



UNIVERSITY OF TRENTO - Italy

**Announcement of selection for PhD places in
MATHEMATICS – 21st cycle
PhD Programme**

THE RECTOR

Given Law no. 210 of 3.07.1998 and in particular, art. 4, which assigns the organization of PhD studies to universities in accordance with the general criteria stipulated by ministerial regulations;

Given the Ministerial Decree no. 224 of 30.04.1999, regarding the general criteria to be followed by individual universities in the organization of PhD studies;

Given the Decree by the Prime Minister of 9.04.2001, and subsequent amendments on the general criteria for uniform treatment regarding the right to higher education;

Given the Charter of the University of Trento and in particular art. 8, paragraph 3;

Given the University Regulations for PhD Research Programmes, issued with the Rector's Decree no. 997 of 16.12.2003;

Given the proposals made by the Department of Mathematics;

Given the report of the internal Evaluation Committee of the 4.04.2005 on the requirements for the PhD Programmes proposed;

Given the resolution made jointly by the Academic Senate and the Scientific Research Committee on the 7.04.2005

decrees

ART. 1 - INSTITUTION

The University of Trento announces the 21st cycle of the PhD Programme in “Mathematics” in collaboration with “Centro di Ricerca di Matematica E. De Giorgi” of the Scuola Normale Superiore di Pisa.

Length: three years

Scientific Areas:

- Mathematical Logic
- Algebra
- Geometry
- Complementary Mathematics
- Mathematical Analysis
- Mathematical Probability and Statistics
- Mathematical Physics
- Numerical Analysis
- Operations Research

Coordinator of PhD Programme: prof. Francesco Serra Cassano - phone 0039 0461 881673
e-mail: cassano@scienze.unitn.it

Official language: Italian and English

Selection for 7 PhD positions in the PhD Programme is announced, 4 positions will be assigned grants financed by the University of Trento.

The number of grant-assisted places may be increased by funds from universities, public research bodies or qualified private organizations made available after the publication of this announcement and before the beginning of the selection. Any increase in the number of available places resulting from an increase of grants will be communicated through the official notice board of the University of Trento and posted on the website: http://www.unitn.it/ricerca/dottorati_form_av/ciclo_21/bandi.htm

ART. 2 –ADMISSION REQUIREMENTS

Applications for the PhD positions above are invited from candidates, regardless of sex, age and nationality, who have an Italian “laurea specialistica”, instituted in compliance with Ministerial Decree no. 509 of 3.11.1999 as amended, a university degree of the previous Italian regulations in force or equivalent degree qualification obtained abroad.

Applicants who have a foreign qualification that has not been officially recognized as equivalent to the Italian degree should submit a request for equivalence to be recognized in their application for the competition.

In this case, citizens of the European Union have to attach to their application their degree certificate or degree self-certification (according to Presidential Decree no. 445 of 28.12.2000 concerning EU citizens), whereas applicants from a country outside Europe have to attach to the application a translation in English of

the degree certificate with exams and scores obtained, signed under their own responsibility, so as to allow the Graduate School Committee to declare the equivalence, valid for the only purpose of participating in the selection.

Successful applicants from a country outside Europe have to present their degree certificate with the examinations passed and the scores obtained, translated and authenticated by an Italian consulate, embassy or diplomatic representative in the country of the university that issued the degree and the respective declaration of equivalent value (“Dichiarazione di valore”) **not later than the date set for enrolment in the PhD Programme.**

Applications are also invited from students who expect to complete their degree by the date of the assessment of qualifications. In such cases, admission will be "conditional" and the applicant must be able to present the relevant degree certificate, or a declaration that the degree has been conferred (in compliance with Presidential Decree no. 445 of 28.12.2000, applicable only to EU citizens), by the date of the assessment of qualifications.

Art. 3 – THE PhD PROGRAMME

The PhD Programme in Mathematics is articulated into two curricula:

1) Curriculum in “Pure Mathematics”

This curriculum deals with on one or more of the following scientific research areas:

- Calculus of Variations
- Nonlinear Partial Differential Equations
- Analytic and Algebraic Geometry
- Mathematical Physics and Dynamical Systems
- Stochastic Processes
- Mathematical Logic
- Groups and Lie Algebra Theory

2) Curriculum in "Mathematical Modeling and Scientific Computing (MAMOSC)"

This curriculum will transversely deal with the following scientific research areas:

- Biomathematics and Population Dynamics
- Stochastic Processes
- Numerical Methods for Partial Differential Equations.

