



**Call for Applications for the admission to the PhD programmes of the University of Udine in the Academic Year 2024/2025, 40<sup>th</sup> cycle**

**DISCLAIMER:**

The official and legally binding Call for Applications is in Italian only. This document cannot be used for legal purposes and it is only meant to provide information in English on the Call for applications (University Chancellor's Decree n. 435 of May 13, 2024). Please refer to the official Call for Applications published on the official register (<https://www.uniud.it/it/albo-ufficiale>) and on the PhD website of the University of Udine. Any changes and integrations will be made available on the mentioned above web pages. Therefore, no personal written communication shall be provided to applicants about examinations dates, competition results and deadlines regarding the enrollment.

**ART. 1 – PhD PROGRAMMES**

1. The University of Udine sets up the following PhD programmes:

- Law and Innovation in the European Legal Space (Table 1)
- Computer Science and Artificial Intelligence (Table 2)
- Industrial and Information Engineering (Table 3)
- Molecular Medicine (Table 4)
- Food Science (Table 5)
- Environmental and Energy Engineering Science (Table 6)
- Agricultural and Biotechnological Sciences (Table 7)
- Mathematical and Physical Sciences (Table 8)
- Clinical and Translational Medical Sciences (Table 9)
- Art History, Film Studies, Media Studies and Music (Table 10)
- Linguistics and Literature (Table 11)

2. The PhD Programmes last three years and are starting on November 1, 2024.

3. The activation of the PhD programmes is subject to the verification of the accreditation requirements by ANVUR, as required by the Decrees of the Ministry of Education of University and of Research n. 45 of February 8, 2013 and n. 226 December 14, 2021. If the accreditation should not be granted or revoked, the examination tests of the programme concerned are not going to be carried out and a notice will be given to all interested parties.

4. PhD positions funded by the European Social Fund will be managed by the University of Udine in accordance with the provisions of the Notice referred to in the Specific Programme 22/23 'Support for advanced training of the Friuli Venezia Giulia Regional University System' of the ESF+ Regional Programme 2021/2027 of the Autonomous Region of Friuli Venezia Giulia within the framework of the accredited PhD Programmes of the University of Udine (Decree no. 17895/GRFVG of 19 April 2023 and subsequent amendments and additions) - CUP G23C23001130008. By way of derogation from the provisions of art. 24, paragraph 5 of the Regulation for PhD Programmes, in the case of a place on ESF funding, the renunciation of the scholarship shall result in the automatic renouncing from the PhD Programme.

5. PhD research programs funded by the European Social Fund will ensure compliance with the horizontal priorities and the principle of DNSH (Do No Significant Harm) set out in paragraph 12 of the Notice referred to in paragraph 4.

6. In this document, titles referred to people, shown in male form only, refer indiscriminately to people of all genders.

**ART. 2 – GENERAL PROVISIONS**

1. This Call governs the procedures and criteria to access to the PhD programmes listed in art. 1.



2. Tables 1-11 are annexed to this Call for Applications and are integral part of it. They indicate for each of the activated PhD programmes: the administrative location and associated location(s) (if any); locations for training, teaching and research; the coordinator; programme duration; curricula (if any); research topics (if specified); proposed research programs (if specified); the website of the PhD programmes; admission requirements; documents and qualifications to be attached to the application; the Selection Committee composition; admission procedure (available positions, with and without scholarships, and any reserved positions for specific applicants' categories); type and amount of scholarships, period abroad and referred research programs; conduct of examinations; evaluation criteria; tests schedule; publication date of the list of admitted applicants to the examinations and the final ranking lists.

3. In the presence of additional funding from public and private institutions, available positions indicated in the PhD Tables (1-11), may be increased with an addition to the Call for Applications and its annexes published as specified in paragraph 5, without prejudice to the submission deadline for the admission to the competition mentioned in art. 6.

4. Positions with scholarship might have reductions as provided in art. 10 paragraph 2 and art. 13 paragraph 7.

5. Any amendments and additions to this Call and its attachments are exclusively published on the official register (<https://www.uniud.it/it/albo-ufficiale>) and on the PhD website of the University of Udine.

6. Only the Italian Call for applications and its Tables are equivalent to notification for all purposes, including for the purpose of notification of the examinations, if provided.

7. The submission of the application through the online procedure referred to in art. 6, implies the acceptance by the applicant of the provisions contained in the Call for Applications and in the Internal Regulation of PhD Programmes available on the PhD website of the University of Udine.

8. Any personal communications to applicants concerning this competition are sent only to their e-mail address provided during the registration process referred to in art. 6 paragraph 2.

9. The University assumes no liability for the non-receipt of communications from the candidate dependent on incorrect personal contact information or for failure or delay in notifying any changes thereof, nor for telematic mishaps, at any step of this competition procedure.

### **Art. 3 – ADMISSION REQUIREMENTS**

1. Applicants who hold one of the following qualifications on the date of the Call expiration may apply for the competition, regardless of citizenship:

a) “Laurea Specialistica” or “Laurea Magistrale” or “Laurea vecchio ordinamento<sup>1</sup>” or second level academic degree comparable to them.

b) foreign degree, issued by a foreign official institution, comparable in duration and level<sup>2</sup> to the degrees referred to in letter a), and in the foreign system allows the admission to PhD programmes.

Tables 1-11 specify for each PhD programme the type of degree required for participation in the competition and any additional requirements.

2. Those who obtain the degree referred to in paragraph 1 after the submission of the application also eligible to participate in the competition provided that they obtain the degree by October 31, 2024. Failure to obtain the degree by 31 October 2024 shall result in forfeiture of admission to the course. Should candidates with the degree not yet obtained be successful, they will be admitted and enrolled conditionally. They must certify their graduation in the manner indicated in article 5 paragraph 5 by October 31, 2024. Documentation must be submitted by filling out the form available at:

<sup>1</sup> Degree awarded under the ante Decree of the Ministry no. 509 of November 3, 1999, modified with Decree of the Ministry no. 270 of October 22, 2004.

<sup>2</sup> Master of Science/Art



[https://helpdesk.uniud.it/Login.jsp?manual=true&populateSR\\_id=42104](https://helpdesk.uniud.it/Login.jsp?manual=true&populateSR_id=42104).

For the doctoral programme in Law for Innovation in the European Legal Space only, the achievement of a grade of 95/110 or higher is a requirement for admission or, for those who have not yet obtained the degree, a minimum examination average of 25/30.

