



UNIVERSITÀ  
DEGLI STUDI  
DI BERGAMO

Area  
Risorse Umane

Gestione carriere  
e concorsi  
Assegni di ricerca

## CHANCELLOR'S DECREE

Data that can be deduced from the registration in the protocol:  
Repertoire Number, Protocol Number, Title,  
Class File Attachments and References

**Object: Public selection based on qualifications and interview for the awarding of no. 4 Early stage grants for conducting research pursuant to art. 22 of law no. 240/2010 at the Departments of University of Bergamo - Pica Code 23AR013**

### THE CHANCELLOR

- GIVEN Law No. 168 of 9 May 1989 laying down rules on the "Establishment of MIUR";
- GIVEN Law No. 240 of 30 December 2010 "Norms in terms of organization of universities, of academic personnel and their recruitment, as well as mandate to the Government to subsidize quality and efficiency of academic systems", in particular art. 22 on research grants;
- GIVEN the Statute of the University of Bergamo enacted with Chancellor's Decree Index No. 92/2012 of 16 February 2012;
- GIVEN the University's current Regulations for awarding grants for conducting research;
- GIVEN Ministerial Decree Prot. No. 102 of 09 March 2011, recorded at the Court of Auditors on 13 May 2011, which revalued the minimum gross annual amount of grants for conducting research;
- GIVEN Decree-Law No. 192 of 31 December 2014 "Extension of terms provided for by legislative provisions", converted, with amendments, by Law No. 11 of 27 February 2015 and, in particular, Art. 6 paragraph 2 bis which extended by two years the total duration of grants established under Art. 22 of Law No. 240/2010, taking it from four to six years;
- GIVEN
- the D.L. No. 36/2022, converted, with amendments, into Law no. 79/2022, which in art. 14 paragraph 6-quaterdecies establishes that "for one hundred and eighty days following the entry into force of the decree conversion law, limited to the already programmed resources on the mentioned date, or approved by the respective governing structures within the mentioned term of one hundred and eighty days, universities [...] may call for awarding procedures of research grants pursuant to article 22 of law no. 240, in the current text before the entry into force of this decree conversion law";
  - the D.L. No. 198/2022 which in art. 6 paragraph 1 establishes that the transitional regulation relating the possibility of issuing research grants has been extended until 31<sup>st</sup> December 2023;
- REFERRING also to:
- the University's Code of Ethics issued with Chancellor's Decree. Prot. No. 14405/1/003 of 19.7.2011 and amended with Chancellor's Decree. Rep. No. 262/2018, Prot. No. 60030/1/003 of 12.4.2018;
  - the University's Regulations on research integrity and ethics, enacted with Chancellor's Decree Index No. 387/2016 of 18 July 2016;
  - the University's Patent Regulations enacted with Chancellor's Decree Index No. 390/2016 of 19 July 2016 and amended with Chancellor's Decree Index No. 158/2018 of 26 February 2018 and with Chancellor's Decree Index No 421/2020, of 9.9.2020;
- ACQUIRED the resolution of the Councils of the Departments which approved the annual research project and resolved on the requirements for candidates' admission to the selection;
- GIVEN the resolutions of Academic Senate of 29.05.2023 and 26.06.2023 and of the Board of Directors of 31.05.2023 and 28.06.2023 which approved the activation of the proposed research grants;
- ASCERTAINED the financial backing (tab. 1);

## DECREES



## Article 1 Call for public selection

A public selection is launched based on qualifications and interview for the awarding of No. 4 grants for conducting research pursuant to Art. 22 of L. No. 240/2010 at the Departments with a contract under private law at the research structures of the University of Bergamo as indicated hereafter:

COD E	TYP E	DEPARTMENT	DURATI ON	GROSS AND FUNDS	TITLE	A.R.F.	A.D.	TUTOR
1	A	Economics (deliberation 23.05.2023)	19 months	<b>€ 38.342,00</b> Research project Bilancio di Ateneo - progetto STaRs azione 1 anno 2021 - codice progetto STARS2123AZ1SR - CUP: F59C20000390001	<i>The social and economic impact of school closures due to the spread of the SARS-COVID19 virus: a simulated statistical study</i>	13/D1 Statistics	SECS-S/01 Statistics	Prof. Raffaele ARGIENTO
2	B	Management, information and production engineering (deliberation 19.06.2023)	12 months	<b>€ 20.000,00</b> Research project 60DIGIP23 + DIGIPMARGCOM	<i>Design for circular economy (DfCE)</i>	09/A3 Industrial design, machine constructio n and metallurgy	ING-IND/15 Design methods for industrial engineering	Prof. Davide RUSSO
3	B	Management, information and production engineering (deliberation 19.06.2023)	12 months	<b>€ 21.876,00</b> Research project 60DIGIP23 + DIGIPRESIAPPUB	<i>Fault diagnosis for systems and signals described by graphs</i>	09/G1 Systems and control engineering	ING-INF/04 Systems and control engineering	Prof. Mirko MAZZOLENI
4	B	Engineering and applied sciences (deliberation 15.06.2023)	12 months	<b>€ 22.284,00</b> Research project 60DISA22+ 60DISA23	<i>Interpretation of cone penetration tests in unconventional soils</i>	08/B1 Geotechnics	ICAR/07 Geotechnics	Prof.ssa Daniela GIRETTI

The grants are paid to the contract holder in monthly instalments of equal amount.  
The research projects are described in Annex A of this call constituting an integral part hereof.