And some significant key words are:

- Mathematical Modeling
- Numerical Analysis
- High- Performance Computing
- Scientific Data Visualization
- Applications to Physics, Biology, Chemistry and Engineering.

The Graduate School Committee can take in account also a curriculum in the scientific area of those of the Department of Mathematics “Mathematics Education and Communication”, under a specific project proposed both by a PhD candidate and by a member of the Graduate School Committee who will be tutor of it.

The PhD Programme is divided among the three years in the following way.

1st year

The 1st year is a guidance year through the scientific offerings of the Department of Mathematics.

Each PhD student is assigned a tutor who has to be member of the Graduate Faculty Committee. The PhD student must submit to the Coordinator of the PhD Programme a written study plan, approved by the tutor, by the end of January of the current academic year.

According to this plan each student will follow three courses to be chosen among the ones held by the Department of Mathematics and/or the Graduate School of the University of Trento. The study plan can also include attendance of courses held by other national and international PhD Schools. The Graduate School Committee can also ask the PhD student to include in the study plan the attendance of particular courses because of their scientific importance for his/her education.

Each course is requested to have a lecturer, responsible for the evaluation procedure of the final examination and at least two of the three courses must be in different mathematical areas.

Moreover final examination for the PhD student in two of these three courses has to include a written test proposed and read by the lecturer responsible for the course. The final examination for the third course is a talk given by the PhD student on a topic proposed by the lecturer responsible for the course.

Students are invited to attend basic and advanced specific seminar organised either from the research groups of the Department of Mathematics and/or the Graduate School, as well as workshops and summer schools.

During the first year the PhD student will have to choose an advisor with whom he/she will decide the topic of his/her thesis. Thesis' topic will have to be concerned with one of the research areas involved in the previous curricula.

The advisor typically is a member of the Graduate Faculty Committee. Upon a motivated request of the PhD student the Graduate Faculty Committee can allow the choice of an external advisor. In this case the Graduate Faculty Committee have also to single out one of its member who formally acts as internal advisor during thesis period.

By the end of October of the current academic year the PhD student must give to the PhD Coordinator a written report on his first-year activity and to submit a project about his/her thesis. Moreover he/she will have to pass a final oral examination for the admission to the second year of the Graduate School, in front of a committee formed by the three courses' lecturers, the advisor and the PhD coordinator or an his delegate.

The committee will have to evaluate the PhD student's activity and to write a report, signed by the committee's members, with a recommendation about the admission of the student to the second year. The PhD student will be directly admitted to the second year following a positive committee evaluation, after this information is provided to the Graduate School Committee by the PhD Coordinator. In case of negative recommendation the Graduate School Committee could exclude the PhD student from Graduate School or

propose his/her conditional admission to the second year. Indeed the student could be required to attend a more suitable study program agreed by the Graduate School Committee and he/she will have to pass a final examination by the end of February of the second year.

The evaluation committee report will have to be kept, together with the study program and written tests, in the official record of Graduate School for the student at the Secretary of the Department of Mathematics.

2nd and 3rd year

The 2nd and the 3rd year are devoted to the research for the thesis.

The PhD student starts the typical life of a mathematics researcher and will participate regularly to international scientific events regarding his/her chosen area, as well as in those related that are deemed useful in his/her formation.

By the end of the second year the PhD student is required to give a talk for the admission to the third year on a topic of his/her thesis appointed by his/her advisor.

The PhD student is strongly encouraged to spend abroad some period of their activity in those universities involved in his/her research areas.

In any event the PhD student must give the PhD Coordinator a written report on his/her research activity by the end of October of each academic year.

Art. 4 – APPLICATION TO PARTICIPATE IN THE SELECTION

Application should be made using the application form attached to this announcement.