3. All applicants are admitted to the competition on the condition that they meet the requirements of the Call. The University reserves the right to carry out sample checks<sup>3</sup> and it may exclude applicants at any time from the selection process if they fail to meet the requirements as set out in the present article, even after the PhD programmes have already begun.

#### **Art. 4 – DEGREE OBTAINED ABROAD (art. 3 paragraph 1 letter b)**

1. The suitability of the foreign degree is assessed by the Selection Committee (art. 7) for the only purpose of participating in the competition and the enrolment in the PhD programme in accordance with:

- the current legislation in Italy and in the country where the degree was issued.
- treaties or international agreements on recognition of the degrees for further studies.

The Selection Committee assesses the suitability of the foreign degree based on the documentation attached through the online application for the admission to the competition (articles 5 and 6). The Selection Committee may therefore exclude the applicant whenever the documentation submitted does not provide sufficient evidence for the evaluation. Therefore, applicants must attach all the documents in their possession relating to the degree held, in order to provide sufficient elements for the assessment of the Selection Committee.

2. Applicants with a degree obtained abroad, if winners of the competition, must submit during the enrolment procedure (if they have not already submitted it during the online application), under penalty of exclusion from the PhD programme, this documents:

**Degrees issued by a country joining to the Lisbon Convention (<https://www.enic-naric.net/>), one of the following documents:**

- Diploma *Supplement* in English issued by the relevant University;
- “ARDI Certificate of Correspondence and Foreign Degree Verification Certificate” issued by CIMEA (**Information Centre on Academic Mobility and Equivalence**). The Foreign Degree Verification Certificate is issued through «diplome» service at <https://cimea.diplo-me.eu/udine/#/auth/login>

**Degrees issued by a country not joining to the Lisbon Convention (<https://www.enic-naric.net/>), one of the following documents:**

- Declaration of value of the obtained degree and the certificate relating to the degree with examinations and marks. The certificate in a language other than Italian or English must be accompanied by an official translation into one of these languages (certified by the competent diplomatic-consular authority or sworn at a court in Italy);
- “Statements of comparability and verification of the foreign degree”- CIMEA” issued by CIMEA (Information Centre on Academic Mobility and Equivalence) through «diplome» service at <https://cimea.diplo-me.eu/udine/#/auth/login>

If the above mentioned documents are not available at the time of the enrolment procedure, the applicant must **show** having made a request by that time and submit it within the first year of the PhD Programme.

#### **Art. 5 – QUALIFICATIONS SUBJECT TO ASSESSMENT AND DOCUMENTS TO BE SUBMITTED**

1. Applicants must submit the mandatory documents and qualifications specified for each PhD programme in Tables 1-11. Failure to submit even one of the mandatory documents or qualifications will exclude the candidate from the selection.

<sup>3</sup> Under Article 71 of D.P.R. December 28, 2000, no. 445



2. Tables 1-11 also specify optional documents and qualifications provided by each PhD programme.
3. For a correct submission of the application, applicants are invited to use the forms attached which are integral part of the Call.
4. Documents and qualifications referred to in paragraphs 1 and 2 must be submitted in Italian or English, under penalty of exclusion of the candidate from the selection or non-evaluation of the same, as the case may be. Documents and qualifications, originally in a different language, must be accompanied by a translation into Italian or English made by the candidate, under his/her responsibility. With reference to the thesis only, the translation may be an extended abstract.
5. **Candidates who are Italian citizens or citizens of an European Union state** must submit a substitutive declaration of certification (Self-Certification) and, if necessary, a declaration in lieu of affidavit with regard to the academic qualification required for admission (indicating the academic degree, academic institution providing it, year of achievement, grade obtained) and the publications and other qualifications possessed, indicating for each of them all the identifying elements necessary for the Commission's evaluation. If the subject of the Self-Certification is not well identified in terms of its nature, duration, time location and the institution concerned, the Examination Board will not evaluate it. The Administration reserves the right to carry out appropriate checks on the truthfulness of the statements content; in the event of a false statement, the provisions of art. 76 of Presidential Decree No. 445/2000 and art. 483, 485, and 486 of the Penal Code are applicable. The University will disregard any certificates attached by candidates who are Italia citizens or European Union citizens.  
**Citizens of a non-European Union state regularly residing in Italy** may use substitutive declaration of certification (Self-Certification) only to declare states, personal qualities or facts certifiable or attestable by Italian public entities, subject to the special provisions contained in laws and regulations referred to the discipline of immigration and the foreigners condition.  
**Citizens of non-EU states authorized to reside in Italy** may use substitutive declaration of certification (Self-Certification) only in application of international conventions between Italy and the applicant's country of origin.  
**Non-EU citizens, other than those referred to in the preceding paragraphs**, may not use the declaration of certification (Self-Certification).
6. Only those titles held by the candidate and submitted by the deadline and in the manner specified in Article 6 shall be evaluated. Titles submitted by other means will not be evaluated.
7. Failure to submit the mandatory documents specified in Tables 1-11 and in the manner stated in the Tables shall constitute grounds for exclusion from the competition. Exclusion may be ordered at any time and will be communicated exclusively by e-mail message to the e-mail address indicated in the application form.

#### **Art. 6 – APPLICATION FOR ADMISSION**

1. Entries to competitions begin on **Monday May 20, 2024 at 02:00 PM (Italian time)** and end on **Thursday June 20, 2024 at 02:00 PM (Italian time)**.
2. **The application for admission must be completed, under penalty of exclusion, using the online procedure** that involves two stages:
  - **Stage I – Registration at the University website** (<https://uniud.esse3.cineca.it>): this allows the applicant to obtain a username and password (credentials) in order to continue with the next stage<sup>4</sup>;
  - **Stage II – Filling out the online application** (<https://uniud.esse3.cineca.it>): the applicant must print out the application form at the end of Stage II, in order to retain it as proof of submitted application together with the receipt of the fees payment referred to in paragraph 8 of this article.

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<sup>4</sup> If the applicant already owns the credentials to access the reserved area (e.g.: former student of University of Udine) this step should not be considered.





