

## 2010/2011 CALL FOR APPLICATIONS

PhD Level Courses (“Corsi di dottorato di ricerca”), Roma Tre University  
**(Doctorates, Doctoral Schools)**

### **THE PRESIDENT**

**In accordance with**

Law 09.05.89, n. 168;

**In accordance with**

Statute of the Roma Tre University;

**In accordance with**

Article 4 of Law 03.07.98, n. 210;

**In accordance with**

the rules about PhD courses (“corsi di dottorato di ricerca”) provided by the D.M. 30.04.99, n. 224;

**In accordance with**

the rules of Roma Tre Doctorates enacted by D.R. n. 01/2005;

**In accordance with**

the decisions adopted by the Administrative Board (27.04.10) and the Academic Senate (18.05.10);

**In accordance with**

the Administrative Director

### **DECREES**

#### *Article 1*

Roma Tre University (Rome, Italy), hereafter referred as “Roma Tre”, opens a competition for the access of foreign students to the Roma Tre “Corsi di dottorato di ricerca”. All these courses are three academic years long (2010/2011 to 2012/2013, starting 2011, January 01) and confer the degree “Dottore di Ricerca”, which is equivalent to the “Doctor Philosophiae” (PhD) degree.

The access is possible to DOCTORATES and DOCTORAL SCHOOLS, providing positions with fellowship and positions without fellowship according to the following descriptions:

#### **DOCTORAL SCHOOL ON BIOLOGY - “Biomolecular and Cellular Sciences”**

2 positions with fellowship (€ 13.638,47 - gross amount per year)

*The Doctoral Course in “Biomolecular and Cellular Sciences” (acronym BCS) within the Doctoral School in Biology is held at the Department of Biology, University Roma Tre, Viale G. Marconi 446, 00146 Rome, Italy. The scientific interest of the MCB section encompasses fundamental biological disciplines: Molecular Biology, Biochemistry, Cell biology, Genetics, Microbiology, Physiology, Plant Biotechnology, Virology and Didactics Research. Research is primarily devoted to understand the basic biology of animals, plants and microorganisms, with focused interests concerning cellular and molecular function and regulation, and biotechnology applications. Within the Doctoral School, students will benefit from top-level basic research as well as close cooperation between basic and applied research. Doctoral theses are carried out in laboratories characterized by multi-disciplinary research approaches, and students benefit from the expertise and technical platforms developed for basic science investigations. Students work in a creative environment characterized by a strong integration and cooperation among different biological disciplines. The Doctoral course is aimed at developing professional skills and specialized knowledge in students, taking into account their future career in biological research fields.*

#### *1. Research areas*

*The Ph.D. course consists of both classes and practical research training in a selected laboratory, under the direct supervision of a member of the Doctoral School. Areas and reference people are listed.*

#### *1.a. Biochemistry, Biophysics, Bioinformatics*

*Structure-function relationships in biological macromolecules. Protein structure and function prediction. Synthetic biology and minimal cell models. Biotechnology and applied research on macromolecules. Protein design.*

*Reference people: Prof Giovanni Antonini (e-mail [giovanni.antonini@uniroma3.it](mailto:giovanni.antonini@uniroma3.it)), Prof Pier Luigi Luisi (e-mail [luisi@uniroma3.it](mailto:luisi@uniroma3.it)), Dr Fabio Polticelli (e-mail [polticelli@uniroma3.it](mailto:polticelli@uniroma3.it)).*

#### *1.b. Cellular Biology*

*Role of Nitric Oxide (NO) pathway in different cellular lines and model organisms, in standard and experimental conditions. Regulation of NO production from housekeeping and inducible enzymes. NO and target proteins interactions. Role of nitrosative and oxidative stress during neurodegeneration.*

*Reference people: Prof Marco Colasanti (e-mail [colasant@uniroma3.it](mailto:colasant@uniroma3.it)), Prof Giorgio Venturini (e-mail [venturin@uniroma3.it](mailto:venturin@uniroma3.it)), Dr Tiziana Persichini (e-mail [persichi@uniroma3.it](mailto:persichi@uniroma3.it)).*

#### *1.c. Genetics*

*In vitro analysis of antimutagenic/anticarcinogenic activity of natural agents on mammalian cells: cell cycle and intercellular modulation of Gap junctions, DNA damage and apoptosis. Endogenous and exogenous DNA damage and repair in human cells: role of polymorphism of DNA repair on individual susceptibility.*

*Reference person: Prof Renata Cozzi (e-mail [cozzi@uniroma3.it](mailto:cozzi@uniroma3.it)).*

#### *1.d. Microbiology*

*Molecular genetics of bacterial pathogens. Shigella evolution from the ancestral non pathogenic Escherichia coli. Role of antivirulent genes interfering with pathogenic mechanisms.*

*Reference person: Prof Maria Assunta Casalino ([casalino@uniroma3.it](mailto:casalino@uniroma3.it)).*

#### *1.e. Molecular Biology*

*Regulation and expression of genes coding for specific oxidases and acetyltransferases involved in metabolic pathways: production, characterization and subcellular localization of the corresponding recombinant proteins.*

*Molecular phylogenetic reconstruction in animal models. Reference people: Prof Paolo Mariottini (e-mail [mariotpa@uniroma3.it](mailto:mariotpa@uniroma3.it)), Dr Manuela Cervelli (e-mail [cervelli@uniroma3.it](mailto:cervelli@uniroma3.it)).*

#### *1.f. Plant Physiology and Biotechnology*

*Molecular and biochemical characterization, physiological roles and applied biotechnology of plant enzymes involved in metabolic pathways. Their role during development and differentiation, and to stress response.*

*Reference people: Prof Riccardo Angelini (e-mail [angelini@uniroma3.it](mailto:angelini@uniroma3.it)), Prof Rodolfo Federico (e-mail [federico@uniroma3.it](mailto:federico@uniroma3.it)), Dr Paraskevi Tavladoraki (e-mail [tavlador@uniroma3.it](mailto:tavlador@uniroma3.it)).*

#### *1.g. Virology*

*Virus-cell interactions during retroviral infection, innate antiviral immunity and viral immunoevasion; biology of type I interferons, cell growth regulatory cytokines, differentiation and antiviral and immune response.*

*Reference person: Prof Elisabetta Affabris (e-mail [affabris@uniroma3.it](mailto:affabris@uniroma3.it)).*

#### *1.h. Didactics research*

*Scientific teaching and learning; methodological hypothesis definition and material production/validation for undergraduate and graduate teachers training and updating; development and diffusion of educational methods based on active and cooperative learning.*

*Reference person: Prof Milena Bandiera (e-mail [bandiera@uniroma3.it](mailto:bandiera@uniroma3.it)).*

#### *2. Partnerships and international activities*

*Students will have the opportunity of spending a 1-year period to carry out part of their research activity in a selected foreign laboratory, preferably selected within EU countries, with recognized experience in the student's investigation field. The tutor can designate an external co-tutor (either from Italy or any other EU country) among recognized scientific authorities in the student's investigation field. All students are strongly recommended to spend at least 3 months in a foreign (EU) laboratory to achieve the label of "Doctor Europaeus" (The European Doctorate refers basically to a label attachable to the Research Doctorate degree to be conferred by the University, when the following four conditions have been fulfilled: a) the doctoral thesis defense will be accorded if at least two professors from two higher education institutions of two*

European countries, other than the one where the doctoral thesis will be defended, have given their positive judgment concerning the manuscript; b) at least one member of the jury should come from a higher education institution in European countries, other than the one where the doctoral thesis will be defended; c) part of the defense must take place in one of the official languages, other than the one(s) of the country where the doctoral thesis will be defended; d) the doctoral thesis must have been partly prepared as a result of a period of research of at least one trimester spent in another European country).