The application, including all the annexes required, must arrive at the University of Trento **by the 26th of September 2005** in one of the following ways:

- hand delivered to: **Segreteria della Scuola di Dottorato in Matematica, c/o Dipartimento di Matematica, Via Sommarive 14 - 38050 POVO (TN), ITALY**, from 9.00 to 12.30 a.m. Monday to Friday;
- by mail to the following address: **Al magnifico Rettore dell'Università degli Studi di Trento, Segreteria del Dottorato in Matematica, c/o Dipartimento di Matematica, Via Sommarive 14 - 38050 POVO (TN), ITALY** (please write on the envelope "PhD Programme in Mathematics").

The University of Trento does not accept responsibility for mistakes made by post offices.

The applicant should ensure that the address given for correspondence and the telephone number are correct and that any changes are reported as soon as possible to Ufficio Dottorati di Ricerca.

Applications arriving after the 26th of September 2005 will not be considered, even if sent before this date.

According to Italian Law no. 104/92, art. 20 and to Italian Law no. 68/99, art. 16, para. 1, applicants with special needs are expected to indicate explicitly in their application whether they require special assistance or extra time during the examinations. Under Legislative Decree 196/03, all information will be kept confidential.

Applications should include:

- photocopy of the applicant's identity card or passport;
- degree certificate with a list of the examinations passed successfully and scores obtained in each examination (except for candidates who have not yet obtained their degree certificate at the time of presentation of the application as outlined in Art. 2 of this announcement);
- a hard copy of the degree dissertation (if required for the degree);
- summary of the dissertation explaining the reasons for the choice of the subject, the research methodology, results obtained and discussion/evaluation;
- two letters of recommendation from the dissertation advisor and/or other experts on the subject; the letters must be in a sealed envelope;
- any other qualifications believed useful in the assessment of the applicant (dissertations, scientific publications, study and post-graduate activities of research, prizes, grants, knowledge of languages etc.).

Applicants who have a foreign qualification that has not been officially recognized as equivalent to the Italian degree have to attach a translation in English of the degree certificate with exams and scores obtained, signed under their own responsibility, so as to allow the Graduate School Committee to declare the equivalence, valid for the only purpose of participating in the selection;

If, afterwards the submission of their application, applicants have to add further information, it must reach the University offices **by the 26th of September 2005**. The applicant's name, the PhD Programme he/she is applying for and the object "Integrazione domanda" must be clearly written on the envelope.

The University of Trento has the right to check, even to spot check, declarations and documents provided by the candidates, according to art. 71 and following articles of the Presidential Decree no. 445 of 28.12.2000.

Any time, candidates not fulfilling the requirements requested, can be left out the selection for the PhD Programme.

Art. 5 – SELECTION

Admission to the Programme is decided after comparative selection assessing the candidates' knowledge and their aptitude for scientific research.

Applicants must show a document for identification in order to be admitted to the examination.

The examination consists in:

- an assessment of qualifications according to Art. 4;
- an oral exam.

The oral exam may be held in a foreign language prior authorization by the Admissions Committee.

The Admissions Committee assign each candidate a total score of 90 as follows:

- 40 qualifications;
- 50 oral exam.

The oral examination is successfully passed with a minimum 28 point score.

At least 20 days before the date of the oral examination, time and location of it will be displayed on the website: http://www.unitn.it/ricerca/dottorati_form_av/ciclo_20/calendario_prove.htm as laid down in Art. 19 of the University Regulations for PhD Research Programmes.

Art. 6 – PROGRAM OF THE EXAMINATION

The oral exam will be focused on a discussion of the degree dissertation and of the general knowledge related to the scientific research areas of the curriculum preferred by the candidate between the two proposed in art. 3 of the present announcement.

It may be asked to the candidates to talk about the area they are interested in developing their research activity.

Art. 7 – ADMISSIONS COMMITTEE

The Rector, after hearing the Graduate School Committee, appoints the Admissions Committee. It will consist of 3 members chosen among Italian and foreign tenured professors and researchers, who are experts in the scientific areas of the PhD Programme. The Committee may also include two experts from public and private national and international research institutes.

Before the oral examination the Admissions Committee will make a valuation of the candidates' qualifications, assign a score and do a merit list.

When the entrance examinations are over, the Committee will draw up a general merit-based ranking according to the grades obtained by the applicants in the assessment of qualifications and in the oral exams.