## Article 2 Requirements for admission to the selection

The selection procedure is open to **scholars in possession of a professional scientific curriculum suitable for conducting the scientific research provided for by this call, as well as of the following requirements:**

- **2<sup>nd</sup> cycle degree: Diploma di Laurea Specialistica (LS) or Laurea Magistrale (LM)** and equivalent qualifications, **or Diploma di Laurea (DL)** obtained according to the procedures preceding the entry into force of Ministerial Decree 509/1999 and following amendments and integrations and equivalent qualifications for admission to public competitions (**see the following table**).

To establish the equivalence among **Diploma di Laurea (DL)** and **Diploma di Laurea Specialistica (LS) or Laurea Magistrale (LM)**, it is possible to refer to the following link:  
<http://attiministeriali.miur.it/UserFiles/3160.pdf>

The Decrees that govern the equivalence among Italian academic qualifications for participating in public competitions are available at the following link:  
<http://hubmiur.pubblica.istruzione.it/web/universita/equipollenze-titoli>

**The qualifications obtained abroad must be recognised as valid in the Italian territory.**

The qualifications obtained abroad must be recognised as valid in the Italian territory.



As regards qualifications obtained abroad that have not already been recognised in Italy with formal procedure pursuant to the applicable laws, the Commission is competent to assess the equivalence – as to the nature, level and subject correspondence (cycle degree) – to the qualifications required by this call, for the sole purposes of admission to the present selection.

As regards qualifications obtained abroad, required by the call for the purpose of admission to this selection, the applicant:

- in the event of qualifications already recognised as valid in the Italian territory, must indicate in the application **the details of the provision attesting the occurred recognition** pursuant to the applicable laws;
- in the event of **qualifications not yet recognised**, In order to ensure the widest participation in the selection, the candidate with a qualification not yet recognised or with the recognition procedure in progress, **must obligatorily attach to the application, under penalty of exclusion, one or more of the following documents:**
  - o **a certified copy of the statement of qualification equivalence**, issued by the competent Italian diplomatic and consular authorities abroad;
  - o **the diploma supplement or transcript of record**, legalized and written in Italian or in English;
  - o **a copy of the qualification** with a translation into Italian or English

In the event of qualifications not yet recognized, the candidate is admitted with reserve.

If the candidate turns out to be the winner, he must start the procedure above indicated and produce the required documents, within the terms peremptorily established by the Administration following the approval degree, in order to sign the contract.

- **knowledge of one or more foreign languages (see the following table).**

Moreover, the applicant is also required:

- **to be at least 18 years old;**
- **to be in possession of civil and political rights;**
- **to have no criminal convictions or ongoing criminal proceedings that would prevent, in accordance with the regulations in force, the establishment of an employment relationship.**

For admission to the selections referred to in art. 1 the following specific requirements are also required:

CODICE	REQUISITI SPECIFICI	LINGUA
<b>1</b>	Diploma di Laurea Specialistica o Magistrale (ed equiparati) in Scienze statistiche (Classi LM-82 or 90/S Statistica demografica e sociale or 91/S Statistica economica, finanziaria ed attuariale or 92/S Statistica per la ricerca sperimentale or 49/S Metodi per la ricerca empirica nelle scienze sociali) or Matematica (Classi LM-40 o 45/S) or Ingegneria biomedica (Classi LM-21 or 26/S) or Ingegneria informatica (Classi LM-32 or 35/S) or Modellistica matematico-fisica per l'ingegneria (Classi LM-44 or 50/S) or Diploma di Laurea V.O	English
<b>2</b>	Diploma di Laurea Specialistica o Magistrale (ed equiparati) in Ingegneria meccanica (LM-33 o 36/S) o Diploma di Laurea V.O	English
<b>3</b>	Diploma di Laurea Specialistica o Magistrale (ed equiparati) in Ingegneria informatica (Classi LM-32 or 35/S) or Ingegneria dell'automazione (Classi LM-25 or 29/S) or Ingegneria elettronica (Classi LM-29 or 32/S) or Diploma di Laurea V.O	English
<b>4</b>	Diploma di Laurea Specialistica o Magistrale (ed equiparati) in Ingegneria civile (LM-23 or 28/S) or Ingegneria dei sistemi edilizi (Classi LM-24 or 28/S) or Ingegneria per l'ambiente e il territorio (Classi LM-35 or 38/S) o Diploma di Laurea V.O	English

The selective procedure does not allow admittance to:

- those who have a degree of kinship or affinity, up to and including the fourth degree, with a professor from the relevant structure, or with the Chancellor, the General Manager or a member of the University's Board of Directors;