### 3. Documents for application and selection criteria

Candidates will be selected on the basis of:

- (mandatory) university (or equivalent) degree
- (mandatory) abstract of the final thesis
- (mandatory) list of passed examinations
- (mandatory) curriculum vitae et studiorum
- (mandatory) a proposed research project
- (mandatory) at least three reference letters provided and signed by relevant members of the international scientific community, relating to the candidate's chosen course;
- (if any) additional document and/or publication (including GRE - Graduate Record Examination - test) that the candidate deems worthy of consideration, including associations to research institutions (MAX 5 documents).

### 4. Duration of the course and laboratory attendance

The degree of Doctor in "Biology applied to human health" is obtained after 3 (maximum 4 years) of doctoral studies. At the end of each year (around November) students will be asked to present their results to be admitted to the following year in the form of both a written and an oral presentation.

The thesis must be prepared in English and should be accompanied by published or "in press" scientific articles produced by the student during the doctoral course. Although with some flexibility, access to the final dissertation requires the publication in the preceding 3 years of at least 3 articles in international (ISI indexed) journals, with at least 1 article as first author.

Daily attendance of courses and laboratories is required for ca. 5 days a week and ca. 11 months a year (different arrangements can be agreed with the supervisor).

### 5. Salary and general information

The net yearly salary is ca. 13,600 euros (i.e., ca. 1,100 euros per month for a duration of 36 months). Upon your request and subsequent approval by the Doctoral School Board, the doctoral student can be allowed to spend up to 12 months in a foreign laboratory (to be agreed with his/her supervisor) with an extra-salary of approx. 550 euros per month.

Travel, accommodation in Rome, meals and transportation are at the student's expenses. The University Research Office and the student's supervisor will assist him/her in obtaining the immigration visa, but students are asked to travel to Rome at their own expenses (unless differently arranged with his/her supervisor).

Few more practical information are:

The cost of life in Rome is quite high, but an accommodation in a rented room can be easily found at ca. 350 euros per month.

The cost for public transportation in Rome is quite cheap (ca. 200 euros per year, including both subway and buses).

Cost of meals is highly variable (ca. 5 euros in the University canteen or in a fast-food restaurant).

Specific information will be soon available at <http://host.uniroma3.it/uffici/ricerca/default.asp>

## **DOCTORAL SCHOOL ON BIOLOGY - "Biology applied to human health"**

2 positions with fellowship (€ 13.638,47 - gross amount per year)

The Doctoral Course in "Biology Applied to the Human Health" (acronym BASU) within the Doctoral School in Biology is held at the Department of Biology, University Roma Tre, Viale G. Marconi 446, 00146 Rome, Italy. The scientific interest of the BASU section encompasses fundamental biological discipline: Biochemistry, Genetics, Immunology, Microbiology, Microbial biotechnology, Physiology, and Pathology. Research is centred primarily on the biomedical aspects, with particular regard to the biological basis of emerging and/or rare

*pathologies, including infectious, genetic, metabolic and degenerative diseases. The student will benefit from the existence, within the Doctoral School, of areas of excellence in fundamental research as well as of the close cooperation existing between fundamental and medical research. Doctoral theses are prepared in laboratories with strong biomedical imprinting, in general involving multi-disciplinary research approaches, and benefit from the expertise and technical platforms developed by the fundamental sciences. Students will work in a creative environment with strong integration and cooperation between biomedical disciplines and, when needed, in contact with qualified clinical centres. The course is aimed to developing professional skills and specialised knowledge for future career in of biomedical research.*

#### *1. Research areas*

*The Ph.D. course consists of both classes and practical research training in a selected laboratory, under the direct supervision of a member of the Doctoral School. Areas and reference persons are listed.*

##### *1.a. Biochemistry*

*Structure-function relationships of microbial proteins related to infectivity and pathogenicity; Development of new methods for the determination of drugs, metabolites and infectious agents in biological fluids; Hemoproteins. Reference persons: Prof. Paolo Ascenzi (e-mail ascenzi@uniroma3.it) Dr. Alessandra Di Masi (e-mail dimasi@uniroma3.it).*

##### *1.b. Cell biology and pathology*

*Role of oxidative and nitrosative stresses in neurodegenerative diseases; Development of cellular and animal models to study the pathogenesis of neurodegenerative disorders; Role of HIV proteins in immune evasion, cell death and neurodegeneration; Identification of cell markers of neurodegenerative diseases. Physiology and pathology of muscle cells. Reference persons: Dr. Sandra Moreno (e-mail smoreno@uniroma3.it), Prof. Daniela Caporossi (e-mail daniela.caporossi@iusm.it).*

##### *1.c. Genetics*

*Molecular bases of DNA repair processes in rare human genetic disorders; Translational approaches in radio- and chemo-therapy: a) biological effects of ionizing radiation for treatment planning in adrotherapy and for assessment of risk in space; b) cellular and molecular markers of apoptosis induction and mitotic catastrophe in cells exposed to new antineoplastic molecules. Reference persons: Prof. Caterina Tanzarella (e-mail tanzarel@uniroma3.it), Dr. Antonio Antocchia (e-mail antocchia@uniroma3.it), Dr. Antonella Sgura (e-mail sgura@uniroma3.it).*

##### *1.d Microbial biotechnology*

*Development, screening, and characterization of compounds and macromolecules endowed with biomedical and/or pharmaceutical interest; Characterization of bioactive compounds of microbial origin and of new antimicrobial agents. Reference persons: Prof. Elisabetta Zennaro (e-mail zennaro@uniroma3.it), Dr. Livia leoni (e-mail leoni@uniroma3.it).*

##### *1.e. Microbiology*

*Active transport mechanisms in bacteria and their role in host-pathogen interactions; Regulation of microbial virulence genes through genomic, transcriptomic and proteomic approaches; Molecular basis of resistance to antimicrobial agents and to environmental stresses; Molecular typing and genomic evolution of bacterial pathogens. Reference person: Prof. Paolo Visca (e-mail visca@uniroma3.it).*

##### *1.f. Physiology*

*Relationship between oxidative stress, ageing, cholesterol metabolism and hormones; Effects of natural and synthetic compounds on estrogen receptor alpha-dependent cell proliferation; Role of endocrine disruptors on estrogen receptor activities: putative gender-related susceptibility; Study of the antioxidant activity of diet-derived and synthetic compounds; Role of endocrine disruptors on differentiation and potential protective effects of diet. Reference persons: Prof. Maria Marino, (e-mail m.marino@uniroma3.it), Dr. Valentina Pallottini (e-mail vpallott@uniroma3.it), Dr. Filippo Acconcia (e-mail acconcia@uniroma3.it).*

#### *2. Partnerships and international activities*

*Students will benefit from the opportunity of spending a 1-year period to perform part of their research activity in a selected foreign laboratory, preferably selected within EU countries, with recognized experience in the student's investigation field. The tutor can designate an external co-tutor (either from Italy or any other EU country) among recognised scientific authorities in the student's investigation field. All students are strongly recommended to spend at least 3 months in a foreign (EU) laboratory to achieve the label of "Doctor Europaeus" (The European Doctorate refers basically to a label attachable to the Research Doctorate degree to be conferred by the University, when the following four conditions have been fulfilled: a) the doctoral thesis defence will be accorded if at least two professors from two higher education institutions of two European countries, other than the one where the doctoral thesis will be defended, have given their*