The final ranking of candidates will be posted on the website:

http://www.unitn.it/ricerca/dottorati_form_av/ciclo_21/graduatorie/index.htm

Through publication of the list, notification concerning the proceedings is considered to be fulfilled.

The successful applicants will not receive personal communication of their results.

Art. 8 - ADMISSION TO THE PHD PROGRAMME

Short-listed applicants will be admitted to the PhD Programme according to their order on the list until all available places have been filled.

If the candidates are equally worthy of admission, the student's economic situation will be evaluated for places that include a grant, in accordance with the Decree of the President of the Council of Ministers (D.P.C.M.) of 9.04.2001 as amended, for places not assigned grant, the youngest student shall be given priority.

If a successful applicant withdraws before the beginning of the Programme, the next applicant on the list will be offered the place.

If a successful applicant withdraws or is excluded in the first three-month term of the first year, the Graduate School Committee may decide to fill the vacant place with another candidate on the list.

According to art. 18, paragraph 3 of the University Regulations for PhD Research Programmes and according to previous Graduate School Committee resolutions, the Admissions Committee **may admit** to the

School up to 30% of the total assigned places, candidates who are eligible in the general ranking, if they belong to the following categories:

- applicants from non-E.U. countries who have been awarded any kind of grant;
- applicants from a country with a specific intergovernmental agreement with Italy, on the basis of a bilateral agreement between the University of Trento and the foreign university (with no obligatory financial burden for the University of Trento);
- short-listed applicants who have been awarded grants under Law 449/97, Art. 51 (“Assegni di ricerca”).

Art. 9 – HOW TO ENROL

Successful applicants should forward their application for enrolment on paper with attached stamp duty to:

“University of Trento - Direzione Servizi e Comunicazione – Ufficio Dottorati di Ricerca, Via Inama 5 – 38100 Trento (ITALY)”

within 15 days after the date of the publication of the final ranking.

If applicable, the receipt of payment of the provincial tax for the right to university study (TDS) must be attached to applications.

In their applications (forms are available at Ufficio Dottorati di Ricerca and on the website:

http://www.unitn.it/ricerca/dottorati_form_av/ciclo_21/download/modulo_iscrizione_eng.doc), candidates should:

- ask / ask not to be awarded a grant (including successful applicants who are not eligible for a grant in case an applicant eligible for a grant gives up his/her place);
- declare that they already receive / do not receive a grant by the Italian Ministry of Foreign Affairs or by other Italian or foreign institution;
- declare that they have / have not already been awarded (even for one year only) a grant for an Italian PhD Programme;
- declare that they are not already enrolled and undertake not to enrol on any other programme for a diploma, degree, an Italian “Scuola di Specializzazione”, PhD or master degree, whether of the I or the II level, for the duration of this PhD Programme; if they are, they will stop attending such a school before the start of the PhD Programme;
- declare that they are / are not employed by the Italian public sector;
- declare to request the Graduate School Committee authorization for any occupation;
- undertake to inform the University of any changes of their residence or address.

Successful applicants from a non-E.U. country, who have a foreign qualification, must attach their degree certificate with the examinations passed and the scores obtained, translated and authenticated by an Italian consulate, embassy or diplomatic representative in the country of the university that issued the degree and the respective declaration of equivalent value (“Dichiarazione di valore”).

Successful applicants who do not send their application **within 15 days following the date of publication of the list** on the website: http://www.unitn.it/ricerca/dottorati_form_av/ciclo_21/graduatorie/index.htm

lose the right to enrol and the corresponding places will be offered to the next candidates on the list.

Art. 10 – GRANTS

Grants are assigned on the basis of the merit-based ranking of applicants drawn up by the Admissions Committee.

If a candidate forfeits his right, the next candidate on the list will be offered the grant.

Successful applicants can choose one of the scholarships financed by the University or one financed by external bodies according to their position on the merit-based ranking. Grants financed by external bodies, where specific research is required, limit the holder to carry out this work for the entire Programme, so the candidate can choose to accept or not to accept the specific grant.

The annual PhD scholarship amounts to Euro 10,561.54 inclusive of all eventual social security contribution that has to be paid by the PhD student as established by the Italian current Law¹.

