



SCUOLA
NORMALE
SUPERIORE
PISA

**ANNOUNCEMENT OF COMPETITION FOR 28 DOCTORAL (PhD) POSITIONS IN THE
FACULTY OF SCIENCES, RESERVED FOR EUROPEAN UNION CITIZENS.
ACADEMIC YEAR 2009/2010**

Art. 1

Number of places

The Scuola Normale Superiore of Pisa announces a competition, based on work to date and competitive entrance exams, for **28 doctoral positions for the 2009/2010** academic year in the **Faculty of Sciences** in the following academic areas:

- 3 in Molecular Biology** (one of which financed by the International Centre for Genetic Engineering and Biotechnology - ICGEB of Trieste),
- 3 in Chemistry,**
- 7 in Physics,**
- 3 in Condensed Matter Physics** (one of which financed by the Fondazione “Silvio Tronchetti Provera”),
- 6 in Mathematics,**
- 3 in Mathematics for Industrial Technologies or for Finance**, divided, if possible, in 2 in Mathematics for Industrial Technologies and 1 in Mathematics for Finance.
- 3 in Neurobiology.**

Before the beginning of the exams, the Board of Directors of the Scuola Normale can resolve to increase the number of positions open to competition

Candidates may apply for more than one area only if the written exams are on different dates (see article 6 below). In this case, candidates must present specific applications with distinct research projects (see article 4).

Art.2

Admission requirements

Citizens of European Union countries with the following requisites may compete for positions in the PhD program:

- a) candidates must have completed a 2nd-cycle university degree or equivalent by the application deadline;
- b) candidates must have been born after 31 December 1979;
- c) have not been the object of the disciplinary measure of “expulsion” from the Scuola Normale Superiore provided for by the Internal and Academic Regulations;

Candidates who have not yet attained their 2nd-cycle degree or equivalent but who will have finished by the date indicated in the following article and anyway no later than 15 December 2009

may also apply. These latter candidates must present a declaration of attainment of their 2nd-cycle degree, on plain, unstamped paper, within two days of completion of the same.

The equivalency of diplomas indicated in point a) above will be entrusted, for the purposes of this competition only, to the Selection Committee as indicated in article 6.

Art.3

Application and deadline

Application for admission to the competition may be presented no more than twice.

The application for **Chemistry, Physics, Mathematics, Mathematics for Industrial Technologies or Finance**, prepared on plain paper (see facsimile at Attachment A) and addressed to the President of the Scuola Normale, **must arrive by Tuesday, 22 September 2009**.

The 2nd-level degree requested may be attained no later than 15 December 2009.

The application for **Neurobiology and Molecular Biology**, prepared on plain paper (see facsimile at Attachment A) and addressed to the President of the Scuola Normale, **must arrive by Thursday, 15 October 2009**.

The 2nd-level degree requested may be attained no later than 15 December 2009.

The application for **Condensed Matter Physics**, prepared on plain paper (see facsimile at Attachment A) and addressed to the President of the Scuola Normale, **must arrive by Friday, 30 October 2009**.

The 2nd-level degree requested may be attained no later than 9 November 2009.

Late arrival of the application and related materials, no matter what the cause, even if posted by the deadline, will result in non-admission to the competition.

On the application the candidate must declare:

- a) surname, name, place and date of birth;
- b) citizenship;
- c) to have no prior criminal convictions and no legal proceedings underway against him/her;
- d) not to have been the object of the disciplinary measure of “expulsion” from the Scuola Normale Superiore;
- e) to have never, or no more than once, applied for admission to the competition for the PhD program in the Faculty of Sciences;
- f) place of residence and address (if different), telephone number and email address at which s/he would like to receive all communication related to the competition;
- g) the subject area in which the candidate intends to compete. Candidates interested in more than one area of competition, as specified at article 1 above, must present specific applications with distinct research projects. Degrees and qualifications may be attached to one application only (see article 4);
- h) according to art. 20 of law 104/92, students with handicaps may make specific requests regarding special help and extra time necessary for completing the exams;
- i) if s/he prefers to undertake the exams (indicate which exams) in English (only if applicable);
 - 1) In addition, candidates who have already received their 2nd cycle degree or equivalent must declare:

- j) the degree and university where it was attained, specifying the date they began studying for their degree, grades received on individual exams/classes, on the final degree exam and the date of the degree;
 2) Candidates who have not yet attained a 2nd cycle degree or equivalent but have applied to sit the final degree exam must declare:
- k) the university and degree program in which they are enrolled, the year of initial enrollment, a list of all exams/courses taken and grades received, and that they appear on the lists of those graduating.
 Candidates described under point 2) must present a declaration of attainment of the degree by as indicated at art. 2 above.

In lieu of the declarations described under j) and k) candidates may present certification, which, if the degree was earned abroad, must be translated into Italian with the exception of documents in English, French, German, and Spanish.

Candidates must possess all admission prerequisites by the application deadline (with the exception of those candidates whose situation corresponds to that described in point 2).

All candidates are admitted conditionally, and may be excluded from the competition for lack of requirements at any moment of the competition procedure.

Candidates will be notified of exclusion by letter at the address indicated on their application.

The application for participation in the competition must be duly signed by the candidate.

Art. 4

Documents to be attached to the application

The application must be accompanied by:

- a) two printed copies of the undergraduate thesis (which must also be presented by those who have yet to finish their degree) and of any other qualifications the candidate feels it is opportune to present;
- b) two copies of the proposed research project in completion of the documents presented in point a) above;
- c) two or more letters from faculty who have supervised the candidate's previous work.

The documents presented for points a), b) and c) above must reflect the candidate's aptitude for research.

The Scuola Normale is not responsible for returning the documents attached to the application.

Candidates may request return of the documents by March 31 2010. After that date, the Scuola Normale will no longer hold itself responsible for them.

Art.5

Selection Committee and admission to exams

The Selection committee for the admissions competition and its President are nominated by the President of the Scuola Normale.

Each Committee member can express a score from one to ten for evaluation of the qualifications and exams.

The Committee begins with an examination of the candidate's degrees and qualifications as well as his/her research proposal, on the basis of which admission to the exams is obtained. For the purposes of admission, the Committee will consider publications presented, studies carried out to date and the research interests of the candidate in consideration of their correspondence with the research areas promoted at the Scuola Normale. These can be found at:

www.sns.it/it/scuola/ammissione/corsodi perfezionamento/ricerca/ and in Attachment B) of this announcement.

Candidates who achieve a score of seven tenths on the evaluation of their qualifications are admitted to the exams. Scores will be made public by posting on the Scuola Normale's Official Notice Board and in the appropriate area of the web site www.sns.it.

Art.7

Exam times and locations, and final ranking of candidates

The list of admitted candidates will be posted before the beginning of the exams on the Official Notice Board of the Scuola Normale and published in the appropriate area of the www.sns.it web site. Inclusion in the list of admitted candidates is equivalent to notification and candidates are expected to participate in the oral exams on the day and at the time indicated, without further notification.

Any variations will be made public in the same way.

The Scuola Normale in any event reserves the right to use other means of communication for the procedures in this announcement.

Candidates must present a valid identification document at the exam.

Lack of participation in the exams, for whatever reason, automatically disqualifies the candidate from the competition.

Admitted candidates must sit the following exams: a written exam and an interview. All candidates must have a working knowledge of English.

a) For candidates to the PhD program in **Physics** admitted to the exam, the written exams will begin at 8:30 AM on 29 September 2009.

For candidates admitted to the oral exams, these will begin at 9:00 AM on 1 October 2009.

b) For candidates to the PhD program in **Chemistry** admitted to the exams, the written exams will begin at 8:30 AM on 30 September 2009.

For candidates admitted to the oral exams, these will begin at 9:00 AM on 2 October 2009.

c) For candidates to the PhD program in **Mathematics** admitted to the exams, the written exams will begin at 8:30 AM on 30 September 2009.

For candidates admitted to the oral exams, these will begin at 9:00 AM on 2 October 2009.

d) For candidates to the PhD program in **Mathematics for Industrial Technologies or for Finance** admitted to the exams, the written exams will begin at 8:30 AM on 6 October 2009.

