

## Notice of Open Competition for Admission to PhD Programs Related to the 35th Cycle - Academic Year 2019/2020

The three-year PhD programs listed below are activated, for the academic year 2019/2020, in the context of the 35th Cycle, with administrative offices at the University of Teramo. A public exam on the qualifications and tests are called for admission to mentioned PhD Programs.

### PhD in "History of Europe from the Middle Ages to the Contemporary Age"

Degree title required	All master's degrees with a degree thesis on a historical discipline or a historical subject.
Positions available	5
Positions available with a grant	4
Positions available with a grant reserved for graduates from foreign Universities	1
Positions available without a grant	0
Coordinator	Prof. Massimo Carlo Giannini

### PhD in "Cellular and Molecular Biotechnologies"

Degree title required	All master's degrees
Positions available	10
Positions available with a grant	6
Positions available with a grant reserved for graduates from foreign Universities	1
Positions available without a grant	1
Number of seats reserved for employees SIRE S.r.l.	1
Number of seats reserved for employees Cryolebanon &	1

medical Devices s.a.r.l.	
Research projects covered by a grant	Candidates interested in study grants must submit, together with the application, a specific research project indicated below
Coordinator	Prof.ssa Barbara Barboni

### PhD in "Food Science"

Degree required	title	LM-6 Biology; LM-7 Agricultural biotechnology; LM-8 Industrial biotechnology; LM-9 Medical, veterinary and pharmaceutical biotechnologies LM-22 Chemical engineering; LM-42 Veterinary medicine; LM-54 Chemical Sciences; LM-56 Economics Sciences; LM-60 Natural sciences; LM-61 Sciences of human nutrition; LM-69 Agricultural sciences and technologies LM-70 Food science and technology; LM-71 Science and technology of industrial chemistry; LM-73 Forest and environmental sciences and technologies; LM-75 Sciences and technologies for the environment and the territory; 6/S (specialist in biology); 7/S (specialist in agricultural biotechnology); 8/S (specialized in industrial biotechnology); 9/S (specialized in medical, veterinary and pharmaceutical biotechnologies); 27/S (specialized in chemical engineering); 62/S (specialists in chemical sciences); 77/S (specialist in agricultural sciences and technologies); 78/S (specialized in food science and technology); 79/S (specialist in agrozootechnical sciences and technologies); 81/S (specialized in sciences and technologies of industrial chemistry); 92/S (specialist in statistics for experimental research).
Positions available		7
Positions available with a grant		5
Positions available without a grant for graduates from foreign Universities		1
Positions available without a grant		1
Research projects covered by a grant		Candidates interested in study grants must submit, together with the application, a specific research project indicated below
Coordinator		Prof. Dario Compagnone

### PhD in "Veterinary Medical Sciences, Public Health and animal welfare "

Degree required	title	Possession of one of the following degrees: LM-6 Biology; LM-9 Medical, veterinary and pharmaceutical biotechnologies; LM-17 Physics LM-21 Biomedical Engineering; LM-42 Veterinary medicine; LM-54 Chemical Sciences; LM-69 Agricultural sciences and technologies; LM-70 Food science and technology; LM-77 Business Economics; LM-86 Zootechnical sciences and animal technologies; 6/S (specialist in biology); 20/S (specialist in physics); 26/S (specialized in biomedical engineering); 47/S (specialist in veterinary
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	medicine); 62/S (specialists in chemical sciences); 78/S (specialized in food science and technology); 79/S (specialist in agrozootechnical sciences and technologies); 84/S (specialist in economic-business sciences)
Positions available	11
Positions available with a grant	8
Positions available with a grant reserved for graduates from foreign Universities	1 funded with funds from the Department of Excellence - Demetra project
Positions available without a grant	2
Coordinator	Prof. Fulvio Marsilio