3. The instructions for the registration and for submit the application are available on the PhD website of the University of Udine.
4. Documents, qualifications and publications referred to in art. 5 must be attached to the online application in electronic format (.pdf), except for the letters of reference. **Files and/or folders, compressed in RAR or ZIP format, cannot be larger than 5 MB.** The applicant may add, delete or modify attached documents after the completion of the online application process (stage II), but before the deadline of the call, on **June 20, 2024 at 02:00 PM (Italian time)**. The university administration assumes no liability if the documentation submitted is illegible because of damaged files or folders.
5. Every folder/file attached must be named as follows: surname of the applicant\_PhD programme\_document (e.g.: McDONALD\_Food Science\_Curriculum).
6. Letters of reference, if provided by the PhD programme (Tables 1-11), must be uploaded on the online process by the referees at the applicant's request. During the submission of the application, the applicant must enter the email address of the referees, who will receive an email notification with the instructions to proceed for uploading the letter of reference. Applicant and referee receive a notification about the successful upload of the letter, which will be available only for the Area Servizi per la Ricerca – Ufficio Formazione per la Ricerca and for the Selection Committee. The applicant can make a reminder to the referee and replace his/her name with another by the expiry date of the call (**June 20, 2024 at 02:00 PM Italian time**).  
The referee must upload the letter of reference before **June 24, 2024**.
7. Participation to the selection procedure is subject to the payment of EUR 25.00 (as a contribution for apply to the competition). If the sum (EUR 25.00) is not paid by the day before the date of the preliminary meeting of the Selection Committee, the candidate's qualifications will not be evaluated and the candidate will not be admitted to the selection process. The dates of the Selection Committee's preliminary meeting will be posted by **June 7, 2024** on the official register (<https://www.uniud.it/albo-ufficiale>) and on the PhD website of the University of Udine.
8. The amount referred to in paragraph 7 is not refundable for any reason and must be paid via PagoPA service using one of the following options:
  - direct access from Esse3 to one of the payment methods available in PagoPA using the data contained in the "Avviso di pagamento" (Notice of Payment) issued at the end of the online application (available on the "Student Administration Office/Payments" of Esse3 portal personal area);
  - payment at bank branches and receivers authorized to pay via PagoPA showing the "Avviso di pagamento" (Notice of Payment) issued at the end of the online application (available on the "Student Administration Office/Payments" of Esse3 portal personal area);
  - from your account with online services (if activated by the bank) or with credit card or prepaid card with IBAN. For payments by credit or prepaid card refer to the circuit related to the card, NOT to the bank issuing the card. You need to print or save the "Avviso di pagamento" (Notice of Payment - available on the "Student Administration Office/Payments" of Esse3 portal personal area) to have the data required to make the payment.Applicants who are abroad and don't have an Italian current account can **exceptionally** make the payment on the bank account of the University of Udine at INTESA SANPAOLO: **IT59A0306912344100000046097 SWIFT/BIC BCITITMM** reason for payment "PhD competition – Applicant's Name and Surname". Only in this case, the receipt of the payment have be attached to the online application.  
The payment is subject to the fees applied by the payment service provider.
9. Applicants who wish to apply for several PhD programmes have to submit several applications, attaching the required documents to each one and paying the fees for each one (paragraph 7). However, the applicant cannot apply for more than one curriculum in the same PhD programme.
10. Candidates with a certified disability or a diagnosis of a specific learning disorder (DSA) must state when submitting their application for admission to the competition (see p. 2 of this article)
  - their situation, attaching their disability or DSA certificate;



- the need for aids for the performance of the tests.

Candidates with disabilities or DSA residing in foreign countries who intend to take advantage of the measures described above must present the certification attesting to their disability or DSA status issued in their country of residence, accompanied by a sworn translation in Italian or English. The university bodies in charge of examining the certifications ensure that the foreign documentation certifies a condition of disability or specific learning disorder recognized by Italian law.

In order to make available the aids, it will be necessary to contact, at least 10 days before the tests, the competent offices at [includi@uniud.it](mailto:includi@uniud.it) specifying the details of what is required in relation to the diagnosis presented.

Differentiated arrangements of taking the test (additional time, use of non-scientific calculators, tutor-reader support, other forms of specialized help) will be assessed by the Selection Committee according to the candidate's profile and the type of examination.

Further information can be requested from the Student Services Area - Inclusion Service, tel. +39 0432 556804/03 - email: [includi@uniud.it](mailto:includi@uniud.it).

10. Applicants with certified disabilities (valid disability certification under L. 104/92 - valid civil disability certification) or certified specific learning disorder diagnosis (under L. 170/2010) must indicate during the application for admission to the competition (see paragraph 2 of this article):

- their situation, attaching the certificate of disability or DSA;
- the need for aids for the performance of the tests.

Candidates with disabilities or DSA residing in foreign countries who intend to take advantage of the measures described above must submit the certification attesting to their disability or DSA status issued in their country of residence, accompanied by a sworn translation in Italian or English. The university bodies in charge of examining the certifications will ascertain that the foreign documentation attests to a condition of disability or specific learning disorder recognized by Italian law.

Differentiated arrangements for taking the test will be determined by the Selection Committee after verification of the documentation submitted. In particular, students with specific learning disorder will be granted additional time equal to 30 percent more than that defined for the admission test. In cases of particular severity, any additional aids may be provided.

For further information refer to the "Direzione Didattica e Servizi agli studenti (DIDS) – Servizio studenti con disabilità o dsa", tel. +39 0432 556804 - email: [includi@uniud.it](mailto:includi@uniud.it).

11. Applicants are advised not to wait until the last days before the deadline of the online procedure. The University assumes no liability for any malfunctions due to technical problems and/or overloading of the communication line and/or application systems.

#### **Art. 7 – SELECTION COMMITTEE**

1. The Selection Committee of each PhD programme is specified in Tables 1-11. The committees are also authorized to use the experts' support, without voting rights, for specific technical and scientific advice.

2. Each Selection Committee appoints its own internal President and Secretary in the first meeting.

3. Before the evaluation of the qualifications and before the start of the examinations, the Selection Committees define the evaluation criteria and the scores assigned to the qualifications and to the examinations, considering the specifications set out in Tables 1-11.

4. The Selection Committee meetings can be held remotely.

5. The Selection Committee expresses the assessment of suitability with the aim of awarding scholarships referred to in art. 10, paragraph 2.