For candidates admitted to the oral exams, these will begin at 9:00 AM on 8 October 2009.

e) For candidates to the PhD program in **Neurobiology** admitted to the exams, the written exams will begin at 8:30 AM on 21 October 2009.

For candidates admitted to the oral exams, these will begin at 9:00 AM on 23 October 2009.

f) For candidates to the PhD programs in **Molecular Biology** admitted to the exams, the written exams will begin at 8:30 AM on 3 November 2009.

For candidates admitted to the oral exams, these will begin at 9:00 AM on 5 November 2009.

g) For candidates to the PhD program in **Condensed Matter Physics** admitted to the exams, the written exams will begin at 8:30 AM on 12 November 2009.

For candidates admitted to the oral exams, these will begin at 9:00 AM on 26 November 2009.

The Selection Committee indicated in article 5 above has specified five hours as the length of time available for candidates to complete the written exam.

Candidates who obtain a minimum score of at least seven tenths on their written exam will be admitted to the oral exam.

The oral exam will concern scientific work to date, the proposed research project and other topics pertinent to the area for which the candidate is competing. The candidate's knowledge of English will also be confirmed during the oral exam.

Candidates who obtain a minimum score of seven tenths are considered to have passed the oral exam.

The exams will take place at the Scuola Normale Superiore di Pisa, Piazza dei Cavalieri 7, Pisa.

At the conclusion of the exams the score awarded each candidate both for qualifications and for the written and oral exams, as well as the average score, will be posted on the Official Notice Board of the Scuola Normale and in the appropriate area of the web site www.sns.it.

Candidates who receive an average final score of at least eight tenths will be considered as qualified.

The Selection Committee will compile the ranking of qualified candidates in order of average final scores and post it on the Official Notice Board of the Scuola Normale and in the appropriate area of the web site www.sns.it.

The Scuola Normale will communicate the results of the competition to the winners only.

Art. 7

Reimbursement of travel expenses

Travel expenses from the candidate's place of residence to the Scuola Normale will be reimbursed to candidates who sustain the oral exam and request said reimbursement **by 10 December 2009**.

The reimbursement can be for a maximum of €350, as follows:

- for one-way trips of up to 300km, no reimbursement;
- for one-way trips of more than 300km and up to 800km, reimbursement of a 2nd class train ticket;
- for one-way trips of more than 800km, reimbursement of tourist class plane or 2nd class train ticket;
- for residents of Sardinia and Sicily, the following may be reimbursed:
 - airplane - tourist class;
 - train, 2nd class + ship - economic class or equivalent.

Please note that only the means of transport indicated above will be reimbursed and that the cancelled tickets must be attached to the request for reimbursement.

Art. 8

Announcement of winners

The President will approve the final ranking of the competition and name the winners of the positions open to competition.

Winners must submit all documents required under Art. 10 below within the deadline prescribed. If one or more winners renounce or lose their position, the position will be awarded to the next qualified candidate according to the ranking of candidates qualified for admittance

Art. 9

Documents for admission to the Scuola Normale

The winners of the competition must take their places in the Scuola Normale starting from the date indicated on the notification; failure to do so will be considered forfeiture of their right of admission.

Within one month of the receipt of the notification, the winners of the competition must present the following documents to the Scuola Normale, on penalty of forfeiture of admission:

- a) certificate issued by the Health Department of their city of residence stating that the holder has been immunized against (or is immune to) diseases incompatible with community life, dated no more than six months prior to submission (only if the candidate intends to utilize lodgings provided by the Scuola Normale);
- b) declaration of acceptance of the rules in the Statute and Regulations and exoneration of the Scuola Normale for consequences deriving from failure to observe said rules;
- c) two passport photos;
- d) for diplomas earned abroad a certificate issued by the Institution or University which awarded it must be presented, translated in Italian, with the exception of diplomas in English, French, Spanish, or German.
- e) photocopy of tax identification (social security) number.