- those who have been holders, including any renewals, of research grants awarded pursuant to Art. 22 of Law No. 240/2010 for a period which, added to the duration of the contract provided for by this call, exceeds a total of six years, except for the period in which the grant was used in coincidence with the PhD within the maximum legal duration of the relevant course;
- those who were contracted as research fellow or fixed-term researcher as per ss. 22 and 24 of Law 240/2010 at the University of Bergamo or other Italian public, private or online Athenaeums, as well as any other Body indicated in para 1 of s. 22 of Law 240/2010 for a length of time which, if summed to the duration of the contract in this announcement, exceeds 12 years in total, albeit not consecutive; periods of time spent on maternity or sick leaves do not count to the purpose of the duration of the aforementioned relationships, in accordance with current Laws;

The applicant enrolled in a Diploma di Laurea (DL), Diploma di Laurea Specialistica (LS), Laurea Magistrale (LM), PhD with study grant or medical specialisation in Italy or abroad can participate in the selection object hereof; should the applicant be the winner, the research grant will be awarded subject to withdrawal from studies or PhD study grant.

Pursuant to art. 22 paragraph 2 of Law 240/2010 cannot be recipient of the grants the regular personnel at universities, institutions and public entities of research and experimentation, the Italian National Agency for new technologies, energy and sustainable economic development (ENEA) and the Italian Space Agency (ASI) and institutions whose scientific specialization diploma was recognised equivalent to a PhD pursuant to the fourth paragraph under article 74 of Presidential Decree of 11 July 1980, No. 382.

The holder of the grant can attend PhD courses whose subjects are related to the research activities connected with the grant, upon prior evaluation of the Structure of reference. However, the research grant is incompatible with the enjoyment of the PhD study grant.

These requirements must be met on the date of expiry of the deadline for submitting the application for the admission to this selection.

This Administration guarantees equality and equal opportunities between men and women as to access to employment and treatment at work.

### **Article 3 Exclusion from the procedure**

The following reasons are causes of exclusion:

- lack of signature on the application form;
- lack of admission requirements as provided for by Art. 2;
- failure to meet the procedures for submitting the application as mentioned under the following Art. 4.

The applicant is admitted with reserve to the selection, if additional investigations should be necessary, the applicant must regularize his/her application within the time peremptorily established deadline.

The Administration may decide to exclude the applicant from the selection launched with this call, at any time, by reasoned Chancellor's Decree.

### **Article 4 Terms and conditions for submitting application**

**Under penalty of exclusion applications for participation in the public selection, as well as the relevant qualifications held and the relevant scientific publications, shall be submitted online through the following online application procedure:**

<https://pica.cineca.it/unibg/>

The candidate will be able to register and access the platform using the Public Digital Identity System (SPID - security level 2). In case the candidate does not have one, he or she can request it according to the procedure indicated on the website [www.spid.gov.it](http://www.spid.gov.it). Alternatively, the candidate can register and log in using the credentials released directly by the PICA platform.

It is of utmost importance to provide a valid email address in order to enable the registration process on the electronic procedure.



Applicants shall upload all personal and professional data as requested by the application procedure; all documents must be uploaded in PDF format (.pdf). Each applicant can produce a maximum of no. 40 publications and a maximum of no. 40 other titles and qualifications.

**Failure to comply with the online application procedure will result in exclusion of the applicant.**

Prior to final submission, and within the given deadline for applications submission, the online application procedure allows to modify and save the inserted information in a draft copy.

Confirmation of final submission date will be certified by an automatic notification email.

Submissions after the given deadlines will not be accepted by the system, as the online application procedure won't be accessible.

Each application will be given a registration number. For all further communications, the registration number shall be quoted along with the code of the research grant competition.

The online application and the submission procedure must be completed by and no later than **12.00 (Italian time) on the thirtieth day** from the notice publication date on the University website. Should the indicated deadline fall on a non-business day, it shall be postponed no later than 12.00 (Italian time) of the next business day.

The submission of the online application must be completed and finalized:

- **no digital signature:** in this case the candidate has to download the pdf file of the application by the system; the PDF file shall not be modified in any way, it is to be printed, signed in original, scanned in a pdf file and uploaded again on the website; applications with illegible or "pasted" signatures will not be accepted.
- **sign the application on the server using ConFirma service:** in order to sign digitally the application, it is necessary to have a hardware (e.g., smart card or USB with digital signature certificate issued by an approved certification body) compatible with ConFirma service; after signing, applicants can download the signed pdf application;
- **sign the application digitally on your PC:** In order to sign digitally the application, it is necessary to have a hardware (e.g. smart card or USB with digital signature certificate issued by an approved certification body) and a software for digital signatures in order to create a pdf.p7m file from the pdf file downloaded from this site. The pdf.p7m file must be uploaded in the website again;
- **in case of submission of the application through SPID,** it will not be necessary to sign the application form as it is automatically acquired by the procedure.

**The application must contain all the required data by the system and must be signed and accompanied by a valid identification document of the candidate, under penalty of exclusion.**

For any technical problems, contact support through the link available in the footer <https://pica.cineca.it/unibg>.