#### PhD in **"Processes law harmonization between history and system"**

Degree title required	All master's degrees
Positions available	6
Positions available with a grant	4
Positions available with a grant reserved for graduates from foreign Universities	1 – candidates with a degree from a foreign university will not take the written exam.
Positions available without a grant	1
Coordinator	Prof.ssa Paola Bellocchi

#### PhD in **"International Perspectives in Corporate Governance and Public Administration"**

Degree title required	All master's degrees
Positions available	8
Positions available with a grant	2
Positions available with a grant reserved for graduates from foreign Universities	1
Positions available without a grant	2
Number of seats	3

reserved for CNR employees - Institute of Crystallography	
Coordinator	Prof. Romano Orrù

The number of grant may be increased as a result of additional funding made available after the publication of this announcement. Any increase in the number of scholarships may determine the increase in the total number of positions available. This increase will be communicated exclusively on the University website (<http://www.unite.it>).

#### *Admission Requirements*

The application for the call may be submitted without any limitations of age and citizenship, by those who hold the above mentioned qualifications or appropriate foreign qualifications at the date of expiry of the call or by those who will obtain the required qualifications for admission by October 31, 2019. The equivalence of the foreign qualification is ascertained by the PhD Committee on the basis of the documentation presented by the candidate together with the application for admission to the admission competition (\*).

The lack of the above mentioned requirements will lead to the exclusion from the procedure at any time, with a written notice of the person in charge of the procedure.

#### *Research projects funded with a grant for a PhD course in "Cellular and Molecular Biotechnologies"*

1. The research projects covered by grants funded by UnivAq are the following:

##### **Project 1 UNIVAQ**

Funding University institution: UNIVERSITA' DELL'AQUILA

Subject for developing the research project:

Physiological, metabolic and behavioural responses of groundwater invertebrates to stress

Brief description of research subject

The invertebrates represent the dominant component of animal biodiversity in groundwater. Crustaceans are the most representative group in terms of abundance and species richness in these environments, and for this reason, used as a target group in the bioindication of environmental quality. However, the knowledge of the stress responses of this group as a whole is poor and the dynamics underlying any physiological, metabolic and behavioral responses are almost unknown. The study of the responses of crustacean species to different stress factors both in the laboratory and in the field represents the key aspect of the theme.

##### **Project 2 UNIVAQ**

Ente finanziatore borsa di studio/ Funding University institution: UNIVERSITA' DELL'AQUILA

Subject for developing the research project:

Effects of environmental pollutants on zebrafish development

Brief description of research subject

Zebrafish is a good model organism for toxicology and developmental research. As a vertebrate specie it share substantial genetic and physiological homology with mammals, and it has some peculiar characteristics such as small size, maturing fast, transparent embryo, that make it a good model organism. The aim of this research project is evaluate the effects of environmental pollutants on zebrafish development. We will analyze the post-exposure embryo morphology and larval locomotor

behavior changes, paralleled to a molecular study of lipid metabolism and of expression of genes related to the development.

### **Project 3 UNIVAQ**

Funding University institution: UNIVERSITA' DELL'AQUILA

Theme title for developing the research project

Redox –related mechanisms underlying the adaptive response to dicarbonyl stress in neurological disorders

Brief description of research subject

Several studies have reported the role of dicarbonyl stress and AGEs in neurodegenerative pathologies and in neurodevelopmental disorders. The glycation of abnormal accumulating proteins (i.e., amyloid beta, tau, prions, and transthyretin) in brains of patients with neurodegenerative diseases is supposed to be associated with crosslinking formation, leading to more stable protein aggregates and then exacerbating their neurotoxicity; accordingly, the positive modulation of AGEs-targeting detoxifying systems, such as GLO1, has been demonstrated to contrast cognitive decline in a mouse model of Alzheimer's disease (AD) . The dicarbonyl glycation of cellular proteins is involved in the modulation of inflammatory protein expression (through the activation of RAGE), being therefore a key component in the neuroinflammation processes of several neurological diseases, including AD, Parkinson's disease, and amyotrophic lateral sclerosis. Indeed, AGEs production and/or RAGE activation are now considered to be a promising drug target for patients who are affected by these disorders. To the best of our knowledge, the RETT syndrome as well as cerebellar ataxia, which are characterized by a generalized state of oxidative stress and subclinical inflammation have never been linked to dicarbonyl stress. The aim of this study is to investigate whether these diseases could be associated to an imbalance in glycative homeostasis.