6. The Selection Committee's tasks finish with the drawing up of the reports and final ranking lists.

#### **Art. 8 – GENERAL COMPETITION**



1. The applicants' selection foresees the evaluation of the qualifications and the conduct of the examinations, in the manner and on the dates specified in Tables 1-11. Any changes or additions to the examinations schedule are posted only on the official register (<https://www.uniud.it/it/albo-ufficiale>) and on the PhD website of the University of Udine. No personal communication will be sent to candidates.
2. Evaluation of qualifications and examinations are held according to the following general provisions:
  - a. the maximum score for overall qualifications and examinations is 100 (100/100). The examinations of the PhD programmes with widely different curricula may be diversified;
  - b. the maximum score for qualifications is 30 (30/100), the minimum score to be admitted to the first examination (written or oral) is stated in each table;
  - c. the score assigned for the examinations is 70 points (70/100). Applicants are suitable if they obtain a score equal to or greater than 49 in the examinations;
  - d. the final ranking list is unique and is prepared, for only eligible applicants, by adding up the scores obtained in the evaluation of qualifications and in the examinations.
3. In order to attend the examination tests, candidates must present a valid identity document or other identification document (possibly the same document attached to the application), under penalty of exclusion from the selection procedure. Citizens of non-EU states are mandatory required to show their passport.
4. If the oral examination is held in person (see Table 1-11), candidates who are unable to attend it either because they are permanently resident abroad on the examination date or for valid and documented reasons, may ask the Selection Committee to hold the oral examination remotely attaching a motivated request to the on line application (**no later than June 20, 2024 at 14:00 Italian time**). Any requests may also be sent by ticket ([https://helpdesk.uniud.it/Login.jsp?manual=true&populateSR\\_id=42104](https://helpdesk.uniud.it/Login.jsp?manual=true&populateSR_id=42104)) after June 20, 2024, compatibly with the examination date and only for documented reasons not foreseeable on the date of the submitted application. Details of the remotely oral examination are communicated to the applicants at the e-mail address entered during the registration procedure referred to in art. 6 paragraph 2. The candidate must be present/available on the day and at the time communicated. The failure to communicate the personal address, the connection failure, the unavailability of the applicant on the day or in the established timetable are grounds for the exclusion from the selection process. These grounds for exclusion do not apply if the candidate appears on the day established for the interview in order to take in person the oral examination. The University accepts no responsibility in case of technical problems that do not ensure the proper conduct of the oral examination remotely. Please note that if the Call provides for a remote interview, it is not necessary to enclose any request. The written test, if provided, will be conducted as stated in sheets 1-11.
5. The University reserves the right to manage the oral examination remotely if restrictions on mobility and aggregation are introduced due to environmental or health emergency. The University will make this procedure known on the official register (<https://www.uniud.it/it/albo-ufficiale>) and in the PhD website of the University of Udine. In this case, the provisions of the above paragraph 4 are applied, as they are compatible.
6. Oral examinations are public, including those which are conducted remotely.

#### **Art. 9 – FINAL RANKING LIST**

1. The final ranking list referred to in art. 8 are published on the official register (<https://www.uniud.it/it/albo-ufficiale>) and on the PhD website of the University of Udine within the dates detailed for each PhD programme in Tables 1-11.
2. The university does not send to the applicants any communication about the final ranking lists.



#### **Art. 10 – ADMISSION TO THE PhD PROGRAMME**

1. Applicants are admitted to each PhD programme according to the final ranking list order and in accordance with the provisions contained in this article.

2. The positions with scholarship are awarded to eligible applicants as stated below:

a) Scholarships referred to specific research programs funded by "external institution" or by associated locations are awarded according to the final ranking list and the number of positions available. Applicant is suitable if he/she has expressed interest in the manner notified to the applicants admitted to the interview and if the Selection Committee expresses the assessment about the adequacy of applicant's qualifications and curriculum with the research topics and the scholarship features;

b) PhD scholarships funded by the University of Udine or by associated locations, not referred to specific research programs, are awarded according to the final ranking list and the number of positions available.

2.1 If the suitable applicant is in a position useful for both types of scholarships, the Selection Committee specifies an order of priority to assign the scholarships taking into account the final evaluation.

2.2 The non-allocation of scholarships in point a) and b) involves a reduction in the number of the positions with scholarship.

2.3 In case of equal final score and equal requirements, the preference criteria to award positions with scholarship is the economic condition of the applicant's family nucleus<sup>5</sup>.

3. The positions without scholarship are awarded to eligible applicants as stated below:

a) positions without scholarship "referred to specific curricula" according to the final ranking list and the number of available positions, taking into account the curricula selected by the applicant;

b) positions without scholarship "with no specification" according to the final ranking list and the number of available positions.

The allocation of positions without scholarships in letter a) precedes, according to the final ranking list, those in letter b).

3.1. In case of equal final score in the final ranking list, the preference criteria to award positions without scholarship is the youngest applicant; in case of equal final score and equal age, the priority is given to the applicant with the highest degree mark.

4. If the candidate has been successfully placed in more than one final ranking list for different PhD programmes, he/she must enrol in only one Programme.

#### **Art. 11 – ENROLMENT**

1. **Winners applicants with a position with or without scholarship must enrol using the dedicated online procedure according to the deadlines and conditions notified by email (art. 2 paragraph 8), under penalty of exclusion. Enrolment is considered as acceptance of the assigned position, regardless of whether it is with or without scholarship.**

2. Candidates winners of a position without scholarship, but interested in a position with scholarship, are therefore not required to enrol in the PhD programme by the deadline set out in paragraph 1. If a successful applicant winner of a position with scholarship withdraws from the position, the provisions of Article 12 apply.

3. Enrolment in the PhD Programme is subject to the payment of the amount stated in art. 14, under penalty of exclusion from the programme, except for the exemptions provided for by the regulations on the right to study and referred to in the additional notice to the "Manifesto degli Studi" for the relevant academic year. **Candidates awarded a scholarship funded by the European Social Fund must be resident or domiciled in the territory of Friuli Venezia Giulia starting from the 1<sup>st</sup> of November 2024.**

4. The amount referred to art. 14 par. 2 is not refundable for any reason and the payment must be made via PagoPA service using one of the following options:

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<sup>5</sup> Current legislation about the right to study, ISEE.



- direct access from Esse3 to one of the payment methods available in PagoPA using the data included in the "Avviso di pagamento" (notice of Payment) issued at the end of the online application (available on the "Student Administration Office/Payments" of Esse3 portal personal area);
- payment at bank branches and receivers authorized to pay via PagoPA showing the "Avviso di pagamento" (notice of Payment) issued at the end of the online application (available on the "Student Administration Office/Payments" of Esse3 portal personal area);
- from your account with online services (if activated by the bank) or with credit card or prepaid card with IBAN. For payments by credit or prepaid card refer to the circuit related to the card, NOT to the bank issuing the card. You need to print or save the "Avviso di pagamento" (notice of Payment - (available on the "Student Administration Office/Payments" of Esse3 portal personal area) to view the data required to make the payment.