In accordance with art. 3, paragraph 1 of law no. 127, dated May 15 1997, information such as surname, name, place and date of birth, citizenship and residency will be taken from a valid form of identification.

The Scuola Normale reserves the right to verify the validity of information contained on identification documents and relative to the diplomas listed.

In addition, the Scuola Normale reserves the right to request the certificate of the student's legal record from the competent judicial or governmental authority, and to undertake any and all background checks it considers opportune.

Art. 10

Academic obligations of the students in the PhD program

PhD students must attend to their studies according to a plan approved by the Faculty Council. Fulfilment of such obligations will be ascertained periodically by the student's internal faculty advisor.

Admission to each successive year is subject to the favourable evaluation of a Committee nominated by the Faculty Council.

At the conclusion of their PhD studies, students must sit a final exam for their diploma.

The final exam of the PhD program consists in the discussion of a written dissertation before a Committee of specialists named by the President of the Scuola Normale.

In accordance with law no. 308 of June 18 1986, the "Perfezionamento" diploma is equivalent in every respect to a research doctorate (PhD).

Art. 11

General Rules

The Department Council can authorize a student to defer or suspend academic pursuits for up to a year and for one time only for serious reasons.

Official provisions allow, upon request of the interested party, deferral or suspension of academic pursuits for maternity leave and/or required military service.

Students in the PhD course cannot undertake commitments incompatible with their duties.

Incompatibilities indicated by Italian law for participation in research doctorates are valid for the programs of the Scuola Normale as well.

Art. 12

Students' rights

The PhD programs lasts three years. Their legal and financial start date is **Friday 1 January 2010**.

Competition winners will receive a fellowship the amount of which is determined annually by the Board of Directors. For the academic year 2009/2010 the fellowship is €13,000.00/year gross, (academic fellowship of €9,200.00 + housing allowance of €3,800.00).

Winners will also be provided with free meals (valued at approximately €7,700.00/year), except during the vacation periods indicated on the academic calendar established by the Board of Directors.

The distribution of the fellowship, in 12 end-of-month payments, is dependent on the fulfilment of academic obligations by the students, and it is subject to Italian fiscal regulations in force concerning university fellowships.

In case of need, it is possible to request an advance of the first instalment only.

The Faculty Council can authorize students' participation in research and study activities outside the Scuola Normale. Such requests should be documented and then are screened by a Committee nominated by the Faculty Council.

Art. 13

Head of competition procedure

In accordance with law 241 of August 7, 1990, and related Scuola Normale Regulation, Presidential Decree 331 of 22 July, 2004, subsequently modified with Presidential Decrees 376 of 3 September 2004 and 580 of 9 November 2005, the head of the competition procedure described in this announcement is Mario Landucci – Scuola Normale Superiore – Piazza dei Cavalieri 7 – 56126 Pisa – (050/509237 – 050/509847 - 050-509026 – 050/509236; e-mail: m.landucci@sns.it; a.vettori@sns.it; g.dalterio@sns.it).

Art. 14

Advertising

The present announcement will be advertised in conformity with EU regulations. In particular, it will be published on the web site of the Scuola Normale Superiore, www.sns.it.

Art. 15

Use of personal data

Personal data will be entered into the databases of the Scuola Normale and will be treated in accordance with legislative decree no. 196 of 30 June 2003 “Protection of Personal Data”.

Art. 16
Attachments

Attachments A) and B) constitute integral parts of the present announcement.

Art. 17
Final rules

The rules in this competition have precedence over Scuola Normale Academic Regulations in case of incompatibility.

Pisa, 19 June 2009

THE PRESIDENT
signed Prof. Salvatore Settis

Application form

President
Scuola Normale Superiore
Piazza dei Cavalieri no. 7
56126 PISA

The undersignedborn in, on..... , resident in....., Province of....., Street.....no....., requests admission to the competition for positions in the PhD courses of the Faculty of Sciences for the academic year 2009/2010.