2. The research project covered by a grant funded by the UNICH:

### **Project 1 UNICH**

Funding University institution: Università G. D'Annunzio Chieti-Pescara

Subject for developing the research project

Regulation of gene expression in germ cells during reproductive processes

Brief description of research subject

The fertility of mammalian species is a dynamic and well-coordinated process involving the proper function of several tissues and organs, including the hypothalamus, pituitary, ovaries/testis and reproductive tract, which give rise to fertilizable gametes and support early embryo and fetal development. A suitable environment for successful fertilization and embryo development is achieved through regulated, spatio-temporal expression of multiple genes, involving both transcriptional and post-transcriptional (mRNA turnover, processing, storage and translation) regulations. Over the past few years, advances in molecular technologies have allowed a detailed mapping of gene expression modulation in gametes and during early embryonic development. Genetic studies have established that epigenetic reprogramming accompanies both germ cell and embryonic development . Epigenetics is defined as molecular factors and processes around the DNA that regulate genome activity independent of DNA sequence and that are mitotically stable . Different epigenetic processes have been shown to be involved such as DNA methylation and non-coding RNA. Changes in Epigenetics mechanisms, that may result from environmental factors, most often affect gene activity and expression. These changes are related to reduction of fertility and can also affect the health of the offspring during lifetime. In fact, these modifications can be transmitted to the offspring, so that either rare congenital diseases or the susceptibility to common diseases appearing during the lifetime can be the result of a gene-environment interaction that occurred in one parent of a subject, not in the subject himself. Thus, future investigations of epigenetic patterns in human development may not only reveal further novel regulatory mechanisms, but also differences in the extent of epigenetic information transmitted from

gametes to embryos. These discoveries will be essential in understanding the influence of our environment on pregnancy and lifelong health of offspring.

3. The research projects covered by scholarships financed by UniTe are the following:

#### **Project 1 UNITE**

Funding University institution: Università degli Studi di Teramo

Subject for developing the research project :

A way for in vitro/ex vivo competent oocyte production in mammals

Brief description of research subject

The use of competent female germ cells represents the current validate technological way for producing offspring. However, over 99% of oocytes are lost because they undergo atresia during the reproductive cycle and since they are not alternatively available for the absence to date of valuable ART protocols. Recently, live pups derived from in vitro/ex vivo egg production has been obtained in the mouse. The aim is to study new strategies in order to mimic in vitro folliculogenesis and to develop protocols to functionally recovery the large amount of immature oocytes

#### **Project 2 UNITE**

Funding University institution: Università degli Studi di Teramo

Subject for developing the research project :

Stem cell in reproductive medicine

Brief description of research subject

Regenerative medicine has opened new avenues for treating patients with severe reproductive system disorders, such as congenital abnormalities, cancer, trauma, infection, inflammation and iatrogenic injuries. The aim is taken advantage from the advances of reproductive tissue engineering to develop new technological solutions for restoring normal sexual function and preserve fertility in male patients.

#### **Project 3 UNITE**

Funding University institution: Università degli Studi di Teramo

Subject for developing the research project :

Study of the effects of new natural compounds in the modulation of endogenous systems

Brief description of research subject

Characterization of the biochemical and molecular profiles and of the functional activity (e.g. receptors binding, enzymes activities, transport and trafficking, as well as genes regulation) of new natural-derived compounds with therapeutic potential, with respect to endogenous systems that metabolize and regulate signalling of bioactive lipids (e.g. eicosanoids, endocannabinoids and resolvins).