Applicants who are abroad and don't have an Italian current account can **exceptionally** make the payment on the bank account of the University of Udine at INTESA SANPAOLO: **IT59A0306912344100000046097 SWIFT/BIC BCITITMM** reason for payment "Enrolment in PhD programme".

5. During the enrolment process applicants must attach in electronic format the following documents:

- a passport photo (.jpeg format);
- a copy of a valid identity document (.pdf format): non-UE citizens must upload a passport scan;
- a copy of the Tax Identification Number, if available (.pdf format);
- the receipt of payment referred to in art. 14 (only if the payment is made on the bank account);
- the form of bank details (.pdf format);
- documents referred to in art. 4, for applicants with degree obtained abroad (.pdf format);
- other documents if required by the University of Udine (.pdf format).

6. The amount paid is not refundable for any reason.

7. Admitted applicants without scholarship must enrol in the programme by the deadline referred to in paragraph 1, if they are interested in any replacements for positions with scholarship as a result of a waiver.

8. Non-UE Citizens must comply with the rules on visas and residence permits. A copy of the permit of stay or - pending issuance - the receipt of the permit application should be sent to the Area Servizi per la Ricerca – Ufficio Formazione per la Ricerca.

9. The university administration assumes no liability for loss of communications due to any errors that cannot be attributed to it.

#### **Art. 12 – REPLACEMENTS**

1. Candidates who do not enrol according to the deadlines referred to in art.11 are considered to have withdrawn. The positions that have become available, are assigned to other applicants according to the final ranking list, taking into account the art. 10.

2. The list of replacement applicants is posted on the official register (<https://www.uniud.it/it/albo-ufficiale>) and on the PhD website of the University of Udine.

3. The replacement applicants must enrol under the deadlines and conditions communicated by email (art. 2 p. 8), under penalty of exclusion from the programme.

4. Any further replacements positions will be notified directly to the relevant applicants.

#### **Art. 13 – SCHOLARSHIPS**

1. Scholarships are regular or linked to specific research programs or to specific financial funds.





2. Scholarships are awarded in accordance with art.10. The scholarship begins from November 1, 2024.
3. The scholarships have a total duration of three years, subject to the provisions of art. 19 p. 3, art. 20 p. 2 and art. 24 of the Internal Regulations for the PhD Programmes. Annual scholarships are renewed from year to year on condition that the doctoral student has completed the program of planned activities as verified by the Teaching Board.
4. The annual gross amount of the scholarship is specified in Tables 1-11 and is subject to the social security tax (INPS a gestione separata). The scholarship is paid on monthly basis in the following month. The amount of the scholarship is increased for research activities abroad by the 50% (related to the minimum gross monthly amount of the scholarship as per Ministerial Decree 247/2022: 1,353.58 euros) for a total period indicated in Tables 1-11, unless further financial availability. In any case, the increase is due only for periods of continuous stay and longer than 30 days. Doctoral students also have an annual budget for research and training activities equal to 10% of the annual gross amount of the scholarship (related to the minimum annual gross amount of the scholarship as per DM 247/2022: 16,243.00 euros).
5. The scholarship cannot be awarded to those who have already received a scholarship to attend another PhD programme or an equivalent programme.
6. The scholarship cannot be combined with research grants or other scholarships awarded for any purpose, except for those awarded by national or foreign institutions useful to integrate the abroad research activity of the PhD students. Further incompatibilities are defined by the Internal Regulation for the PhD programmes.
7. Scholarships funded by "external institutions" and associated locations are awarded upon the successful completion of the conditions set out in the act that regulates its funding or the issuing of the decree granting the funds or the operation approval.
8. In addition to the rights and duties provided by the relevant regulations (art. 17), in accordance with the provisions mentioned in art. 1 paragraph 5, the successful candidate for a position with scholarship from the European Social Fund (ESF+ 2021/2027) by accepting the grant:
  - undertakes to submit the reports of the activity carried out according to the modalities and terms that will be communicated by the University of Udine and in compliance with the regulatory provisions mentioned in art. 1 p. 5;
  - undertakes to ensure compliance with the communication and information obligations provided for in article 11 "Information and Publicity" of the Decree cited in art. 1 p. 5 of this Call;
  - is aware that:
    - the modification of the activities, project objectives and expected results, where not previously authorized, will result in the revocation of the scholarship;
    - any negative judgment of the Teaching Board and the consequent non-admission to the next year of the doctoral programme, failure to obtain the degree and withdrawal from the course entails the revocation of the scholarship;
    - must comply with the principle of "do no significant harm" to environmental objectives (DNSH);
    - the doctoral programme may be legitimately suspended for maternity leave, parental leave, serious health reasons and other causes beyond the doctoral student's control and causes of such gravity as to prevent the performance of the doctoral activity subject to the judgment of the Teaching Board and to the competent bodies of the Friuli Venezia Giulia Region;
    - the University may also recourse for the repayment of the amounts received in the following cases of scholarship renunciation:
      - at least 40% of the planned duration of the training program has not been completed if the interruption is due to the doctoral student having a new job or a new academic position;
      - regardless of the period completed, if the interruption is not attributable to the causes of suspension indicated in the preceding paragraph.



#### **Art. 14 – ACADEMIC FEES**

1. For the Academic Year 2024/2025 is foreseen the payment of maximum amount of euro 276.00:

- university contribution, euro 100.00;
- regional tax for the right to university study, from euro 120.00 to euro 160.00 (economic condition of the applicant's family nucleus<sup>6</sup>);
- duty stamp, euro 16.00.

The amount will be requested at the time of enrolment and any exemptions will be applied in accordance with the regulations on the right to study and referred to in the additional notice to the "Manifesto degli Studi" for the relevant academic year.

2. However, the university administration reserves to adopt different regulations for the following academic years.

#### **Art. 15 – PERSONAL DATA**

1. The personal data collected under the procedure referred to in art. 6 are necessary for the proper management of the selection procedure, for any subsequent career management and for purposes related to the management of the services provided to students during the university PhD programme. The University of Udine is the "Data Controller". At any time, you can request access, corrections and, according to the University institutional purposes, the cancellation and limitation of the processing or oppose the processing of your data. You can always submit a complaint to the Italian Authority for data protection. The complete information is available on the University of Udine website in the section "privacy" accessible from: <https://www.uniud.it/it/it/pagine-speciali/guida/privacy>

#### **Art. 16 – HEAD OF PROCEDURE**

1. The officer in charge of the proceedings is Dr. Sandra Salvador, Head of Area Servizi per la Ricerca of the University of Udine.