In accordance with art. 46 of Presidential decree 445 dated 28 December 2000, the undersigned declares on his/her own responsibility:

- a) to be a citizen of
- b) to have no criminal record nor to be currently charged with criminal offences;
- c) not to have been object of the disciplinary measure of “expulsion” from the Scuola Normale Superiore.
- d) to have earned a second-cycle degree or equivalent in.....issued by University, with the final grade/mark of on date;

or for those who have already declared that they will complete their degree by(see art. 3 of the announcement, point 2) : the University and degree program in which they are enrolled and that they appear in the list of graduates during the month of, (*)

- e) to have received the following grade/mark in each exam/course.....;
- f) to be competing for the graduate program in(indicate one of those subject areas listed in art. 1 of the announcement. If the candidate intends to participate in more than one area, specific applications must be presented with distinct research programs attached--see article 4 of the announcement);
- g) never to have applied or to have applied no more than once (*) for admission to the competition in the Faculty of Science;
- h) (where applicable) to be physically impaired (art. 4 of law 104/92) and to require the following help and/or extra time:
- i) (where applicable) to wish to undertake the following exams (indicate exams) in English.

The undersigned declares to be aware of the legal penalties prescribed in art. 76 of Presidential decree 445 dated 28 December, 2000, for false statements made in public documents.

The undersigned attaches to the application:

.....
(documentation, qualifications, research proposal, described in art. 4 of the announcement).

The undersigned requests, lastly, that all communication relating to the present competition be directed to the address indicated below, s/he undertakes to communicate possible future variations of said address, and she/he recognizes that the Scuola Normale Superiore accepts no responsibility for the irreparability of the addressee.

Address.....
(zip/postal code).....City.....Prov.....
Tel..... email.....

Place and date_____

Signature of candidate

(*) Strike out the phrase that does not apply

Students in the PhD programs carry out their work in the following research groups:

BIOLOGY

Professors: Cattaneo, [Falaschi](#)

Molecular Biology Laboratory

The interests and research areas are: 1) molecular aspects of HIV infection, the causal agent of AIDS; 2) methodologies for gene therapy; 3) the process of regulation of the duplication of the human genome. The Laboratory has partnerships with the CNR of Pisa and with the International Centre for Genetic Engineering and Biotechnology of Trieste (ICGEB).

Further information: <http://www.sns.it/it/laboratori/laboratoriscienze/biologiamolecolare/>

Neurobiology Laboratory

Main research areas include the study of plasticity, the influence of environment on the development of the nervous systems in normal conditions or during illnesses of old age in animals and humans.

Further information: <http://www.sns.it/it/laboratori/laboratoriscienze/neuro/>

CHEMISTRY

Professor: [Barone](#)

Virtual laboratory of Computation Chemistry - IDEA

IDEA is a virtual laboratory for theoretical and computational chemistry. Research areas are: “in silico” planning of polymeric materials and nano structures; “in silico” modelling of materials and meta-materials; computational spectroscopy: computational modelling for the field of cultural heritage and “soft matter”.

Further information: <http://www.sns.it/it/laboratori/laboratoriscienze/laboratorioIDEA/>

PHYSICS

Professors: [Barbieri](#), [Beltram](#), [Dolcini](#), [Fazio](#), [Ferrara](#), [Foà](#), [La Rocca](#), [Rolandi](#), [Sagnotti](#), [Strocchi](#), [Vietri](#)

NEST: National Enterprise for nanoScience and nanoTechnology

The Laboratory carries out research in the field of nanoscience and nanotechnology in a fairly broad

spectrum of areas. The main areas are semiconductor and superconductor nanostructures and molecular biophysics.

Further information: <http://www.sns.it/it/laboratori/laboratoriscienze/nest/>

Research Group in Astrophysics and Cosmology

The Astrophysics group is composed of researchers with interest in various topics in modern High Energy Astrophysics and Modern Cosmology, mostly, but not exclusively, from a theoretical viewpoint.

Further information: <http://www.sns.it/it/laboratori/laboratoriscienze/astrofisica/>

Research Group in Elementary Particle Physics

This group participates in vast international partnerships working in experiments at the Large Hadron Collider in Geneva and in precision experiments in the physics of different generations of particles

Further information: <http://www.sns.it/it/laboratori/laboratoriscienze/fisicapart/>

Research Group in Theoretical Physics of Fundamental Interactions

The interests and the research areas of the group are: i) Phenomenology of Elementary Particles; ii) Cosmology and Astroparticle Physics; iii) Supergravity, String Theory, Field Theory; iv) Higher Spins.