4. The research project reserved for employees SIRE S.r.l.:

#### **Project 1 SIRE**

Industrial exchange reserved for company employees

Funding Company: SIRE S.r.l, Napoli

Theme title for developing the researchproject

Mediterranean diet and food traceability: National and International regulations

Brief description of research subject

Mediterranean diet is a part of our food habits and, on the basis of cultural and scientific reports, has been recognized as humanity intangible heritage by UNESCO. In recent years, rising attention has been devoted to food security and to the qualitative levels of food production and distribution. In particular, National and International regulations of Mediterranean food traceability ensure the maintenance and protection of the food as well as consumer protection.

5. The research project reserved for employees Cryolebanon & Medical Devices s.a.r.l.

### **Project 1 Cryolebanon**

Industrial exchange reserved for company employees

Funding Company: Cryolebanon & Medical Devices s.a.r.l.

Subject for developing the research project

Cryo-therapy combined with therapeutic nanoparticles for the treatment of solid tumors

Brief description of research subject

Cryo-therapy are innovative techniques that is currently employed for the treatment of solid tumors.

These techniques use the cryo-ablation, particular liquid nitrogen, to freeze tumors that are following removed used special needles that can specifically aspire tumors in form of solid powder components.

Cryo-therapy is basically combined to conventional diagnostic techniques, like MRI, ultrasound, PET-Scan, to localize the tumor in the body and assist surgery doctor for its removing, thus increasing patient compliance and decreasing side effects. Unfortunately, cryo-therapy cannot kill alone the residue tumors that are still present in the tissue that has been surgically treated. This residual tumor mass can re-activate the development and growing of the tumor thus suppressing the positive effects of cryo-therapy. In this attempt, colloidal nanoparticles (lipid and polymeric) loading different payloads, can help cryo-therapy, if injected orthotopically in the tumor site at the end of surgical treatment, to suppress the tumor residual cells present in the primary and secondary tissues, and thus potentiate the beneficial efficacy of cryo-therapy as well as the efficacy of anti-cancer therapy in patients.

6. The research project *Seat without scholarship*

### **Project 1 Seat without scholarship**

Subject for developing the research project

Improvement and characterization of microalgae for the production of biofuels and products of industrial interest.

Brief description of research subject

The goal of the research is to use algal cells as a heterotrophic (or mixotrophic) oil producer, providing energy for the growth of microalga cultures from low-cost biomass sugars from dairy or agricultural waste. Innovative procedures will be implemented for controlling the contamination of fungi and bacteria in massive microalgae cultures and for enzymatic pretreatment of biomass, based on the use of enzymes able to hydrolyze or oxidize polysaccharides and lignin in the plant cell wall.

Candidates interested in scholarships will have to present, together with the application, a specific research project on one of them.

#### *Research projects funded with a grant for a PhD course in "Food Science"*

The research projects covered by scholarships funded by UniTe are the following:

#### **Project 1) Tutor: Carla Di Mattia**

Title: Exploitation of vegetable by-products and optimization of emulsion technology for innovative food ingredients and formulations

In the last years there have been a growing interest in the recovery of food by-products, being such matrices still rich of useful and high-added value compounds (i.e. antioxidants, fiber, pigments, emulsifying and gelling compounds,...). In parallel, also the interest in the formulation and processing of emulsions/multiple emulsions has rapidly increased, due to the ability of such systems to meet specific requirements from the food industry as well as to act as delivery systems of bioactive molecules. The PhD project will focus on the exploitation of several vegetable by-products, by

themselves or in combination with other emulsifying agents, as well as the optimization of high pressure homogenization processing to develop innovative emulsified formulation and/or multiple emulsions for the encapsulation of bioactive compounds. The obtained systems will be characterized for their chemical and physical properties as well as for their overall stability.