The PhD Office of the University of Udine is the Area Servizi per la Ricerca – Ufficio Formazione per la Ricerca, via Mantica n. 31 - 33100 Udine.

2. To request information, fill in the following forms available on the website of the University of Udine: Information about the Call:

[https://helpdesk.uniud.it/Login.jsp?manual=true&populateSR\\_id=42104](https://helpdesk.uniud.it/Login.jsp?manual=true&populateSR_id=42104)

[https://helpdesk.uniud.it/Login.jsp?manual=true&populateSR\\_id=42094](https://helpdesk.uniud.it/Login.jsp?manual=true&populateSR_id=42094)

#### **Art. 17 – REFERENCE RULES**

1. For all matters not provided for in this Call, please refer to the National legislation in the field of doctoral research mentioned in the introduction, to the Internal Regulations for PhD programmes and to the Internal Regulations on patents and to other internal provisions on the subject, to the regulatory provisions set out in art. 1 paragraph 4, which can be consulted on the PhD website of the University of Udine.

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<sup>6</sup> Current legislation about the right to study, ISEE. The deadline for the delivery of the ISEE (apart from exceptional cases, in any case to be assessable) is 30 days from the date of enrolment. For further information, please refer to the Additional Notice of the "Manifesto degli Studi" concerning fees, contributions and exemptions.



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**TABLE 1 – PhD Programme in LAW AND INNOVATION IN THE EUROPEAN LEGAL SPACE**

<b>THE PHD PROGRAMME</b>	
<b>Administrative location</b>	University of Udine, Department of Legal Science (DISG), via Tomadini, 3, 33100 Udine, ITALY (tel. +39 0432 249520)
<b>Associated location</b>	University of Trieste (Department of Legal, Language, Interpreting and Translation studies) - piazzale Europa 1, 34127 Trieste, ITALY
<b>Location for training, teaching and research activity</b>	Teaching and other training activities will take place primarily at the administrative programme location or in other locations of the University of Udine. The research program will be mainly developed, with reference to the scholarship (see art. 10 and 13 of the Call) and/or to the supervisor assigned, at one of these locations: administrative location, associated location, financial supporter's location (if the financial supporter is an external institution).
<b>Coordinator</b>	Prof. Paolo Giangaspero (giangasp@units.it)
<b>Programme duration</b>	3 years
<b>Curricula</b>	1. <u>Private and Economic Area</u> : (IUS/01 Private Law; IUS/02 Comparative Private Law; IUS/03 Agrarian Law; IUS/04 Commercial Law; IUS/06 Maritime Law; IUS/07 Labour Law; IUS/18 Roman Law). 2. <u>Public Area</u> : (IUS/08 Constitutional Law; IUS/10 Administrative Law; IUS/21 Comparative Public Law; IUS/13 International Law; IUS/14 European Law; IUS/12 Tax Law; IUS/15 Civil Procedure; IUS/17 Criminal Law; IUS/16 Criminal Procedure).
<b>Research topics</b>	Research topics covered under the scientific domains (IUS/) within each Curricula of the Ph.D. programme.
<b>Research programs</b>	The research programs are determined by the Teaching Board in the field of subjects referred to one or more scientific domains included in the curricula of the Ph.D. programme.
<b>Programme website</b>	<a href="https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-social-science-and-humanities/law-and-innovation-in-the-european-legal-space/ph-d-programme/law-and-innovation-in-the-european-legal-space?set_language=en">https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-social-science-and-humanities/law-and-innovation-in-the-european-legal-space/ph-d-programme/law-and-innovation-in-the-european-legal-space?set_language=en</a>

<b>ADMISSION REQUIREMENTS</b>	
<b>Required degree</b>	Italian Laurea (before DM 509/99) or Italian Laurea Specialistica/Magistrale (ex DM 509/1999 and DM 270/04) or equivalent degree obtained abroad. Foreign degrees and titles: refer to art. 3 and 4 of the Call.
<b>Knowledge of the following foreign language</b>	English

<b>DOCUMENTS AND QUALIFICATIONS TO BE ATTACHED TO THE APPLICATION FOR ADMISSION</b>	
<b>Mandatory documents (art. 5 of the Call) UNDER PENALTY OF EXCLUSION</b>	<ol style="list-style-type: none"> <li>1. Certification or self-certification (pursuant to art. 5 c. 5 of the Call) of the academic qualification for admission to the doctoral program (Italian Laurea Specialistica/Magistrale or Italian Laurea before DM 509/99 or foreign degree). Minimum mark to be admitted to the selection process: 95/110. <u>Applicants with a degree not yet obtained</u> must submit certification or self-certification (in accordance with Art. 5 c. 5 of the Call) of the academic degree for admission to the doctoral program and the average grade of the examinations. Minimum average grade to be admitted to the selection process: 25/30.</li> <li>2. Curriculum vitae et studiorum, dated and signed;</li> <li>3. Copy of a valid personal identity document (for citizens of non-EU countries copy of passport, especially the pages with document number, photograph, personal data, place and date of issue, expiration date);</li> <li>4. In the application for participation in the competition (see art. 6 of the Call) the candidate must make an irrevocable choice of one of the following scientific disciplinary areas on which the examination tests will focus: IUS/01 - Private Law; IUS/04 - Commercial Law; IUS/07 - Labor Law; IUS/08 - Constitutional Law; IUS/12 - Tax Law; IUS/13 - International Law; IUS/14 - European Union Law; IUS/15 - Civil Procedure; IUS/16 - Criminal Procedure.</li> </ol>
<b>Optional documents (art. 5 of the Call)</b>	<ol style="list-style-type: none"> <li>1. Dissertation Thesis referring to the degree granting access to the doctoral programme. Candidates who, on the date of the call deadline, have not yet obtained the degree granting access to the doctoral programme, must submit an extended abstract in Italian or English signed by their supervisor (between 15,000 and 25,000 characters, included spaces).</li> </ol>



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**TABLE 1 – PhD Programme in LAW AND INNOVATION IN THE EUROPEAN LEGAL SPACE**

	<p>2. Research project, dated and signed, developed within the research topics and/or to the research programs indicated in this Table (between 5,000 and 10,000 characters, included spaces, in Italian or English);</p> <p>3. Reference letters (max 2) from university professors, scientific researchers or other experts in the field (art. 6 of the Call);</p> <p>4. Publications (max 3).</p>
<p><b>All qualifications must be submitted exclusively in PDF format, dated and signed by the candidate.</b></p>	