#### **Article 5 Admission application**

The applicant, filling the application, must declare, under his/her own responsibility, pursuant to what provided for by Presidential Decree 445/2000 and following amendments and integrations, as follows:

- his/her citizenship;
- to possess the qualifications mentioned in the previous Art. 2, indicating the degree cycle, the date on which it was obtained, the Institute that issued it and the final vote/assessment achieved; the applicant with qualification(s) obtained abroad must declare to have obtained the recognition indicating in the application the details of the provision or must annex the required documentation according to what specified hereby;
- to possess any other requirements as mentioned in Art. 2;
- to possess other qualifications useful for the assessment;
- to know the foreign language required by this call;
- in case of Italian citizenship: to be enrolled in the electoral lists, specifying the Municipality of belonging and possibly specifying the reasons for non-inclusion or cancellation from the same lists; in case of foreign citizenship: to possess civil and political rights in the Country of belonging or provenance, or the reasons for non-possession of the same;



- not to be excluded from the active political electorate;
- to have no criminal convictions, or declare possible convictions undergone, indicating the details of related sentences, and any pending criminal proceedings;
- to be/not to be a state employee, specifying to be/not to be a regular employee at Universities and other bodies as mentioned in Art. 22 of L. No. 240/2010;
- to have no degree of kinship or affinity, up to and including the fourth degree, with a professor from the relevant structure or with the Chancellor, the General Manager or a member of the University's Board of Directors;
- if enrolled in a Diploma di Laurea (DL), Diploma di Laurea Specialistica (LS), Laurea Magistrale (LM), PhD with study grant or medical specialisation, in Italy or abroad, to be aware that, in the event
- of awarding of the grant, attendance at such courses and the use of the PhD study grant are incompatible with the holding of the contract;
- to hold research grants awarded pursuant to Art. 22 of Law No. 240/2010;
- to hold contracts as fixed-term researcher pursuant to Art. 24 of Law No. 240/2010;
- to have attended a PhD indicating the period, University, date on which the qualification was obtained, cycle, exact title of the course and CUN Area;
- period of enjoyment of any PhD study grant;
- address to which communications concerning this competition are to be sent; it is mandatory to indicate a personal e-mail address as well.

In the application for participating in the competition, the applicant, pursuant to Law No. 104 of 5 February 1992, must specify any aid necessary in relation to his/her needs, as well as any need for additional time for the interview.

When submitting the application for participating in the selection, the applicant must annex the following documents:

1. a photocopy of the applicant's identity document in course of validity;
2. *curriculum vitae* in European format, dated and signed;
3. a list, signed by the applicant, of the publications and other research products, and other titles considered appropriate for the purposes of the selection such as specialisation degrees, certificates of attendance to postgraduate courses, obtained in Italy or abroad, contracts, study grant or research assignments both in Italy and abroad (cf. Annex B);
4. any publications, other research products or other titles that the candidate wishes to assert to the purpose of the procedure, numbered in progressive order matching the relating numbered list;
5. in the event of foreign applicant, it is necessary to annex: a copy of the residence permit (if the applicant is already in its possession).

For the abroad qualification, required for the purposes of selection admission, it's also necessary:

- in the event of qualifications already recognised as valid in the Italian territory, to indicate in the application **the details of the provision attesting the occurred recognition** pursuant to the applicable laws;
- in the event of qualifications not yet recognised attach to the application **one or more of the following documents**: a certified copy of the statement of qualification equivalence, issued by the competent Italian diplomatic and consular authorities abroad; the diploma supplement or transcript of record, legalized and written in Italian or in English; a copy of the qualification with a translation into Italian or English.

As regards all other qualifications obtained abroad which the applicant intends to provide for the selection as required by the call, it is necessary to annex to the application a copy of the qualifications. Each annex must be in PDF format and must not be larger than 30 MB.

Pursuant to Law No. 183/2011, the Administration cannot accept or request certificates, but only declarations in lieu of certifications or affidavits submitted in substitution of the actual certificates signed by the applicant and submitted together with an unauthenticated photocopy of the applicant's



valid identify document. The Administration has the right to carry out suitable controls on the truthfulness of the contents of the declarations in lieu pursuant to what provided for by Presidential Decree No. 445/2000.

The requirements and the qualifications must be owned on the date of the expiry of the call.

It is mandatory to indicate a personal e-mail address to which the communications concerning this selection and the contract signing will be sent. Any variation of said address must be promptly communicated to the Selections Office (Servizio Assegni di ricerca).

### **Article 6 Examining Commission**

The Examining Commission is appointed with Chancellor's decree, upon proposal of the Structure's Council, at the expiry of the deadline for submitting the application.

The Commission is authorized to carry out the on-line procedure, in the understanding that such method can be adopted until the conclusion of the relevant works, guaranteeing the security and traceability of communications.

### **Article 7 Selection**

During its first meeting, the Examining Commission will establish the assessment criteria and procedures explicitly, according to what provided for by the call, fixing a minimum score for admission to the interview.