### **Project 2) Tutor: Paola Pittia; Co-tutor: Giuseppe Arfelli**

Title: “Study on key volatile aroma compounds of typical and innovative wines as marker of quality and authenticity”

The aroma of wines is related to the presence and concentration of a number of volatile compounds that, in turn, depends on various factors including grape quality, fermentation as well as technological actions during winemaking. The unique pattern of volatiles in wines may, thus, be a key marker for quality and traceability.

This PhD project is aimed to study the contribution of some key volatile compounds (i.e. norisoprenoids and thiols) on the aroma pattern of both typical wines produced in the Abruzzo region and wines produced according to conventional and innovative procedures (e.g. orange wines, natural wines). The project will focus, in particular, on the main technological factors that may affect their presence and concentration in the final products.

Results of the project will contribute to an added-value of the wines produced from the autochthonous wine varieties of the Abruzzo region by the identification of volatile compounds as marker of quality and traceability as well as to promote innovation in the wine sector.

### **Project 3) Tutor: Prof. Antonello Paparella**

Title: Effect of innovative processes on quality and stability of foods and beverages

*Short description of the topic:* in recent years, the international food and beverage market has faced the challenge of adapting traditional products to prerequisites of constant quality, stability, security, and price, necessary for a product to survive the global market competition. In this context, the microbial ecology of products and in particular useful, spoiling and possibly pathogenic populations represent one of the most important constraints for defining shelf-life and launching new products. The evaluation of these parameters is increasingly carried out by unconventional investigation methods, culture-independent or based on the assessment of growth potential also by means of experimental design, physiological or molecular fingerprinting, and information regarding metabolomics of technological interest. The main objective of this project is to develop an innovative strategy aimed at improving the quality and safety of food or beverages, also through the inclusion of unit operations or process or product modifications that significantly involve the microbial ecology of products, in a framework of protection of production sustainability and prevention of non-compliance.

### **Project 4) Tutor : prof Manuel Sergi**

Title: Development of microextraction methods for the characterization of food matrices by means of Mass Spectrometry in the field of Food Quality and Safety

Food Quality and Safety are important topics covering different areas, both agronomic and commercial, but above all involving the health of consumers that has to be the main issue. The issues related to Food Quality and Safety must be studied by analyzing both healthy compounds, such as phenolics and other antioxidants, and hazardous molecules, including pesticides, antibacterial drugs, etc. To reach these aims, it is needed to apply suitable techniques in order to obtain reliable information on food composition, even for compounds at trace levels. The combination of chromatographic techniques with mass spectrometry provides analytical methods with high specificity and sensitivity, for the identification and quantification of the molecules of interest in a wide range of concentrations, even extremely low. The challenge involves also sample treatment methods for complex matrices, as food ones, for which it is necessary to apply extraction strategies allowing an accurate analysis, minimizing the use of organic solvents and the general cost of the whole procedure, including human resources and materials. Microextraction techniques have the aim to perform simple and effective analytical procedures, by means of tailored materials and devices. This PhD Project has the objective to develop



analytical methods involving microextraction techniques to be applied on food matrices in order to obtain the best performances in combination with instrumental techniques as UHPLC-MS/MS e MALDI/TOF.

#### **Project 5) Tutor Prof. Dario Compagnone**

Title: Development of highly sensitive and selective electrochemical sensors based on molecularly imprinted polymers

Molecular imprinted polymers (MIPs) are nowadays widely used and actively proposed as selective sorbent phases in analytical procedures. They are polymers developed on purpose for particular target analytes. MIPs are synthesized around a template molecule (i.e. the analyte) and used to obtain selective recognition of the target molecule. The polymers can be coupled with electrochemical sensors to obtain selective, rapid low cost tools for rapid detection of key molecules or class of molecules. The former use of bulk polymerised MIPs in classical solid phase extraction cartridges that resulted in successful commercially available products (i.e. for micotoxins), has very recently evolved in the realisation of synthetic approaches producing MIPs in more controlled conditions. These recent approaches (i.e. Surface molecular imprinting....) will be exploited during the PhD project together with the use of inorganic, metal nanoparticles or carbon nanomaterials. The same nanomaterials will be used for the realisation of highly sensitive electrochemical devices that will be coupled to the MIPs for the realisation of rapid, sensitive, selective and low cost analytical procedures for target analytes relevanto to food safety and quality.

