to the payment of the INPS social security contributions “*gestione separata*” in the amount of two thirds payable by the University of Trento and a third to be paid by the research fellow; the fellowship is not subject to IRPEF. In general, the economic treatment of the research fellowship does not provide for increases that are instead attributable to doctoral students with scholarships in the case of stays abroad for research activity related to the doctorate: in view of this, the afore mentioned amount for the fellowship assigned in this announcement is above the ministerial minimum in order to include economic support for research stays abroad.* The research fellowship is compatible with scholarships expressly intended to support study and research periods abroad (e.g. Erasmus). The fellowship has a duration of three years and is paid in deferred monthly installments on condition that the PhD student completes the program of activities verified by the supervisor.

*During the doctorate, all fellowship holders will have to spend a period of research abroad of not less than 6 months, even if not continuous, unless explicitly waived by the Doctoral Committee.

2. Budget for research activity

The research fellow will have the possibility to use a research budget, on a par with the other doctoral students, corresponding to the total amount of € 3,258 divided as follows: € 1,000 for the first and second year, € 1,258 for the third year. Details on the specific use of the budget must be asked directly to the secretariat of the PhD programme. In any case each expense must always be previously authorized.

3. Working contract

The assignee is required to sign a specific working contract pursuant to Law 240/2010, art. 22.

N.B.! Non-EU citizens (Extra-EU) must have a scientific research visa, for which they will receive support from the [University Reception Office](#).

4. Intellectual Property Rights

Without prejudice to the moral right recognized by the law to the author of the work or invention, the University will be the exclusive owner of the economic rights deriving from the activity carried out by the research fellow (*assegnista di ricerca*) in execution of the doctoral research project and the related thesis or other research production.