*judgement concerning the manuscript; b) at least one member of the jury should come from a higher education institution in European countries, other than the one, where the doctoral thesis will be defended; c) part of the defence must take place in one of the official languages, other than the one(s) of the country, where the doctoral thesis will be defended; d) the doctoral thesis must partly have been prepared as a result of a period of research of at least one trimester spent in another European country).*

### 3. Documents for application and selection criteria

*Candidates will be selected on the basis of:*

- *(mandatory) university (or equivalent) degree*
- *(mandatory) abstract of the final thesis*
- *(mandatory) list of passed examinations*
- *(mandatory) curriculum vitae et studiorum*
- *(mandatory) a proposed research project*
- *(mandatory) at least three reference letters provided and signed by relevant members of the international scientific community, relating to the candidate's chosen course;*
- *(if any) additional document and/or publication (including GRE - Graduate Record Examination - test) that the candidate deems worthy of consideration, including associations to research institutions (MAX 5 documents).*

### 4. Duration of the course and laboratory attendance

*The degree of Doctor in "Biology applied to human health" is obtained after 3 (maximum 4 years) of doctoral studies. At the end of each year (around November) you will be asked to present your results for passage to the next year as both written and oral presentation as intermediate exam.*

*The thesis must be prepared in English and should be accompanied by published or "in press" scientific articles produced by the student during the doctoral course. Although with some flexibility, access to the final dissertation requires the publication in the preceding 3 years of at least 3 articles in international (ISI quoted) journals, with at least 1 article as first author.*

*Daily attendance of courses and laboratories is required for ca. 5 days a week and ca. 11 months a year (different arrangements can be agreed with the supervisor).*

### 5. Salary and general information

*The net yearly salary is ca. 13,600 euros (i.e., ca. 1,100 euros per month for a duration of 36 months). Upon your request and subsequent approval by the Doctoral School Board, the doctoral student could be allowed to spend up to 12 months in a foreign laboratory (to be agreed with your supervisor) with an extra-salary of ca. 550 euros per month.*

*Travel, accommodation in Rome, meals and transportation are at your own expenses. Our Research Office and your supervisor will assist you in getting the immigration visa, but you are asked to travel to Rome at your own expenses (unless you will find a different arrangement with your supervisor).*

*Few more practical information are:*

*The cost of life in Rome is quite expensive, but you can have an accommodation in a rented room at ca. 350 euros per month.*

*The cost for public transportation in Rome is quite cheap (ca. 200 euros per year, including both metro and bus).*

*Cost of meals is highly variable (ca. 5 euros in the University canteen or in a fast-food restaurant).*

*Specific information will be soon available at <http://host.uniroma3.it/uffici/ricerca/default.asp>*

## **DOCTORAL SCHOOL ON BIOLOGY - "Biodiversity and analysis of ecosystems"**

**1** position with fellowship (€ 13.638,47 - gross amount per year)

*The Doctoral Course in "Biodiversity and analysis of ecosystems" (acronym BAE) within the Doctoral School in Biology is held at the Department of Environmental Biology, University Roma Tre, Viale G. Marconi 446, 00146 Rome, Italy. The scientific interest of BAE concerns primarily Plant Ecology and Taxonomy, Phytogeography and Phytosociology, Botany Science applied to the conservation of arts; Animal Ecology and Taxonomy, Zoogeography, Phylogenetics; Conservation biology. The students will benefit during the doctoral programme, of the consolidated experiences of their tutors in these areas. Doctoral research projects will be addressed to ecological or phylogenetic problems concerning plant or animal biology, general ecology, as well*

as to applied matters, particularly on conservation ecology and genetics, and landscape ecology. Doctoral theses will be prepared in laboratories and in the field, usually involving multi-disciplinary research approaches, and benefit from the expertise and technical supports developed by the fundamental sciences. Students will be included in research projects coordinated by their tutors and supported by research funds. The research will be developed in Italy but also in other countries. Laboratories of the Department of Environmental Biology as well as of the Department of Biology will be available for Ph.D. students, especially botanical, zoological and ecological labs, but also general services (Electronic Microscopy, Molecular Phylogenetic lab, Cartography, etc.). Stages at other Universities or Research centres, as well as in the field, both in Italy and in other countries, will be supported.

### 1. Research areas

The Ph.D. course consists of both classes and practical research training in a selected laboratory, under the direct supervision of a member of the Doctoral School. Areas and reference people are listed.

(a) Taxonomy, Systematics, Phylogenetics, Functional Morphology - Description and revision of taxa, particularly plants and animals; reconstruction of phylogenetic relationships using both morphological and molecular datasets. Education of new taxonomists working on the biodiversity knowledge and conservation.

(b) Biogeography - Historical and ecological studies of the patterns of distribution of organisms, and interpretation of the causes of biogeographical events according to different methodological approaches, particularly in the Old World. Molecular phylogeography and its application to the biodiversity conservation.

Reference people for both (a) and (b); Animal Biology: Prof Marco A. Bologna ([bologna@uniroma3.it](mailto:bologna@uniroma3.it)), Prof. Giuseppe M. Carpaneto ([carpanet@uniroma3.it](mailto:carpanet@uniroma3.it)), Dr Andrea Di Giulio ([digiulio@uniroma3.it](mailto:digiulio@uniroma3.it)) Prof. Ernesto Capanna ([ernesto.capanna@uniroma1.it](mailto:ernesto.capanna@uniroma1.it)). Plant Biology: Prof. Giovanni De Marco ([demarco@uniroma3.it](mailto:demarco@uniroma3.it)), Prof. Fernando Lucchese ([flucches@uniroma3.it](mailto:flucches@uniroma3.it)), Prof.ssa Giovanna Abbate ([giovanna.abbate@uniroma1.it](mailto:giovanna.abbate@uniroma1.it)).

(c) Autoecology and Community Ecology - Basic and applied studies on the ecological niches of plant and animal species and on the assemblages of plants- and animals. Research on dynamics, structure, similarity, functionality of biocoenoses.

(d) Conservation Ecology - Researches aimed to the monitoring and conservation activities on terrestrial and freshwater ecosystems, particularly of the Mediterranean habitats.

Reference people for both (c) and (d); Animal Biology: Prof Marco A. Bologna ([bologna@uniroma3.it](mailto:bologna@uniroma3.it)), Prof. Giuseppe M. Carpaneto ([carpanet@uniroma3.it](mailto:carpanet@uniroma3.it)), Prof. Giancarlo Gibertini ([gibertin@uniroma3.it](mailto:gibertin@uniroma3.it)); Plant Biology: Prof. Giulia Caneva ([caneva@uniroma3.it](mailto:caneva@uniroma3.it)), Prof. Giovanni De Marco ([demarco@uniroma3.it](mailto:demarco@uniroma3.it)), Prof. Fernando Lucchese ([flucches@uniroma3.it](mailto:flucches@uniroma3.it)), Prof.ssa Giovanna Abbate ([giovanna.abbate@uniroma1.it](mailto:giovanna.abbate@uniroma1.it)), Dott. Simona Ceschin ([ceschin@uniroma3.it](mailto:ceschin@uniroma3.it)), Dott. Maurizio Cutini ([cutini@uniroma3.it](mailto:cutini@uniroma3.it)).