Grants are normally paid bi-monthly in advance, with recoupment of undue payments in case the student is expelled or suspended.

Grants cannot be combined with other scholarships, except those awarded by national or foreign scientific institutes for periods spent abroad and deemed useful for the research activities of the PhD student.

Scholarships are increased by 50% for any periods spent abroad authorized by the Coordinator or by the Graduate School Committee.

Grants are awarded for the entire duration of the Programme following confirmation by the Graduate School Committee of the results achieved every year by the PhD students.

PhD students' failure to attend the Programme for over thirty days will do grants being suspended.

Art. 11 - PhD STUDENTS RIGHTS AND DUTIES

PhD students must undertake to attend the PhD Programme and to carry out research activities on a full time basis according to the schedules and the regulations laid down by the Graduate School Committee, as specified in Art. 3 of the present announcement.

Students writing an inter-university thesis are obliged to carry out study and research activities in compliance with the agreement with the foreign university.

In case of negative opinion given by the Graduate School Committee regarding activities and studies, the Rector can exclude students from the PhD Programme.

Grants financed by external bodies, where specific research is required, limit the grant holders to carry out the specific work for the entire Programme.

For the length of the PhD Programme, students are insured by the University against accidents and damage to third parties that occur in circumstances pertaining to the Programme.

From the beginning and for the whole PhD Programme, a public service employee accepted for a PhD Programme may request leave of absence for reasons of study, without monetary allowances and may benefit from the PhD grant, where the required conditions are met.

¹ At the moment of the publication of this announcement the current Italian Law states that the PhD scholarship is subject to social security contributions (INPS 10% or 18%, 1/3 of which has to be paid by the PhD student), according to art .2, para. 26 of Law no. 335/95 as amended.

In the case of admission to a PhD Programme without a grant, or should he/she waive it, the person on absence of leave enjoys the economic remuneration and social insurance and retirement benefits enjoyed by the public administration where he/she is employed. Should the employee terminate employment in public administration in the two years succeeding his/her having obtained a PhD, the amounts paid out during the course of the PhD studies are claimed back.

Art. 12 – PhD TITLE CONFERRAL

The title of PhD, conferred by the Rector, is granted when students pass the final examination which takes place at the end of the three-year PhD Programme.

The Examining Committee will be nominated by the Rector, upon the advice of the Graduate School Committee according to the University Regulations for PhD Research Programmes.

Art. 13 – PERSONAL DATA

The University of Trento, in accordance with Legislative Decree 196/03 “Italian Personal Data Protection Code”, uses the applicants’ personal data only for fulfilment of the selection procedures and for institutional reasons.

In observance of the above-mentioned law, participation in the selection requires the applicant to give the University of Trento permission to publish his/her personal data concerning the results of the selection procedure on the University website.

Art. 14 – REFERRAL RULE

For matters not explicitly mentioned in the present announcement, art. 4 of Law no. 210 of 3.07.1998, the Ministerial Decree no. 224 of 30.04.1999 and the University Regulations for PhD Research Programmes issued with the Rector's Decree no. 997 of 16.12.2003 shall apply.

Trento, 7th of June 2005

The Rector
prof. Davide Bassi

TO THE MAGNIFICO RETTORE
 UNIVERSITÀ DEGLI STUDI DI TRENTO
 SEGRETERIA DOTTORATO DI MATEMATICA
 C/O DIPARTIMENTO DI MATEMATICA
 VIA SOMMARIVE, 14
 38050 POVO (TN) – ITALY

I, the undersigned, apply to be included in the competitive selection for the PhD Programme in

MATHEMATICS – 21st cycle
Preferred curriculum²:

For this purpose I, the undersigned, declare³

SURNAME	
FIRST NAME	
DATE OF BIRTH	
PLACE OF BIRTH Town/City	
Country	

PLACE OF RESIDENCE

Address			
Zip Code		Country	
Tel.		Fax	
E-mail			

ADDRESS FOR CORRESPONDENCE (if different from residence)

Address			
Zip Code		Country	
Tel.		Fax	

- THAT I HAVE _____ CITIZENSHIP
- THAT I TOOK AN ITALIAN DEGREE

in (subject)
at the University of
conferred on (date)
with mark

² Write down the preferred curriculum between the two proposed curricula: 1) "Pure Mathematics", 2) "Mathematical Modeling and Scientific Computing" or indicate a curriculum in the scientific area of the Department of Mathematics "Mathematics Education and Communication".