The overall assessment is expressed in hundredths, as indicated hereafter:

- up to a maximum of 60 points for qualifications and scientific-professional curriculum; to that end, the following will be object of assessment:
  - graduation vote;
  - PhD (if not already provided for as requirement for admission);
  - specialisation degrees and certificates of attendance to postgraduate courses, obtained in Italy or abroad;
  - publications and other research products;
  - documented research activities – as long as the beginning date and duration of the activities are duly certified – carried out at the premises of public and private subjects with contracts, study grants or assignments, both in Italy and abroad;
- up to 40 points for the interview.

Within the context of its autonomy, the Commission can integrate the above, depending on the research project and on what provided for by this call.

#### **In particular will be evaluated:**

<b>CODE</b>	
<b>1</b>	-
<b>2</b>	Proven knowledge of systematic innovation methodologies (e.g. TRIZ)
<b>3</b>	To have publications in the disciplinary sector ING-INF/ 04 - Automatica
<b>4</b>	Proven experience in physical modeling and in the interpretation of centrifuge tests and of standard and advanced laboratory test results

The applicants will be informed before the interview on the results of the assessment of the qualifications.

The Commission reserves the right to carry out the interview via videoconference, through the use of IT and digital tools, guaranteeing the adoption of technical solutions that ensure the publicity of the same, the identification of the participants, as well as the security of communications. and their traceability. Failed connection at the time established or late connection, unless due to force majeure, will be considered as a renunciation to participate in the selection.



During the interview, the Commission will verify the applicant's ability to cover the topics and themes related to the research project and his/her knowledge of at least one foreign language, according to what provided for by the call.

CODE	PROGRAMME OF THE INTERVIEW
1	The interview will focus 1) on the motivations and interest in the topic of the research project; 2) on the specific topics requested in the research project, in particular hierarchical models, Bayesian hierarchical models and Bayesian non-parametric models. The Commission reserves the right to verify the knowledge of the Italian language for foreign candidates; in this case, Italian language knowledge will be ascertained under ineligibility penalty and will not compete for the final score, unless otherwise established by the Commission.
2	Integration between the problem-solving methodology and LCA tools. Problem solving. Patent search Material science. The Commission reserves the right to verify the knowledge of the Italian language for foreign candidates; in this case, Italian language knowledge will be ascertained under ineligibility penalty and will not compete for the final score, unless otherwise established by the Commission.
3	The interview will be aimed at understanding the basic skills of systems theory, automatic controls, signal processing, model identification and fault diagnosis. The reference subject is model identification and data analysis. The Commission reserves the right to verify the knowledge of the Italian language for foreign candidates; in this case, Italian language knowledge will be ascertained under ineligibility penalty and will not compete for the final score, unless otherwise established by the Commission.
4	The interview will focus on the previous experiences of physical modeling, geotechnical laboratory, interpretation of model tests and laboratory tests. The Commission reserves the right to verify the knowledge of the Italian language for foreign candidates; in this case, Italian language knowledge will be ascertained under ineligibility penalty and will not compete for the final score, unless otherwise established by the Commission.

The assessment of the knowledge of the foreign language as provided for by this call will be carried out during the interview according to the modalities established by the Commission.

**The date and place of the interview will be communicated with at least a 20-day notice through a communication published on the website of University of Bergamo <http://www.unibg.it>, under the section "Concorsi e selezioni-Assegni. Borse e contratti di ricerca-Assegni di ricerca" supervised by the Servizio Assegni di ricerca.**

**This notice is to all intents and purposes an official communication. Any changes related to the date of the interview will be communicated to the admitted applicants with at least a 20-day notice through the publication of a communication on the University's website under the section "Concorsi e selezioni-Assegni. Borse e contratti di ricerca-Assegni di ricerca".**

Failure to show up at the interview will be considered as a renunciation to participate in the competition for all practical purposes.

At the end of the works, the Commission draws up the list of the applicants examined, indicating the votes obtained during the interview.

The Commission will draft the merit list in descending order according to the overall final score, which is obtained by adding the score of the qualifications and the score of the interview.

Applicants will be inserted in the merit list if they obtain at least 30 out of the 40 points available for the interview.

In the event of equal score, the PhD or equivalent qualification obtained abroad will constitute a preferential qualification, if not required for admission; in the event of equal merit, the younger applicant will be preferred.

The merit list is approved, under the condition precedent of verifying the requirements provided for by the call, with Chancellor's Decree and published on the website under the section "Concorsi e selezioni-Assegni. Borse e contratti di ricerca-Assegni di ricerca". The term for submitting any appeals will run from the date of publication.





Should the winning applicant renounce to or withdrawal from the contract, the grant can be awarded to successful applicants according to the order of the merit list, upon prior resolution of the Research Structure.

### **Article 8 Signing of the contract and withdrawal**

The winning applicant, in possession of the mentioned requirements, will sign an autonomous work contract under private law with effect, normally, on the first day of the month following the month in which the acts are approved.

As regards foreign applicants needing a residence permit, the date of beginning of the contract will be postponed and subject to the completion of the permit procedure by the competent authorities.