(e) Biological research applied to the conservation of arts and monuments - Studies on the effects of living organisms on the museums, monuments and archaeological sites. Reference people for both (c) and (d); Zoological researches: Prof. Giuseppe M. Carpaneto ([carpanet@uniroma3.it](mailto:carpanet@uniroma3.it)); Botanical researches: Prof. Giulia Caneva ([caneva@uniroma3.it](mailto:caneva@uniroma3.it)), Dott. Simona Ceschin ([ceschin@uniroma3.it](mailto:ceschin@uniroma3.it)).

### 2. Partnerships and international activities

Students will have the opportunity of spending a 1-year period to carry out part of their research activity in a selected foreign laboratory, preferably selected within EU countries, with recognized experience in the student's investigation field. The tutor can designate an external co-tutor (either from Italy or any other EU country) among recognized scientific authorities in the student's investigation field. All students are strongly recommended to spend at least 3 months in a foreign (EU) laboratory to achieve the label of "Doctor Europaeus" (The European Doctorate refers basically to a label attachable to the Research Doctorate degree to be conferred by the University, when the following four conditions have been fulfilled: a) the doctoral thesis defense will be accorded if at least two professors from two higher education institutions of two European countries, other than the one where the doctoral thesis will be defended, have given their positive judgment concerning the manuscript; b) at least one member of the jury should come from a higher education institution in European countries, other than the one where the doctoral thesis will be defended; c) part of the defense must take place in one of the official languages, other than the one(s) of the country where the doctoral thesis will be defended; d) the doctoral thesis must have been partly prepared as a result of a period of research of at least one trimester spent in another European country).

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- (if any) additional document and/or publication (including GRE - Graduate Record Examination - test) that the candidate deems worthy of consideration, including associations to research institutions (MAX 5 documents).

#### *4. Duration of the course and laboratory attendance*

*The degree of Doctor in "Biodiversity and analysis of ecosystems" is obtained after 3 (maximum 4 years) of doctoral studies. At the end of each year (around November) students will be asked to present their results to be admitted to the following year in the form of both a written and an oral presentation.*

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*The cost for public transportation in Rome is quite cheap (ca. 200 euros per year, including both subway and buses).*

*Cost of meals is highly variable (ca. 5 euros in the University canteen or in a fast-food restaurant).*

*Specific information will be soon available at <http://host.uniroma3.it/uffici/ricerca/default.asp>*

*Course Coordinator:*

*Prof. Marco A. Bologna, Dipartimento di Biologia Ambientale, Viale Marconi 446 - 00146 Roma - tel. 0657336327 - fax 0657336321 [bologna@uniroma3.it](mailto:bologna@uniroma3.it) - <http://host.uniroma3.it/dipartimenti/biologia/>*

### **DOCTORAL SCHOOL in MATHEMATICAL AND PHYSICAL SCIENCES - "Physics"**

**1** position with fellowship (€ 13.638,47 - gross amount per year)

*The Doctorate in Physics of Roma TRE University dates back to 1999. Each Ph.D. Course (here we say "Cycle") lasts for three years: so far, 10 "Cycles" have been started, involving more than 100 Ph.D. students in total. 7 Cycles have been completed, and about 75 Ph.D. students have already got their degree: it is worth noticing that more than 80% of Doctors have at the moment a research position (although, in most cases, a temporary one) at foreign or domestic Universities or Research Institutes.*

#### *• Main features and Goals*

*The Roma TRE Ph.D. School in Physics aims at training young people towards a research activity at a high international level, so that they could be successfully employed either in domestic or foreign Universities and*

*Research Centres or in Industrial Companies carrying out programs with advanced technological content. A key role is played by the "Ph.D. Committee" who takes care of the Organisation of the Ph.D School in Physics and must guarantee that the above institutional scopes be achieved. It consists of 16 members, 13 belonging to the Physics Department and 3 to external research institutions. They are highly qualified scientists and work in different research areas (High Energy Physics, Theoretical and Mathematical Physics, Condensed Matter Physics, Astrophysics, Geophysics). The "Ph.D. Committee" is elected by the Physics Department and in turn elects one of his members as Chair of the Ph.D. School. He is in charge for 4 years.*

• *Organization of the PhD School in Physics.*

*So far, a formal branching in different "curricula" has not been established. Accordingly, no difference is made between "basic" and "specific" courses. There are however a number of different research areas that can be selected by the Ph.D. students, namely High Energy Physics , Mathematical Physics, Condensed Matter Physics, Astrophysics, Geophysics, and the delivered courses are supposed to cover all of the above subjects. During the first year, the Ph.D. students are asked to attend courses for 20 credits of 6 hours each provided by the School. The teachers are usually members of the Committee or of the involved departments: however, quite often we have external scientists, often foreign ones, who have delivered seminars or even series of lectures. Thanks to an existing agreement among the Ph.D. Schools of Rome area, students are allowed to attend a subset of their courses at La Sapienza or at Tor Vergata Universities. Additional credits are to be obtained by attending appropriate International Schools at the Ph.D. level. When choosing the courses and the Schools to attend the students are assisted by a "tutor", who has to be a member of the Ph.D. Committee. The tutor acts as a guide and a supervisor for the scientific activity of the Ph.D. student; normally he suggests the subject of the thesis and takes care of the student throughout the whole Ph.D. course. Exceptionally, the Ph.D. student can be allowed by the Committee to carry out his research activity under the supervision of an external scientist, pertaining to other Universities or Research Institutes: in this case, the internal "tutor" acts as a "link" between the external supervisor and the Ph.D. Committee, and guarantees that both the subject and the scientific level of the research be suitable. Moreover, we have at the moment a small, but non negligible number of Ph.D. students doing their Ph.D. course in joint tutorship with foreign laboratories or Universities. The admission to the second year is not automatic: on the one hand, the student is requested to overcome a proof, usually consisting in an oral or written report, for each of the courses he has attended. On the other hand, he has to write down a report on his activity and a schematic description of his research project: both have to be validated by the tutor, who in turn has to submit his own report to the Ph.D. Committee for the approval. The second and third year are essentially devoted to the research activity on the thesis subject, though in their second year Ph.D. students are in addition asked to attend specific Schools or Workshops. At the end of the second year, the student presents to the Committee an oral report, where the stage attained by his research work is discussed. In particular, he has to explain the achieved results and the perspectives for the third year, including open problems and possible drawbacks. If the report is approved by the Committee, the student is admitted to the third year. One month before the end of the third year, each student submits his thesis to an external referee, suggested by the tutor and agreed by the Ph.D. Committee. The referee can recommend amendments, or even a deep revision of the thesis. Once the (amended) version of the thesis is approved , the student presents his final report to the Ph.D. Committee, who admits him to the final exam, on the basis of the final referee report (if needed), of the student report and of the tutor report. • The final exam consists of a 30 minutes seminar in front of an external commission, followed by a 15 minutes discussion. The members of the commission cannot be part of the Ph.D. Committee. They usually belong to other Universities or Research Institutions, often foreign ones. They have to be at least 3, possibly supplemented by one or two experts on specific subjects. Different rules can be followed in case of Ph.D. students with joint tutorships. The members of the committee write a report on the candidates, where the scientific level of the thesis and of the presentation is evaluated, and it is made clear whether the candidate deserves (or not) the title of "Dottore di Ricerca in Fisica". However, no grades and no explicit ordering among the candidates is foreseen.*