³ It is a criminal offence to provide incorrect or incomplete information; any candidate found to have done this will be automatically rejected from the PhD Programme.

THAT I HAVE NOT YET GRADUATED and I am aware that my admission to the PhD Programme depends on the presentation of my degree certificate by the date of the assessment of qualifications and that I am currently

studying (subject)

at the University of

Country

THAT I HAVE A FOREIGN QUALIFICATION which is recognized as equivalent to the Italian degree

Italian Rector's Decree recognizing equivalence

No.

on (date)

University of

THAT I HAVE A FOREIGN QUALIFICATION and I request the Graduate School Committee to recognize its equivalence to the Italian degree ⁴

in (subject)

at the University of

conferred on (date)

with mark

length of the course in years

• **THAT I SPEAK ENGLISH (please, point out the level of knowledge) _____**

• **THAT I SPEAK THE FOLLOWING LANGUAGE(S)**

<input type="checkbox"/> Italian	<input type="checkbox"/> Spanish	<input type="checkbox"/> German	<input type="checkbox"/> French	<input type="checkbox"/> _____	<input type="checkbox"/> _____
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• **THAT I UNDERTAKE to inform the University of any changes of my address of residence, place of living and correspondence**

• **THAT I HAVE / DO NOT HAVE ⁵ ANY DISABILITY (art. 4 L. 104/92) and need**

- **the following assistance:** _____

- **or extra time (mark as necessary):** **YES** **NO**

• **THAT I AM AWARE AND TO ACCEPT THE REGULATIONS REGARDING**

- **the present call**

- **the University Regulations for PhD Research Programmes**

http://www.unitn.it/ateneo/norme_regolamenti/regolamenti/download/ricerca_prod_intel/Regol_in_materia_di_Scuole_dottorato_ricerca_vers_ingl.pdf

- **Implementing Regulations of the PhD Program in Mathematics**

http://www.unitn.it/ateneo/norme_regolamenti/regolamenti/download/ricerca_prod_intel/norme/na_matematica.doc

Date _____

Signature _____

⁴ Candidates who have a foreign qualification that has not been officially recognised as equivalent to the Italian degree must send an English translation, signed by the PhD student, to enable the Graduate School Committee to declare its equivalence, valid for the only purpose of participating in the selection. Successful applicants from a non-E.U. country, who have a foreign qualification, have to attach their degree certificate with the examinations passed and the grades obtained, translated and authenticated by an Italian consulate, embassy or diplomatic representative in the country of the university that issued the degree and the respective declaration of equivalent value ("Dichiarazione di valore") not later than the date set for enrolment in the PhD Programme.

⁵ Cross out the item of no concern.

ANNEXES⁶:

- photocopy of the applicant's identity card or passport;
- degree certificate with a list of the examinations passed successfully and scores obtained in each examination (except for candidates who have not yet obtained their degree certificate at the time of presentation of the application as outlined in Art. 2 of this announcement);
- a hard copy of the degree dissertation (if required for the degree);
- summary of the dissertation explaining the reasons for the choice of the subject, the research methodology, results obtained and discussion/evaluation;
- two letters of recommendation from the dissertation advisor and/or other experts on the subject; the letters must be in a sealed envelope;
- any other qualifications believed useful in the assessment of the applicant (dissertations, scientific publications, study and post-graduate activities of research, prizes, grants, knowledge of languages etc.).

Applicants who have a foreign qualification that has not been officially recognized as equivalent to the Italian degree have to attach a translation in English of the degree certificate with exams and scores obtained, signed under their own responsibility, so as to allow the Graduate School Committee to declare the equivalence, valid for the only purpose of participating in the selection;

⁶ After the conclusion of the entrance examination procedure, applicants intending to receive back their documents attached to their application for the selection of the PhD Programme must write to the Administration (Ufficio Dottorati di Ricerca) a specific request within a year the expire date of the present announcement.
Any postal expenses will be met by the applicant.