#### **Project 6) Progetto Dottorato Industriale finanziato da Alpha Polaris (Confindustria)-CNR /industrial PhD Alpha Polaris/CNR**

**Tutor: Prof Serafini Muro**

Title: Role of traditional foods from Abruzzo region as dietary modulator of oxidative, inflammatory and metabolic stress in frail elderly.

The Abruzzo region is characterized by a leading agri-food biodiversity, just think of the contemporary presence of foods of plant and animal origin (meat and fish), herbs from the garden, legumes etc. which have led to a wealth of food and wine in terms of dishes and recipes that have characterized the region since ancient times. The biodiversity of the Mediterranean Abruzzo patrimonial food is translated into a functional totipotency of absolute value, including both biological molecules with high nutritional value (proteins and lipids), and phytochemicals capable of exerting an antioxidant, anti-inflammatory and immuno-modulating action. In this context, it is of fundamental importance to identify and define nutritional suggestions based on the foods of the Abruzzo region, capable of bringing nutritional benefits and exercising a functional action aimed at the partial recovery of physiological homeostasis, reducing oxidative, inflammatory and metabolic stress and the decline of the immune system in frail elderly or those suffering from diseases linked to aging.

Aim: Investigating functional properties of traditional foods form Abruzzi region in order to develop low calorie dietary regimen to modulate oxidative, inflammatory and metabolic stress in frail elderly.

In the first phase of the Project, a screening based on literature data will be carried out in order to identify the foods of the Abruzzo region that can potentially play a functional role in the organism. Foods will be selected on the basis of functional activities: reduction in arterial pressure, low glycemic index / insulin response, protein value, antioxidants, anti-inflammatory and seasonality, in order to guarantee an annual spectrum of action. On selected foods, the functional properties will be evaluated by in vitro tests and in cellular models. A population of reference elders will be selected, characterized by metabolic and / or immune alterations and affected by diseases linked to aging. Ad hoc dietary regimes will be designed for each type of problem taking into account the individual nutritional needs in order to provide a dietary pattern that contains the necessary nutrients and is able to exert a functional action, within low-calorie and / or fasting intermittently, aimed at reducing metabolic stress. The protocols of intervention developed, and submitted to the competent Ethics Committee, will be applied in the selected subjects and in the appropriate controls.

Candidates interested in scholarships will have to present, together with the application, a specific research project on one of them.

*Additional grants "PON Innovative Doctorates with Industrial characterization"*

The University of Teramo participates in the call for competition *"PON Dottorati Innovativi con caratterizzazione industriale"* with proposals for the assignment of additional grants within the scope of all doctorate courses.

*Admission procedure*

Admission to the PhD courses is based on the evaluation of qualifications and interview and is divided into two phases.

In the first phase the Selection Committee proceeds to evaluate the following qualifications, giving each candidate a maximum score of 20 points according to the following division:

- 1) PhD in "History of Europe from the Middle Ages to the Contemporary age"
  - a. abstract of the old or master's degree thesis (minimum length of the abstract 2,000 - maximum 8,000 characters including spaces): maximum 4 points;
  - b. quality of the research project, consistent with the course topics, developed by the candidate (minimum length 8,000 - maximum 10,000 characters including spaces): maximum 8 points;
  - c. scientific curriculum vitae (university career including examinations with the specific indication of individual grades and relative average - 1 letter of reference from a university professor or qualified scholars, any professional experience, training and / or research of foreign languages and other qualifications held): maximum 4 points;
  - d. possible publications: maximum points 4 - it is specified that only scientific publications with ISBN or ISSN will be evaluated.
  