• *International relationships*

*Our Ph.D. School enjoys several collaboration agreements with national Research Institutions (such as I.N.F.N and C.N.R.) as well as international ones, like CERN in Geneva. Moreover, our Ph.D. students have access to the large scale facilities located at Trieste (Electra), Grenoble, Readings (Rutherford Lab.). Exchange agreements at pre-doctoral level within the Socrates-Erasmus Program are established with French (Cergy-Pontoise) and Spanish (Madrid Compl., Valladolid, Burgos, Barcelona) Universities. They can involve both professors and Ph.D. students. Cotutorships are currently on with the Universities of Grenoble, Marseille, Savoie. They take place in the framework of the so called "French-Italian University". Bi-lateral agreements*



*finalized to interchange of researchers and Ph.D. students have been signed with Universite' de la Savoie (France), Autonoma Barcelona (Spain), Augsburg University (Germany), New Jersey University at Rutgers (USA). In addition to the above institutional collaborations, the member of our Physics Department and of our Ph.D. Committee have a number of informal collaborations with foreign scientists. Those have been crucial for allowing our Ph.D. students to work in a true international context. The impressive number of publications on international Journals, as well as of (often invited) talks and posters presented by our Ph.D. students provides a meaningful indication of the scientific relevance of their work inside the international community of physicists.*

### DOCTORAL SCHOOL IN EARTH SCIENCE

1 position with fellowship (€ 13.638,47 - gross amount per year)

1 position without fellowship (no fees requested)

*1) Qualitative and quantitative study finalized to the compatible management of the groundwater in the Huila Province (South of Angola)*

*The study has the aim to quantify the groundwater quality; the recharge from rainfalls and the amount of withdrawal in the Huila Province. This first step will help in understanding if the total recharge is compatible with the amount of groundwater pumped out of the system and the eventual degree of imbalance.*

*The study will be done in a GIS application. Groundwater will be qualify from a chemical and biological point of view, in relation to the water use.*

*The Phd student activity should face to: definition of a geo-structural model of the area throw the realization of a vector map; definition of an hydrogeological scheme; of a piezometric vector map and an associated data base, construction of an associated database, creation of a climate database (temperature and precipitation) and elaboration of thematic maps using geostatistical methods. To meet the needs of the study should be made of lito-soil maps and steepness maps of the area. They obtained, by combining with the land use map, the Charter of Territorial units with different class of need of water, using classes of need of water according to water demand associated with different activities and cultures. Key will also define the hydrogeological balance method with distributed for each hydrological basin identified. Knowledge of the relationship between input and output volumes in respect of each hydrological basin, will make assessments on the conservation status of groundwater in various aquifers and will help to plan the use of subterranean water resources.*

*The Phd student must acquire the GIS methodology and practice with softwares of hydro data storage, as well as frequent a course of geostatistics.*

*2) The architecture and transport properties of fault zones in poorly layered carbonates: field and laboratory studies for numerical fluid flow predictions*

*The purpose of the research project is the study of the architecture of mature fault zones in poorly layered limestone by acquiring structural, petrophysical and permeability multidisciplinary datasets along serial cross sections on well exposed fault zones in the Central Apennines. Data will then be upscaled for their implementation into numerical predictive tools for the mechanical and hydraulic behavior of fault zones.*

*These tools have a primary importance for hydrocarbon research and development, water management, CO2 sequestration, seismic hazard etc. Modern analytical techniques will be used during the project, including digital mapping and laser scanning of selected outcrops, laser diffraction granulometry and optical morphometry of fault rocks, Hg porosimetry, seismic waves velocity anisotropy, triaxial permeability and mechanical properties of both faulted and unfaulted rocks. The Ph.D. student will have a supervisor at the Geology Department of the Roma Tre University (F. Storti) and a supervisor at the Department of Earth Sciences, University of Durham, UK (N. De Paola). The selected candidate will spend the larger amount of time in Italy working in the field and in the Microstructural Analysis Lab of the Geology Department to perform fabric, granulometry, morphometry and porosimetry analyses. Visiting periods will be spent in Durham for elaborating digital data from field exposures, performing triaxial permeability measurements, and working on data upscaling. Laboratory measurements of rock mechanical properties and FE SEM analyses will be carried out at the INGV petrophysical labs (S. Vinciguerra). At the end of the Ph.D. project, the selected candidate will acquire a significant specialistic experience on many analytical techniques in structural geology, petrophysics, and data management.*

## **DOCTORAL SCHOOL IN ENGINEERING - "Computer Science and Automation"**

**2** positions with fellowship (€ 13.638,47 - grossamount per year)

*The PhD program of the Computer Science and Automation Section of the Doctoral school of Engineering aims at preparing first class researchers and future leaders in Computer Engineering, Automation and Robotics who will either continue the research career, both in Universities and in research centers, or will lead industrial research and development projects. A Faculty of internationally recognized researchers and professors from the Department of Informatics and Automation (DIA) of Roma Tre University is responsible for the educational activities and takes part in the organization of the doctoral program.*

*The course covers a three-year period. The first year is mainly devoted to deepening the background of each student with introductory courses covering the relevant topics in the research areas of the PhD program and advanced courses illustrating new results and techniques in specific fields. These courses aim to facilitate students in choosing the PhD research topic. The second and third years are devoted to research with emphasis on active participation in the research projects of DIA, attendance to conferences, schools and seminars, publication of papers in journals and conference proceedings, and the preparation of the final thesis. Usually, each student spends a period of six months in an international research center.*

*The research areas of the PhD program span the whole spectrum of the department research programs, which are the following:*

### **(1) AUTOMATION AND INDUSTRIAL ORGANIZATION:**

*This program focuses on the development of models, methods and tools for the efficient utilization of resources. The theoretical background is in the fields of Operations Research and Control Theory, including discrete optimization, complexity theory, discrete event systems and the development of algorithms in these contexts. Recent applications work is on finite capacity scheduling, supply chain management, real time traffic management, agent-oriented decentralized management systems.*

**(2) ARTIFICIAL INTELLIGENCE:** *the program relates to AI models, methods and tools and their applications to create extremely flexible, autonomous, adaptive and reliable systems, well-grounded from a theoretical point of view. The program's research projects particularly focus on the formal base and theoretical grounds, both regarding the use of exploration and empirical experimental techniques to analyze, create and assess the conceived systems.*

### **(3) NETWORK ANALYSIS AND VISUALIZATION:**

*The general goal of this program is to develop new methodologies and tools for network analysis and visualization, with applications to computer network discovery and management. Given the great research opportunities offered by the new generation computer networks, the focus of the program progressively embodied, together with the visualization and analysis problems, pure computer networks research topics.*

**(4) DATABASES AND INFORMATION SYSTEMS:** *the general goal of the database program is the study of new principles, methods and tools for the organization and management of information, in the form of databases, that is, systematic collections of data that are large, persistent, and shared. The current focus of the program is on the new requirements generated by the growth of the Internet and WWW, with the possible availability of different and heterogeneous sources of information. The program includes various projects in each of which the attention is both on principles and on experimentation.*