<b>SELECTION COMMITTEE</b>	
<b>Appointed members</b>	<p>Marina Brolo – Full Professor – University of Udine            Elisabetta Bergamini – Full Professor – University of Udine            Angelo Venchiarutti – Associate Professor – University of Trieste            Lotario Benedetto Dittich – Full Professor – University of Trieste            Dimitri Giroto – Full Professor – University of Udine            Vittorio Giorgi – Full Professor – University of Udine            Mario Nussi – Full Professor – University of Udine            Natalia Rombi – Associate Professor – University of Udine</p>
<b>Substitute members</b>	<p>Gian Paolo Dolso – Full Professor – University of Trieste            Roberta Nunin – Full Professor – University of Trieste            Luca Ballerini – Associate Professor – University of Trieste            Rocco Lo Bianco – Associate Professor – University of Trieste</p>

**ADMISSION**

**GENERAL COMPETITION (art. 8 of the Call for Applications)**

<b>Positions available: 8</b>					
<b>Detailed description</b>	<b>N.</b>	<b>Funding</b>	<b>Annual gross amount</b>	<b>Period abroad</b>	<b>Research program</b>
<b>Positions WITH SCHOLARSHIP: 8</b>	2	Univ. Udine	€ 16,243.00	max 6 months optional	Research program in line with the subject of Curricula.
	3	Associated Institution: Univ. Trieste	€ 16,243.00	max 6 months optional	Research program in line with the subject of Curricula.
	3	Regional Programme (PR) ESF+ 2021/2027 of the Autonomous Region Friuli Venezia Giulia (Decree n. 17895/GRFVG of 19 April 2023) and subsequently amended and supplemented – CUP G23C23001130008*	€ 16,243.00	max 6 months optional	<p>1. A legal framework for Cultural and Creative Enterprises (CCIs).</p> <p>2. Equality bodies and inclusive workplaces: law and networks in the Italian public administration for economic and social development: The case of Friuli Venezia Giulia.</p> <p>3. The transition to a circular economy and the impact on SMEs in Friuli Venezia Giulia: a legal analysis from the European Union perspective.</p> <p><i>Description at "Research programs of ESF scholarships"</i></p>
<b>Positions WITHOUT SCHOLARSHIP: 0</b>	0	-	-	-	-

\*Scholarships funded by "External Institutions" and associated locations can be assigned subject to the successful completion of the agreement that governs their funding or the decree's issuance granting funding or approving the operation (art. 13 p. 7).

<b>Competition procedure and test schedule</b>
<p><b>Evaluation of qualifications and oral test.</b></p> <p>For the evaluation, aimed at ascertaining the candidate's aptitude for scientific research and his/her basic preparation for the purpose of carrying out the PhD program, the Selection Committee can attribute up to 100 points, at most 30 points to the titles and at most 70 points to the oral examination.</p> <p>Candidates who score at least 15 points in the evaluation of qualifications are admitted to the oral test. The minimum mark to be admitted to the selection process is 95/110; for applicants with a degree non yet obtained the minimum average score is 25/30. Success</p>



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**TABLE 1 – PhD Programme in LAW AND INNOVATION IN THE EUROPEAN LEGAL SPACE**

<p>in the oral test requires the achievement of at least 49 points. Eligibility for the doctoral course is achieved by passing the oral test. For eligible candidates only, the score from the evaluation of qualifications is added to the score obtained in the oral test. If the eligible candidate is in a good position for both a general course scholarship and a ESF scholarship, the committee indicates an order of priority for the allocation of the scholarships taking into account the overall evaluation. <b>DATE FOR THE PUBLICATION OF ADMITTED APPLICANTS TO THE ORAL EXAMINATION: within July 5th, 2024</b> <b>DATE FOR THE PUBLICATION OF THE FINAL RANKING LIST: within July 31, 2024.</b></p>		
<b>Language that can be used for examinations</b>	Exams may be taken in Italian or English.	
<b>Evaluation Criteria of qualifications</b> <i>During the preliminary meeting the Selection Committee may establish sub-criteria for the evaluation</i>	Curriculum vitae et studiorum Scientific publications (maximum 3) Dissertation/abstract Letters of reference (maximum 2) Research project	10 points max 3 points max 5 points max 2 points max 10 points max
<b>Oral examination</b>	<p>The oral examination may be carried out in Italian or English. The oral test consists of an interview covering the qualifications, examinations and research project, as well as general topics pertaining to the following scientific-disciplinary fields (SSD): IUS/01- Private Law; IUS/04 - Commercial Law; IUS/07 - Labor Law; IUS/08 - Constitutional Law; IUS/12 - Tax Law; IUS/13 - International Law; IUS/14 - European Union Law; IUS/15 - Civil Procedure; IUS/16 - Criminal Procedure. Each candidate will be asked questions on general topics related to the SSD indicated in the application. The interview will also be aimed at verifying full eligibility for an externally funded scholarship, if opted for. The interview will be evaluated according to the following criteria: level of knowledge of the proposed topics; criticality of the expository approach; appropriate use of legal language; aptitude for the preparation and development of the research project. English language proficiency will also be tested during the oral examination.</p>	
<b>Calendar of the oral examination</b>	<b>Date</b>	<b>July 17, 2024</b>
	<b>Time</b>	<b>9:15 AM (Italian time)</b>
	<b>Place</b>	<b>University of Udine, Department of Legal Science (DISG), via Tomadini 3 - 33100 Udine, ITALY</b>
	<p>Based on the number of applicants, the oral examination may take place in more than one day. To attend the examination tests, candidates must exhibit a valid identity document or other personal identification document (possibly the same document attached to the application), under penalty of exclusion from the selection procedure. Citizens of non-EU states must mandatorily exhibit their passport.</p>	

**RESEARCH PROGRAMS of ESF SCHOLARSHIPS**

<b>Title</b>	<b>S4 Trajectory</b>	<b>Impact on FVG Region</b>
<p><b>1. A legal framework for Cultural and Creative Enterprises (CCIs).</b> <i>Prof. Angelo Venchiarutti</i></p>	<p>Tourism, cultural heritage, design, creativity industry. Trajectory 2: Research Development Technological Innovation for Cultural and Creative Enterprises (CCI).</p>	<p>Cultural and creative industries operate in a complex business environment affected by significant and rapid changes as a result of the digital revolution as well. The regulatory framework governing these sectors must help facilitate artistic creation and facilitate entrepreneurial activities. The research that is proposed aims to investigate what is an appropriate legal framework, inclusive of industrial and intellectual property, to the specificity of the sector, in order to enable further innovation, promote transparent contractual relations; arrive at the introduction of the right to fair remuneration and legal protection for authors, creators and all parties involved in the creative process, and their works. For the FVG Region, this deepening is bound to be an important building block for economic and social development, enhancing the potential of the territory and supporting local businesses.</p>