- 2) PhD in "Cellular and Molecular Biotechnologies"
  - a. abstract of the thesis: maximum points 4;
  - b. research project developed by the candidate, consistent with the topics of the course: maximum points 7;
  - c. scientific curriculum vitae (university career including examinations with the specific indication of individual grades and the relative average - letter \ and reference of university professors or qualified scholars and any professional training and / or research experience, degree of knowledge of foreign languages and other titles held): maximum points 4;
  - d. eventual publications: maximum points 5.
  
- 3) PhD in "Food Science"
  - a. curriculum vitae scientific and university career including exams with the specific indication of individual votes and the related average: maximum points 8;
  - b. letter \ and reference of university professors or qualified scholars and any professional experience: maximum points 1;
  - c. possible publications: maximum points 1.
  - d. quality of the research project proposal developed by the candidate, consistent with the course topics: maximum 10 points.

- 4) PhD in "Veterinary Medical Sciences, Public Health and animal welfare "
  - a. abstract of the thesis: maximum points 8;
  - b. research project developed by the candidate, consistent with the course topics: maximum 6 points;
  - c. scientific curriculum vitae (university career including examinations with the specific indication of individual grades and the relative average - letter \ and reference of university professors or qualified scholars and any professional, training and / or research experience, degree of knowledge of foreign languages and other titles held): maximum points 4;
  - d. possible publications: maximum points 2.
  
- 5) PhD in "Processes law harmonization between history and system"
  - a. scientific curriculum vitae (university career including exams and graduation marks): maximum 5 points;
  - b. b. research project developed by the candidate, coherent with the topics of the course, indicating the relevant disciplinary scientific sector and degree of knowledge of languages: maximum points 10;
  - c. c. possible professional experiences, training and / or research, possible publications, abstract degree thesis: maximum points 5.
  
- 6) PhD in "International Perspectives in Corporate Governance and Public Administration"
  - a. abstract of the thesis (minimum 2,000 characters - max 8,000 characters, spaces included): maximum points 2;
  - b. research project developed by the candidate, consistent with the course topics: maximum 10 points;
  - c. scientific curriculum vitae (university career including examinations with the specific indication of individual grades and the relative average - letter \ and reference of university professors or qualified scholars and any professional, training and / or research experience, degree of knowledge of foreign languages and other titles held): maximum points 5;
  - d. possible publications: maximum points 3.

The second phase is the interview which is only for candidates who have achieved a minimum score of 12 points. The list will be published on the university website after the assessment of all the qualifications.

The oral test will consist of an interview of the candidate with the Academic Board designed to test the knowledge on the topic of a relevant doctoral course and to discuss the proposed research project. The knowledge of the English language is also always verified during the interview. The interview may be conducted entirely in English if requested by the applicant. The interview may be conducted via computer (via Skype) if required in the process of submission of the application by the candidate residing abroad or by the candidate with a disability. The interview will be considered passed only if the candidate will be awarded a minimum score of 24 points.

The maximum score for each candidate for the oral exam is 40 points. At the end of the interview the Selection Committee will proceed to identify the suitable candidates who will be placed in the general ranking, expressed in sixty, based on the sum of the scores obtained by the candidates according to the evaluation of the qualifications and the interview.

The information about the oral test, indicating the date, time and place in which it takes place, will be published on the university website at least 7 days before taking the oral test. For the interview candidates must bring a valid ID.

#### *Application and submission deadline*

To participate in the competition the candidate must complete and submit the application form – together with all attachments - using only the form available in the online procedure on the University website ([www.unite.it](http://www.unite.it)).