**(5) COMPUTER-AIDED DESIGN:** *the mission of this program is to pursue research on geometric modeling and visual simulation of engineering problems using CAD/PLM technologies. The group has concentrate its efforts on the following areas: functional programming with design languages, parallel and distributed processing, geometric and solid modeling, computer-aided design and computer graphics for scientific visualization, and geometrical and physical modeling of bio-systems.*

**(6) ROBOTICS:** *the robotics program is mainly focused on methodologies and technologies for sensor based navigation of cooperating autonomous vehicles in partially structured environments. Research interests include: processing of sensors data for the purpose of localization, motion planning, and environmental mapping, modelling and control of mobile robots with lightweight manipulators, development of distributed*

*control and estimation techniques, and modelling of complex interconnected systems.*

**DOCTORAL SCHOOL IN ENGINEERING - "Biomedical electronics, electromagnetics and telecommunications"**

2 positions with fellowship (€ 13.638,47 - grossamount per year)

*This Doctoral Section has the following objectives: 1) training of specialized professional figures and new researchers to be employed into European, national and local, public and private Institutions; 2) promotion of the research in University structures through the contribution of innovative and stimulating professional figures; 3) supporting Industrial Companies dealing with Information Technology, by using excellent professional figures for research, development and industrial applications; 4) support the teaching in the Italian University through new researchers.*

*The Section relates to the following thematic areas and research sectors:*

*(1) Electrochemistry: research on electronic materials and hybrid materials organic-inorganic.*

*(2) Electromagnetics: microwave and optical integrated antennas, microwave passive components realized by innovative materials (e.g. metamaterials, nanomaterials), nanoantennas, cloaking covers and photonantennas; antennas for plasma heating for nuclear fusion; electromagnetic compatibility conformal antennas; scattering of electromagnetic waves in cylindrical structures; electromagnetic methods for optics; numerical methods for complex electromagnetic structures.*

*(3) Biomedical engineering: algorithms and systems for biomedical engineering; image processing for human movement analysis; posture analysis for clinical and research trials; biomedical signal processing; biosensors; biological materials; prostheses; integrated multimedia systems for telemedicine; neural systems for motor control studies.*

*(4) Electrotechnics: magnetohydrodynamic energy conversion; models, neural nets and genetic algorithms applied to dynamic magnetic hysteresis; neural networks to RNA e DNA sequences recognition.*

*(5) Photonics: partially coherent sources; fiber-optic natural lighting; optical methods for non invasive diagnosis of thermal flows in electronic systems and development of air conditioning in mobile environments; properties of partially polarised optical fields and gratings.*

*(6) Superconductivity an microwaves: experimental systems for the measurement of microwave surface impedance, and magnetic and electric characterisation of new materials.*

*(7) Telecommunications: SOA amplifiers in optical networks; images coding; mobile and multimedia communications; laser quantum dot devices; image modelling; modelling of highly ordered quantum dot short wavelength lasers/LEDs; modelling PhC and nanoimprinted sub-wavelength photonic components; project of components and planar devices for optical communications; wavelets and multimedia signals; packet GMPLS in optical networks; fourth generation TLC systems; OCDMA division optical transmission systems; vision systems; bayesian techniques for image quality improvement; non-conventional techniques for spatio-temporal signal processing.*

**DOCTORAL SCHOOL IN ENGINEERING - "Mechanical and Industrial Engineering"**

3 positions with fellowship (€ 13.638,47 - grossamount per year)

*The PhD program of the Mechanical and Industrial Engineering section is aimed at creating researchers with broadband skills, each one specialised on a particular subject offered by the school. Those skills would be oriented to develop proper methodologies in order to integrate different kinds of problems: thermo mechanical, fluid-dynamics and electro mechanics problems with constructive, technical, measurements, economical and managerial problems with attention to the chemical and noise pollution and workers' safety. All of these problems are related to a complex industrial system and the attention pointed on them will be important for a good cost-benefit analysis of economic aspects and cost-performance ratio.*

*Industrial systems involved in the production of goods and services are continuously evolving toward new and highly diversified forms, providing specialised solutions for complex problems. At the same time a greater attention is given to interactions with between industrial system in general and the environment (noise and chemical pollution, workers' safety and wellness): this requires the use of new investigation and risk management procedures based on clear and well designed standards, together with a full consciousness about impact of the old and the new technologies from design to recycle or reuse of items and services. As a consequence of this growing demand, the diffusion of a new approach has to be supported through the widening of technical and scientific knowledge in which the interdisciplinary aspect plays a decisive role.*

*In fact, only an interdisciplinary knowledge would provide highly qualified professional staff with a high efficiency and reliability which otherwise would be lost, with bad economic and environmental consequences.*

*The actual inefficiency is mainly due to a lack of the correct philosophy of approaching the problem, as old methodologies were not oriented to the solution of the whole system but only to a part of it. So, even each solution was right singularly, the absence of a general guide line led to an ineffective integration of results and to a decrease in effectiveness and affordability of the system.*

*Developed areas are involved in activities based on design and management of complex systems, is therefore needed to create suitable abilities.*

*In our country, also, the attention of the scientists is focused on this problem not only on the industrial level but also at the academic one.*

*At the academic level, the research is encouraged by improved numerical simulation that allow a greater and more specific approach.*

*The course covers a three-year period. The first year is mainly dedicated to widen the background of each student by frequenting introductory courses covering the relevant topics in the research areas of the PhD program and advanced courses illustrating new results and techniques in specific fields. These courses aim to facilitate students in choosing their specific PhD research topic. The second and third years are dedicated to the research with emphasis on active participation in the research projects of the Mechanical and Industrial Engineering Department, attendance to conferences, schools and seminars, publication of papers in journals and conference proceedings, preparation and development of the final thesis. There is a possibility for every student relatively to the specific requirements to pass a period of time in an international research centre.*

*The research areas of the PhD program covers the whole spectrum of the department research programs, which are the following:*

*Aeronautical Constructions*

*Chemistry*

*Converters, Machines and Electrical Actuators*

*Excavation Engineering and Safety*

*Fluid Dynamics and Machines*

*Mechanical and Thermal Measurements*

*Mechanical Design and Machine Constructions*

*Materials Science and Technology*

*Technical Physics*

### **DOCTORAL SCHOOL IN ENGINEERING - "Civil engineering"**

2 positions with fellowship (€ 13.638,47 - grossamount per year)

*This Doctoral Section has at the following objectives:*

*1) training of specialized professional figures and new researchers to be employed into European, national and local public and private Institutions;*

*2) promotion of the research in University structures through the contribution of innovative and stimulating professional figures;*

*3) support the teaching in the Italian University through new researchers.*

*The Section relates to the following thematic areas and research topics and subsectors:*

*1) Hydraulics*

*1.1 Theoretical and experimental modelling of complex fluids and interaction with the environment*