In the event of admission with reservation for qualifications obtained abroad not recognized as valid in the Italian territory, the winner, prior to signing the contract must submit the documents requested by the office within the terms peremptorily established (cfr art 2).

The winner of the selection, convoked by the Administrative Office to sign the contract, will lose the right to the grant for collaboration in research activities if he/she does not state to accept the contract or does not begin the activity within the established term, without prejudice to health reasons or causes of force majeure duly and promptly documented.

The grant as mentioned under Art. 1 can be renewed, under the terms and conditions provided for by the above mentioned Regulations; in any case, the relationship established pursuant to Art. 22 of Law No. 240/2010, including the possible renewal, cannot last more than six years, including the possible renewal, with the exclusion of the period in which the grant was used in coincidence with the PhD within the maximum limit of the legal duration of the relevant course.

### **Article 9 Rights and obligations of the grant holder**

The employment relationship is governed by an individual contract, according to what provided for by the applicable laws and by the University's Regulations.

The research activity is flexible, it has a continuous nature, not merely occasional, and is carried out under the leadership of the Scientific Director, with autonomous conditions as to the research programme and its realisation, without any predetermined working hours.

The grant holder must refer to the Research structure that requested the activation of the contract.

The research activity of the grant holder is carried out within the context of the relevant Structure and in other Structures of the University on the basis of the research programme. Any research activities conducted outside of the University must be approved by the Research structure's Council.

A period of permanence abroad is allowed at one or more qualified universities or research institutes, upon prior authorisation of the Council of the Research structure. During the period spent abroad, the amount of the grant will be increased by fifty percent to be charged to the Structure of reference or to the funds assigned to the Research structure.

The grant holder can participate in all the activities programmed by the Research structure for the promotion of researches and the dissemination of relevant results; he/she can be a member of the profit exams commissions, in quality of expert.

The Research structure must provide the grant holder all necessary support for realising his/her research programme, guaranteeing access to the equipment, the necessary resources and the use of the technical-administrative services.

The grant holder must comply with what provided for by the University's applicable Regulations on research integrity and ethics.

The winner of the selection who is entitled to the grant, at the time of the signature of the individual contract, should be committed, under penalty of forfeiture of the right to the research grant, to confidentiality and preventive transfer to the University of all intellectual property rights relating to the results produced and/or achieved during the research activities carried out at the University and she/he has the right to be recognized as the author of the his/her results achieved and/or products. The University recognizes the application of the same economic conditions that the University Patent Regulation grants to its Professors/Researchers.



The research fellow may participate in activities performed on behalf of third parties pursuant to art. 66 of Presidential Decree 382/80, in the context of issues related to its project, and the distribution of related proceeds, in accordance with the current University Regulations on the subject.

#### **Article 10**

##### **Taxes, welfare, insurance and mission**

With reference to taxes, the grants are subject to what provided for under Art. 4 of Law No. 476/1984, while as regards welfare, they are subject to what provided for under Art. 2, paragraph 26 and following, of Law No. 335/1995, and following amendments. With reference to mandatory maternity leave, they are subject to what provided for by the Decree of the Ministry of Labour and Welfare of 12 July 2007, published in the Official Gazette No. 247 of 23 October 2007, and, as regards sickness leave, they are subject to what provided for by Art. 1, paragraph 788, of Law No. 296 of 27 December 2006, and following amendments.

In the period of mandatory maternity leave, the bonus paid by INPS pursuant to Art. 5 of the mentioned Decree of 12 July 2007 is integrated by the University up to the payment of the total amount of the research grant.

The University will cover the grant holder's accident insurance and civil liability toward third parties' insurance within the scope of his/her research activity.

The covering of the grant holder's mission expenses is financed through the funds of the Scientific Director in charge or the Research structure, according to the modalities provided for by the University's regulations as to missions.

#### **Article 11**

##### **Processing of personal data**

In accordance with articles 13 and 14 of Regulation (EU) 2016/679 (GDPR), on the protection of personal data, and with D. Lgs. n. 196 /2003 and subsequent amendments, it is made known that data is controlled and managed by the legal representative of the University of Bergamo, via Salvecchio 19, - 24129 Bergamo.

Data will be collected exclusively for the present bid purposes and will be kept only for the necessary time to complete the relevant procedures. The data treatment controller will be appointed within the managing unit in charge of bidding procedure, who will carry out the treatment with all due respect of propriety, legitimacy, scope, transparency and confidentiality of the treatment; and data will be used exclusively for purposes connected to the selection and further conferment of the role and possible contract drafting, as well as management of the following employment position, in compliance with current regulations. Data will be kept for the necessary time to accomplish the selection purposes, subject to the application of norms on document retention, and will be transferred uniquely to public administration bodies directly concerned with the juridical and economic position of the selected applicant, treated in compliance with current regulations and used for personal, welfare, insurance and fiscal position management. Data will be handled by appointed staff through the acquisition of printed and electronic documents and using, even digitalised, filing procedures, to guarantee confidentiality; data treatment will be carried out through a coordinated organization and processing system, applying elevated safety standards. Furthermore, data will not be used for profiling. Applicants who have provided their personal data will be able to access it and exercise their rights as by art. 16 to 22 of GDPR UE 2016/679. Any safeguard request can be addressed to the University Data Protection Officer, who can be contacted through the university website (Privacy and Personal Data Protection section), e-mail [dpo@unibg.it](mailto:dpo@unibg.it). In addition to the right of complaint which can be presented to the Italian Data Protection Authority, Piazza Venezia 11, 00187 Roma.