The application must be submitted, under penalty of exclusion, no later than midnight on the thirtieth day following the publication of this announcement on the University website. If the expiry date indicated falls on an holiday day, the deadline is extended to the first following working day. The candidate can submit only one application for each PhD course.

#### *Reserved places for graduates from foreign universities*

For each PhD program there is a reserve of positions intended for graduates who have obtained all the qualification to enter the PhD program at a foreign University.

#### *Contributions for the access and the attendance of the courses*

All PhD students are required to pay € 140 per year, regional tax together with the amount of the stamps, € 32 for the first year, € 16 for the second and third year and € 32 for the title degree certificate.

#### *Study grants*

The financial support is awarded to the candidates according to the ranking.

The amount of the grant, to be paid in monthly installments, is EUR 15,343.28, gross of fees to be paid by the PhD student, according to current law.

The PhD grant is subject to the payment of INPS social security contributions.

This amount is increased to a maximum of 20 percent, for a maximum period of 18 months and a minimum of 30 days, if the doctoral student is authorized to carry out the research abroad.

Starting from the second year, a budget for research activities in Italy and abroad within the existing financial resources is guaranteed for each student.

The recipient of the study grant must have a gross annual total personal income not exceeding € 15,000.00 in the years of prevalent use of the grant.

The determination of this income, which is that related to the year of awarding the grant, includes all the patrimonial income, well as emoluments of any other nature, with the exception of those with an occasional nature or deriving from military service.

The grant cannot be cumulated with any other grants, except with those awarded by national or foreign institutions aimed at integrating, with the periods abroad, the training or research activity of the PhD students; in this case the right to the expected increase of the grant is lost.

(\*) Academic title awarded abroad: university degree obtained abroad must be comparable to the title of Master of Science in duration, level and subject area. In accordance with this principle, acting on their eligibility with the Academic Board. Applicants who have a foreign qualification that has not already been declared equivalent (1) to an Italian degree will make implicit request for equivalence in their application for admission, must attach the following documents: certified the degree with exams and the corresponding vote (EU citizens may submit a self-certification according to Presidential Decree no. 445 of 28.12.2000, as amended, English translation, if the document is not already in that language, the certificate the degree earned, with exams taken and grades obtained, signed under their own responsibility, in order to allow the teacher to assess their suitability, solely for purposes of participation in the contest; any other documentation deemed useful to assess the eligibility of the title held for participation in the competition (Diploma Supplement (2), or declaration of local value (3), etc.). Candidates holding a degree not achieved in Italy winners of the contest must submit to the Service

PhDs by February 28, 2020: Declaration of Value-site together with the degree certificate with exams and grades, translated and authenticated by Italian diplomatic authorities in the country where the institution that issued it. The Value Statement must certify that the qualification obtained is valid in the country of graduation for enrollment in an academic course similar to the Ph.D.; or, if the Value Statement above is not yet ready for the date indicated, a document showing that the release request has been submitted to the diplomatic mission of competence; In this case, the student must then deliver the Declaration of Value in the original as soon as available; or, as an alternative to Value Statement, the Diploma Supplement in English, according to the model developed by the European Commission, the Council of Europe and UNESCO / CEPES. In the absence of such documents will not be achieved the title of Doctor of Philosophy.

(1) For more information visit the web page <http://www.cimea.it/default.aspx?IDC=113>.

(2) With Diploma Supplement is a document attached to a diploma of higher education with the aim of improving the 'transparency' international and facilitate academic and professional recognition of the qualifications (diplomas, degrees, certificates, etc.). The Diploma Supplement should be issued by the same institution that issued the license. More details on the website: [http://ec.europa.eu/education/lifelong-learning-policy/doc1239\\_en.htm](http://ec.europa.eu/education/lifelong-learning-policy/doc1239_en.htm).

(3) The Value Statement is issued by the Italian diplomatic missions abroad (embassies / consulates) competent. For more information, visit <http://www.cimea.it/default.aspx?IDC=118>.