*1.1.1 Sloshing of a free surface liquid in a moving container*

*1.1.2 Two-phase transient pipe-flow*

*1.1.3 Local scour downstream of hydraulic structures*

*1.1.4 Gravity currents and their interaction with the environment*

*2) Water Management*

*2.1 Hydrology and Water Resources*

*2.1.1 Flow and transport of solutes in heterogeneous porous media*

*2.1.2 Inference of transmissivity through pumping test*

*2.1.3 Solute transport in the combined vadose zone-groundwater system*

*2.1.4 Effective properties in heterogeneous porous media*

*2.1.5 Residence time and streamflow generation in small catchments*

*2.1.6 Rainfall-runoff modelling*

*2.1.7 Analysis of the statistical properties of rainfall fields*

*2.1.8 Analysis of the statistical properties of the peak flow annual maxima*

*2.1.9 Flood plain modelling*

*2.2 Coastal Protection and Design of Maritime Structures*

- 2.2.1 Analysis of directional wave records
- 2.2.2 Hydro-morphodynamic modelling of sandy beaches
- 2.2.3 Prototype measurement of wave overtopping
- 2.2.4 Study of generation, propagation and interaction with coasts and maritime structures of tsunamis
- 2.2.5 Field measurement and numerical modelling of short and longwaves and currents in harbours
- 2.2.6 Study of the interaction between waves and innovative structures for the defence of the Venice lagoon
- 2.2.7 Shore protection works and artificial surf reefs
- 3) Roads, Railways and Airports
- 3.1 Advanced geometric design of roads and motorways
- 3.1.1 Systemic check of the road project's property under the profile of the road safety
- 3.1.2 Validation of the systemic operability of the road referring to the existing infrastructures
- 3.1.3 Analysis of driver behaviour
- 3.1.4 Analysis of systemic operability of road Italian networks
- 3.1.5 Geometric design consistency and operational effects
- 3.2 New materials and technologies for development and management of transport infrastructures
- 3.2.1 Optimization of technical strategies for road networks rehabilitation
- 3.2.2 Rehabilitation of existing roads for increasing road safety
- 3.2.3 Pavement damage diagnosis using GPR
- 3.2.4 Standardization of high performance techniques for pavement damage diagnostic using Ground Penetrating Radar
- 3.2.5 Road pavement monitoring using GPR
- 3.2.6 Recycling of construction and demolition wastes – Analysis of the standards for applications in road and railway constructions
- 3.2.7 Waste recycling for roads and railways construction
- 4) Transportation
- 4.1 Urban transportation network
- 4.1.1 Instruments for the evaluation and monitoring of strategic actions in large degraded urban areas
- 4.1.2 Innovative vehicles; analysis and validation of a new dualmode trolleybus
- 4.1.3 Development and experiment of cold start and hot soak emission modelling during the parking process
- 4.2 Systems and technologies for traffic control and regulation
- 4.2.1 Interaction between signal settings and traffic flow patterns on road networks
- 4.2.2 Development of a mobility model on ANAS traffic network to evaluate traffic volumes parameters, optimal location of traffic count sections, impact of a single link change on the global network
- 4.2.3 Validation of traffic monitoring systems
- 5) Structures
- 5.1 Mechanics of Materials and Structures
- 5.1.1 Masonry Mechanics
- 5.1.2 Nonlinear analysis of Trusses, Tensegrities and Thin Walled Beams
- 5.1.3 Dynamics and identification of uncertain structures
- 5.1.4 Durability and performance decay of structural elements
- 5.1.5 Response analysis and aerodynamics of very long span suspension bridges
- 5.2 Structural Engineering.
- 5.2.1 Safety evaluation for masonry structures
- 5.2.2 Seismic risk assessment of industrial plants
- 5.2.3 Analytical and experimental studies of the behavior of structures and structural elements
- 5.2.4 Post-earthquake evaluation of RC bridges.
- 5.2.5 Evaluation, rehabilitation, and repair of existing structures.
- 5.2.6 Performance-based earthquake engineering.
- 5.2.7 Probabilistic risk assessment of structures and Life-lines
- 5.2.8 Passive and semi-active risk reduction methods
- 5.2.9 Assessment and rehabilitation of historic structures
- 5.2.10 Reinforcement of masonry and concrete structures with composites
- 5.2.11 Low impact technologies
- 6) Geotechnics
- 6.1 Slope stability and tunnelling in rock masses
- 6.1.1 Prediction of lining loads and displacements around bored tunnels;
- 6.1.2 Application of passive reinforcements in rock foundations;

6.1.3 Slope stability problems in the preservation of ancient towns

**DOCTORAL SCHOOL IN POLITICAL STUDIES - "European and International Studies"**

1 position with fellowship (€ 13.638,47 - gross amount per year)

1 position without fellowship (fees requested: €1.500,00 per year)

*Established in 2004, the Doctoral School in Political Studies offers PhD courses in four basic areas of the social sciences. The School develops research programs on issues related to the study of politics such as:*

- *economics and statistics*
- *history and cultural studies*
- *law*
- *sociology and political science*

*The Doctoral School espouses a markedly interdisciplinary and international approach. Interdisciplinary work is at the heart of the PhD curriculum in its cross-disciplinary seminars and study groups designed to complement the specialized instructions given in each program. Our international approach takes several forms, including visiting professors from abroad, manifold opportunities to do research abroad, integration of students into the international community of scholars through lectures and colloquia. A number of foreign professors are also invited to sit on PhD committees.*

*In the section of European and International Studies students can choose from a wide range of subjects such as Comparative Politics, Area Studies (Western and Eastern Europe, Africa, Asia, USA, Latin America), International Relations, European Policies of Integration, European Institutions, Modern and Contemporary History, Economics, International Law and Political Sociology.*

*Find below the PhD Programs offered this year:*

- *Africa*
- *Central and Eastern Europe*
- *Cultural Studies*
- *European Studies*
- *Migrations, Networks, Conflicts*
- *History of International Politics*
- *History of Politics*
- *International Law*
- *Peace Studies*
- *Political Science*
- *Political Thought*

*Our Doctoral School Program offers a variety of courses providing skills marketable for a wide range of professional arenas. Moreover, doctoral students will have a chance to participate in research projects run by the Department of International Studies.*

*The PhD Programs of the Section of European and International Studies count roughly 20 doctoral candidates. About 6 defend their dissertations each year. Students are taught and supervised by a faculty of more than 18 university professors and lecturers. The researchers of the Department of International Studies are heavily involved in the studies program. The close links between the Doctoral School and the Department permit young scholars to participate in academic community activities such as research groups/contracts, publications and academic reports.*

*The Doctoral School also invites outside academics and representatives of the private sector to take part in various activities. Every year, the Doctoral School welcomes many visiting professors to teach, take part in various activities and deliver lectures: among them, in the last two years, Frédéric Bozo (Sorbonne), Antoine Compagnon (Collège de France), David Holloway (Stanford), Annick Jaulin (Sorbonne), Marc Lazar (SciencesPo), Melvyn Leffler (Virginia), Christian Ostermann (Woodrow Wilson Center), Nell Painter (Princeton), Jeremy Suri (Madison), Irwin Wall (California), Bengt-Arne Wickström (Von Humboldt), Vladislav Zubok (Temple). In particular, every year an outstanding international scholar leads a specific multidisciplinary seminar with our students.*

*The Doctoral School in Political Science has also launched student exchange programs and research*

*collaboration projects with the following partner Universities and Research Centres in Italy and abroad:*