Further information: <http://www.sns.it/it/laboratori/laboratoriscienze/fisicateorica/>

Research Group in Condensed Matter Theoretical Physics

This includes groups studying i) nanostructure transport; ii) quantum information; iii) electronic liquids in low-dimensional systems; iv) superconductivity; v) electronic states and optical transitions in solids.

Further information: <http://www.sns.it/it/laboratori/laboratoriscienze/fisteo/>

CONDENSED MATTER PHYSICS

Further information: <http://www.sns.it/it/scienze/perfezionamento/matconde/>

MATHEMATICS

Professors: [Ambrosio](#), [Da Prato](#), [Giaquinta](#), [Marmi](#), [Ricci](#), [Sauzin](#), [Tomassini](#), [Vistoli](#), [Zannier](#)

[Ennio De Giorgi Mathematical Research Center](#)

The Ennio De Giorgi Mathematical Center was founded at the end of 2001 as a partnership among three Pisan university institutions: the University of Pisa, the Scuola di Studi Superiori Sant'Anna and the Scuola Normale Superiore.

Further information: <http://www.sns.it/it/laboratori/laboratoriscienze/centromatematica/>

[Research Group in Harmonic Analysis](#)

Research includes various aspects of Fourier analysis in classical fields, such as convolution operators, Fourier multipliers and singular integrals, and aspects of non commutative harmonic analysis, in particular in nilpotent Lie groups and symmetric spaces, with applications in complex analysis and in the equations of partial derivatives.

Further information: <http://www.sns.it/it/laboratori/laboratoriscienze/armonica/>

[Research Group in Infinite Dimension Analysis](#)

Research is carried out on Kolmogorov equations in Hilbert spaces.

Further information: <http://www.sns.it/it/laboratori/laboratoriscienze/dimeinfinita/>

[Research Group in Calculus of Variations and Geometric Measure Theory](#)

Research into different problems of non linear analysis with techniques of calculus of variations and of geometric measure theory. The most recent results of the group in this field include the theory of optimal transport, the correct posing of hyperbolic equations with irregular data, generalized graphs and their singularities, the problems of parabolic evolution (for measure, surfaces, harmonic maps, in metric spaces), Geometric Measure Theory in metric spaces.

Further information: <http://www.sns.it/it/laboratori/laboratoriscienze/cvgmt/>

[Research Group in Algebraic Geometry](#)

The research area is geometry of algebraic varieties, with particular attention given to moduli theory (algebraic stacks, curves and Abelian varieties)

Further information: <http://www.sns.it/it/laboratori/laboratoriscienze/geometrialgebraica/>

[Research Group in Diophantine Geometry](#)

This group carries out research on Number Theory, in particular as regards the application of geometric methods to the study of diophantine equations.

Further information: <http://www.sns.it/it/laboratori/laboratoriscienze/diofantea/>

Research Group in Dynamic Systems

Holomorphic dynamics in one and several complex variables, small divisor problems, continued fractions, measured foliations.

Further information: <http://www.sns.it/it/laboratori/laboratoriscienze/sistemidinamici/>

Research Group in Complex Analysis and Analytical Geometry

Complex analysis and analytical geometry, geometry of the CR varieties, of the Levi-flat varieties and related non-linear problems. Holomorphic envelopes and Levi problems. Structure of weakly pseudo-complete complex spaces.

Further information: <http://www.sns.it/it/laboratori/laboratoriscienze/anacompl/>

DOCTORAL PROGRAM IN MATHEMATICS FOR INDUSTRIAL TECHNOLOGIES AND FINANCE

The activities can be found at the following links:

- <http://www.sns.it/it/scienze/perfezionamento/matetecno/mateindu/>
- <http://www.sns.it/it/scienze/perfezionamento/matetecno/matfina/>