By presenting their application, candidates thereby authorise and fully consent to publication on the University institutional website of all information concerning the current bid, their own data and the contents of their CV in accordance with 111-bis of D. Lgs.196/2003 stating that, within the scope limits defined by art. 6, par. 1, letter b), of the Regulation, consent is not due for personal data present in a submitted CV.

#### **Article 12**

##### **Person in charge of the procedure**



The Person in charge of the selection procedure within this call is Dr. Domenico Panetta, manager of Area risorse umane, Viale Papa Giovanni XXIII, 106 - 24121 Bergamo, phone (+39) 035 2052 669 - 583 - 878, e-mail address: [assegni.ricerca@unibg.it](mailto:assegni.ricerca@unibg.it).

### **Article 13 Publication**

This call is published in the University's Official Registry, on the website of the Conference of the Italian University Chancellors ([www.cru.it](http://www.cru.it)), on the website of the Ministry of Education, Research and University (MIUR) at the link <http://bandi.miur.it>, and on the website of the European Union at the link <http://ec.europa.eu/euraxess> in the form of a notice.

The full competition and related annexed forms are available on the website of the University of Bergamo [www.unibg.it](http://www.unibg.it) under the specially devoted section "*Concorsi e selezioni-Assegni. Borse e contratti di ricerca-Assegni di ricerca*".

The call is also published on "*Piattaforma Integrata Concorsi Atenei*" (PICA) - link <http://pica.cineca.it/unibg/> from which it is possible to fill the application online for participation at the selection.

### **Article 14 Final provisions**

For all matters not provided for by this call, the following will be applied: Law No. 240/2010 and following amendments and integrations, the University's Regulations on the awarding of research grants, the University's Regulations in force, and the Regulations on employment relationships in the public administration.

Bergamo, *as per protocol registration*

THE CHANCELLOR

(Prof. Sergio Cavalieri)

Documento firmato digitalmente ai sensi  
dell'art. 24 del D. Lgs. 82/2005



## ANNEX A

### RESEARCH PROJECT - Code 1

#### ***"The social and economic impact of school closures due to the spread of the SARS-COVID19 virus: a simulated statistical study"***

**Research structure:** Department of Economics

**Duration of the grant:** 19 months

**Scientific Area:** 13 - Economics and statistics

**Academic recruitment field:** 13/D1 Statistics

**Academic discipline:** SECS-S/01 Statistics

**Scientific Director:** Prof. Raffaele Argiento

We want to investigate the effect of school closures on the spread of coronavirus disease 2019 (COVID-19) and on mortality due to it on the population of our country and of our region. Similar studies rely on simulating different school closure strategies to evaluate the impact of such actions in mitigating the spread of influenza. For example, in the case of the 2009 outbreak of the H1N1 flu form. One of the most important simulation models used is the one developed by the Imperial College in 2006 to study the spread of an emerging form of influenza in Southeast Asia, taken up and updated to the case of the spread from China to Europe by the COVID-19 pandemic.

The Imperial College model estimates the  $R(t)$  (a fundamental epidemiological quantity that represents the average number of infections generated at time  $t$  by each infected case during its own infection) with a sophisticated system that includes in the model all those forms of mitigation of the spread of the virus such as social distance, closure of borders, closure of schools, isolation of symptomatic cases and their contacts, general lockdowns. The estimation of  $R(t)$  in the case of the spread of the new coronavirus SARS-CoV-2 is particularly complicated by the fact that both in the first phase of the spread of the virus than in the following waves, there is a high proportion of infected subjects that the national health system is unable to identify. The model, therefore, reconstructs with a Bayesian technique the number of infected starting from the number of deaths.

The number of deaths from COVID-19 also presents reliability problems.

Having good estimates of mortality, therefore, is essential to have minor margins of errors in estimates of the spread of the infection. In some recent works, the number of deaths from COVID-19 in the first epidemic wave have been estimated with accuracy and therefore this method of estimation, suitably updated, can be included in the Imperial College model to improve estimates of the spread of the infection.

The project therefore envisages, by appropriately modifying the simulation model in several parts, to evaluate the impact that the closure of schools has had on the spread of COVID-19 in Italy and in its regions. We want to evaluate through different scenarios whether there are more reasons to evoke the closure of schools than there are for a lockdown of the whole society, measuring how much the increase in infections is attributable to the school. In Italy there has been and continues to be an unacceptable disparity of indications from region to region regarding the closure of schools. This allows us to analyze the variability of the spread of the infection in the different regions and to evaluate the impact that the closure of schools has in those regions.