- *Centro de Estudios Políticos y Constitucionales - Madrid*
- *Centro Interuniversitario "Machiavelli" sulla Storia dei conflitti strutturali durante la guerra fredda*
- *CRIE (Centro di ricerca sulle Istituzioni Europee) presso l'Ist. Univers. Suor Orsola Benincasa - Napoli*
- *Friedrich Schiller-Universität - Jena*
- *Istituto De Gasperi di Studi Europei*
- *Istituto Jeremy Bentham di Studi Giuridici e Politologici*
- *SciencesPo - Paris*
- *Scuola Superiore dell'Amministrazione dell'Interno - Roma*
- *The National Security Archives - Washington*
- *Universidad de Valencia*
- *Universidad Rey Juan Carlos – Madrid*
- *Universitat Autònoma – Barcelona (Dipartimento di Storia contemporanea)*
- *Universidad Carlos III - Madrid (Dipartimento di Scienze Politiche e Sociali)*
- *Universidad de Castellon*
- *University of Cluj-Napoca (Dipartimento di Storia)*
- *University of Craiova (Dipartimento di Storia)*
- *University of Groningen (Department of Political Sciences)*
- *Universidad de Sevilla (Dip. di Metafisica y Corrientes Actuales de la Filosofía, Ética y Filosofía Política)*
- *Universität Bremen (Department of Political Sciences)*
- *Université Charles De Gaulle Lille III*
- *Université Montpellier III Paul Valéry (Département de Philosophie)*
- *Université Nancy*
- *Université Nantes*
- *Université Paris I Sorbona (Ecole doctorale en Sciences Politiques)*
- *Université Paris III*
- *Université Paris XIII (Département d'Histoire)*
- *University of Leiden (Department of Public Administration)*
- *Woodrow Wilson Center for International Studies*

*Specific information are available at:*

- *moro@uniroma3.it (for the School)*
- *nuti@uniroma3.it (for the Section of European and International Studies)*

### **DOCTORAL SCHOOL "TULLIO ASCARELLI" LAW - ECONOMICS - HISTORY**

**5** positions without fellowship (no fees requested)

*The INTERNATIONAL DOCTORATE SCHOOL OF LAW AND ECONOMICS "TULLIO ASCARELLI" releases a joint National Doctoral Degree of European status in the statutory fields offered by the School (Law and Economics). The degree is conferred by Roma Tre and by the Italian Universities which are in partnership with the School according to article 3, paragraph 9 of the MD 509/99. The School also releases a joint degree of European status with foreign Universities which have an equivalent National degree in their own country or national degrees which are mutually recognised in the above said countries. The School, devoted to Higher Education, is also dedicated to scientific research in the various statutory fields it offers. The School, based on conventions established between universities, is divided into various multidisciplinary fields and sections. The school offers different statutory fields: Civil Law, Commercial Law, Labour Law, Criminal Law, Institutional Economics, Business Economics, Competition and Consumers Law, Public Law, International and EU Law.  
Contact: [scuola.ascarelli@uniroma3.it](mailto:scuola.ascarelli@uniroma3.it)*

### **DOCTORAL SCHOOL IN EDUCATION AND SOCIAL WORK - "Education"**

**1** position with fellowship (€ 13.638,47 - gross amount per year)

*Objectives*

*Higher education and research activity training, also towards job placement. The doctoral school aims to coordinate and improve existing potentialities in research education and in educational and social professions*

*training. Connections between educational and social professions imply shared epistemological aspects, developing professional and research activities.*

*Fields of research*

*The Doctoral School develops research programs on different issued related to methodologies (action research, oral history and life history, source documents research, qualitative and quantitative research methods, intervention research, participative observation), involving strong connection among them in order to achieve appropriate cognitive outcomes in relation to the complexity of investigated problems.*

*The section "education" offers an interdisciplinary and international approach in four main topics: education and training problems in modern and contemporary society; individualized teaching; media and communication; interculturalism.*

**DOCTORAL SCHOOL IN EDUCATION AND SOCIAL WORK - "Social Work"**

**1** position with fellowship (€ 13.638,47 - gross amount per year)

Objectives

Higher education and research activity training, also towards job placement. The doctoral school aims to coordinate and improve existing potentialities in research education and in educational and social professions training. Connections between educational and social professions imply shared epistemological aspects, developing professional and research activities.

Fields of research

The Doctoral School develops research programs on different issued related to methodologies (action research, oral history and life history, source documents research, qualitative and quantitative research methods, intervention research, participative observation), involving strong connection among them in order to achieve appropriate cognitive outcomes in relation to the complexity of investigated problems.

The section "Social Work" offers an interdisciplinary and international approach in the following main topics: a) politics on reduction of social inequalities and human empowerment; b) civil society and social volunteering; c) social work as a helping profession.

**Article 2**

The competition is open to students who:

- (i) are not Italian citizens;
- (ii) are not residents of Italy;
- (iii) have gained (or will gain before 31 August 2010) an university degree or an equivalent degree of a higher education institution giving him/her access to doctoral studies without any further qualifications in the country where it was obtained. The equivalence of the degree with the Italian "Laurea Specialistica/Magistrale" will be evaluated by the Supervising Committee of the selected course;

Students who already obtained a doctoral (or equivalent level) degree are not eligible.

**Article 3**

To be admitted the candidate shall submit - by the term specified in the following article 5 - his/her application for ONLY ONE of the courses described above.

**Article 4**

For each course, the selection of candidates will be carried out by the Supervising Committee.

Except for those courses that requires a specific list of documents, candidates will be selected on the basis of:

- ✓ (mandatory) university (or equivalent) degree
- ✓ (mandatory) abstract of the final thesis
- ✓ (mandatory) list of passed examinations
- ✓ (mandatory) curriculum vitae et studiorum



- ✓ (mandatory) a proposed research project
- ✓ (mandatory) at least three reference letters provided and signed by relevant members of the international scientific community, relating to the candidate's chosen course;
- ✓ (if any) additional document and/or publication (including GRE - Graduate Record Examination - test) that the candidate deems worthy of consideration, including associations to research institutions (MAX 05 documents).

For each course, this selection will produce a pass-list, and suitable candidates for the different positions will be contacted with an official notification, that will be sent by e-mail before 31 October 2010.

To be admitted to the course the candidates shall deliver:

- formal documentation of qualifications as outlined in the application form;
- formal declaration of acceptance.

Only on receiving this documents they will be enrolled to the selected course (all starting 2011, January 01).

#### Article 5

Applications should be sent exclusively by WEB, filling the form (including the upload of the ".pdf" requested documents) available on-line at the address: [http://www.uniroma3.it/DOCTORATE/DOCTORAL\\_SCHOOLS - FOREIGN STUDENTS CALL FOR APPLICATIONS](http://www.uniroma3.it/DOCTORATE/DOCTORAL_SCHOOLS_-_FOREIGN_STUDENTS_CALL_FOR_APPLICATIONS)).

**The EXPIRATION DATE of the application is: 26 August 2010 (h. 14.00 CET TIME).**

The administration of Roma Tre takes no responsibility for loss of communication due to possible errors either postal, Internet or otherwise not ascribable to the University itself. Roma Tre takes no responsibility for loss of communication due to inexact information regarding candidate's residence, postal or e-mail address, or to changes of address not communicated in good time.

#### Article 6

Doctorate Fellowships are incompatible with any other one granted by Italian or International subjects.

Doctorate Fellowships cannot be awarded to candidates who have already (either entirely or partially) benefited from a similar grant to attend a Ph.D. Course provided by an Italian University.

#### Article 7

Any other matters not included in the present call for application will be referred to the Italian legal regulations concerning doctorates ("corsi di dottorato di ricerca").

For any other information send an e-mail to [dottorat@uniroma3.it](mailto:dottorat@uniroma3.it)

Rome, 30/06/2010

The President  
*Prof. Guido FABIANI*

Rep. n.1151 del 12/07/2010  
prot. 23277