The research project specifically envisages, in a first phase (of an estimated duration of about one or two months), the research and formulation of explicit representations of the population in the various Italian regions by age and gender, of the entire school system, of the workplaces and commuting and families. These data can be found from ISTAT and the Ministry of Education or in related studies. These data, after being processed, must be fitted with a new model. This second phase of the project is the most substantial and has two main objectives. The first (obtainable in a period of 6 to 12 months) is to evaluate the impact of school closures on the spread of COVID-19 (measured by the number of infected). Therefore, different simulation scenarios are envisaged involving different school closure strategies ranging from isolating sick students to the individual closure of some schools up to the



closure of the entire school system. The study also plans to evaluate how the effects of the various strategies can vary with different durations of the closure of schools. The second objective (also obtainable in a period of similar duration to the previous one) concerns the socio-economic impact of the closure of schools in terms of loss of income that the persistent closure of schools has brought to prominence by expanding social and economic injustices, especially in those families that are already historically more marginalized and who suffer more in this phase. For this objective, it is fundamental to consider the different results obtained in the first objective and to consider the geographical representation of the Italian population that takes into account the distribution by age, income and health that are in full with the national averages for each region and province considered.

The project also has methodological implications. In particular, the research fellow will have to develop new computational methods in the context of Bayesian, parametric and non-parametric statistics. It will be necessary to study the properties and characteristics of the models developed within the project from a theoretical point of view.

The ideal candidate has a solid knowledge of statistics in the field of modeling and estimation and have good programming skills in R/Rcpp. In completing the project, the research fellow will be able to find in the Department of Economics of the University of Bergamo a valid group of researchers in statistics and economics who will be able to involve her/him and where he/she will be able to train and further specialize on the topics proposed in the project.



## RESEARCH PROJECT - Code 2

### *“Design for circular economy (DfCE)”*

**Afferent structure:** Department of Management, information and production engineering

**Duration of the grant:** 12 months

**Scientific Area:** 09 - Industrial and information engineering

**Academic recruitment field:** 09/A3 Industrial design, machine construction and metallurgy

**Academic discipline:** ING-IND/15 Design methods for industrial engineering

**Scientific Director:** Prof. Davide Russo

Design for circular economy (DfCE) is a design approach that aims at creating products, systems and processes in line with the principles of the circular economy. The main goal is to minimize the waste, maximize the reuse and recycling of materials, and promote long-term environmental sustainability. The main goal of this project is to develop and implement dedicated research strategies and IT tools for design for recycling from a circular economy perspective. More specifically, it aims at exploiting the patent source, which is extremely rich of information on industrial process inventions and mechanical technologies, to create matching between the supply of production waste and the demand for materials for industrial production. Such tools make it possible to enhance traditional services on environmental sustainability and fill the gaps present today in circular economy Marketplace services.



### RESEARCH PROJECT - Code 3

#### *“Fault diagnosis for systems and signals described by graphs”*

**Research structure:** Department of Management, information and production engineering

**Duration of the grant:** 12 months

**Scientific Area:** 09 - Industrial and information engineering

**Academic recruitment field:** 09/G1 Systems and control engineering

**Academic discipline:** ING-INF/04 Systems and control engineering

**Scientific Director:** Prof. Mirko Mazzoleni

A fault is an unexpected change in the functionality of a system. Model-based FDI (Fault detection and Isolation) techniques are used to detect and isolate faults that occur in a system, using a model of the system itself (usually a dynamic model) and by analyzing the signals available. The detection and isolation of faults is carried out by generating and analyzing residuals, i.e. signals that reflect the state of health of the monitored system.

Certain physical and economic systems can be represented by graphs, in which each node is a problem entity and each edge of the graph is an association between the problem entities. Arcs can also be accompanied by numerical information (weighted arc). Traditional FDI techniques are based on signal processing in the time or frequency domain. In the case of a system described by a graph structure, it is necessary to investigate the signals in the domain of the graph, and no longer in the traditional domains of time or frequency. We therefore speak of Graph Signal Processing (GSP).

The aim of the research project is the extension of the traditional fault diagnosis techniques based on a dynamic model and signal processing in the time domain to systems based on a graph model and signal processing in the graph domain.



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## RESEARCH PROJECT - Code 4

### *“Interpretation of cone penetration tests in unconventional soils”*

**Research structure:** Department of Engineering and applied sciences

**Duration of the grant:** 12 months

**Scientific Area:** 08 - Civil engineering and architecture

**Academic recruitment field:** 08/B1 Geotechnics

**Academic discipline:** ICAR/07 Geotechnics

**Scientific Director:** Prof.ssa Daniela Giretti

The research activity will consist in the interpretation of static cone penetration tests, CPTUs, carried out in a geotechnical centrifuge, on small scale models. The interpretation will benefit of laboratory tests on the volume element carried out to support the physical modeling. Laboratory tests and CPTU tests will be interpreted according to the critical state mechanics.

In parallel with the of interpretation of experimental data, a bibliographic research will be carried out for the acquisition of the state of the art on the research topic