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**TABLE 1 – PhD Programme in LAW AND INNOVATION IN THE EUROPEAN LEGAL SPACE**

<p><b>2. Equality bodies and inclusive workplaces: law and networks in the Italian public administration for economic and social development: The case of Friuli Venezia Giulia.</b> <i>Prof. Marina Brollo</i></p>	<p>Health, Quality of Life, Agribusiness and Bioeconomy. Trajectory 6: Enhance the potential of the territory by supporting the development of smart and resilient local communities in full respect of biodiversity, mountain, rural and coastal ecosystems (including their ecosystem services) and by integrating into economic, social and environmental development the concepts of circularity and sustainability of extended bioeconomic value chains (i.e. including logistics, distribution and marketing). This can be achieved through the production of bioenergy from renewable sources, new bio-based products, the development of value chains including social value chains using innovative technologies (including bio-refineries), the development of sustainable and climate-resilient infrastructure, and the adoption of nature-based solutions (NBS)</p>	<p>The role of equality bodies within the Italian public administration is central to building equitable and inclusive workplaces. For the FVG Region, this in-depth study represents an important building block for the construction of an attractive, inclusive Region and organizational well-being. The goal is to understand how these bodies move within existing legal frameworks, organizational structures and informal relationships to fulfill their anti-discrimination mandate and promote broader inclusion at work. The legal perspective and empirical evaluation enable an examination of both the practical operation of these bodies and their impact on the interpretation and realization of rights within the public sector, supporting economic and social development, enhancing the potential of the local area, and supporting their communities.</p>
<p><b>3. The transition to a circular economy and the impact on SMEs in Friuli Venezia Giulia: a legal analysis from the European Union perspective.</b> <i>Prof. Elisabetta Bergamini</i></p>	<p>Application of circular economy at the system level (area, network, supply chain)</p>	<p>The research proposed here aims to investigate what strategies are in place to promote the sustainable circular economy in the Friuli Venezia Giulia region and what the main needs for improvement might be, especially in order to adequately support the region's SMEs in responding to innovations, political and legislative, European and international, in the circular economy sector. Friuli Venezia Giulia represents a particularly significant context for the analysis of the circular economy, given its wealth of natural resources and the presence of a widespread industrial fabric, composed mainly of SMEs. The adoption of production practices and models inspired by the circular economy could have a significant impact on the local economy, allowing companies to make the best use of available resources, reducing production costs and promoting greater environmental sustainability. However, especially in recent years, relevant legislation has advanced apace and become increasingly complex and multilevel, proposing a rapid paradigm shift from the linear economy to a more sustainable circular economy. One of the most recent regulatory developments in this regard is the Directive on Consumer Empowerment for the Green Transition approved by the Council on Feb. 2024. Businesses, therefore, are required to adapt promptly and effectively to the new production paradigm. Within this framework, therefore, it seems particularly important to observe how businesses, especially SMEs, are responding to these legislative innovations, what are the main obligations falling on them, and which sectors</p>



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**TABLE 1 – PhD Programme in LAW AND INNOVATION IN THE EUROPEAN LEGAL SPACE**

		<p>are experiencing the most difficulties. This reconnaissance will be key to identifying any gaps in the current regulatory framework, hypothesizing actions to support the companies involved so that they can gradually align themselves with regulatory developments while preserving their competitiveness and, indeed, becoming active participants in the transition from the linear to the sustainable circular paradigm. In this sense, it is expected that the results of the research can provide useful indications to local business associations and administrative authorities in the area for the development of policies and initiatives aimed at supporting the transition of the "FVG system" to a more sustainable and resilient economic model.</p> <p>Specifically, the doctoral student grantee will be expected to prepare a vademecum for FVG SMEs, intended as a practical guide aimed at providing a clear and comprehensive overview of the regulatory obligations imposed by European legislation, and to a lesser extent, by international regulations, in the context of the circular economy. This resource is designed to help SMEs understand and comply with relevant regulatory obligations, but also to identify business opportunities emerging from these new rules. The vademecum may be enriched with case studies, best practices and useful resources, and will be designed as a dynamic and up-to-date tool, able to adapt to regulatory changes and evolutions in the business environment. Confartigianato - Imprese Udine has expressed its willingness to cooperate in the research project by providing the technical-scientific knowledge, facilities, materials and services that may be needed and by ensuring the reception of the doctoral student at the facility located in Udine.</p> <p>The research is in line with the Regional Strategy for Friuli Venezia Giulia's Sustainable Smart Specialization Strategy, and the promotion of the United Nations Sustainable Development Goals (SDGs) (in particular Goal 9 - Industry, Innovation and Infrastructure, Goal 11 - Sustainable Cities and Communities, and Goal 13 - Climate Change). It is also consistent with and complementary to the teaching and research activities already in place at DISG, where a Jean Monnet Module funded by the European Union for the years 2023-2026 (Consumer and Market Law in the European Circular Economy) and a PRIN 2022 PNRR Project entitled ECCE-HUMAN Empowering Citizens for Circular Economy: a HUMAN-centered law model are active.</p>
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**TABLE 2 – PhD Programme in COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

<b>THE PhD PROGRAMME</b>	
<b>Administrative Location</b>	University of Udine - Department of Mathematics, Computer Science and Physics (DMIF) – via delle Scienze 206, 33100 Udine, Italy (+39)
<b>Associated Location</b>	Fondazione Bruno Kessler – 77 via Santa Croce, 38122 Trento (TN), Italy
<b>Location for Training, teaching and research activity</b>	Teaching and other training activities will take place primarily at the administrative programme location or in other locations of the University of Udine. The research program will be mainly developed, with reference to the scholarship (see art. 10 and 13 of the Call) and/or to the supervisor assigned, at one of these locations: administrative location, associated location, financial supporter's location (if the financial supporter is an external institution).
<b>Coordinator</b>	Ing. Alessandro Cimatti (cimatti@fbk.eu)
<b>Programme duration</b>	3 years
<b>Curriculum</b>	-
<b>Research topics</b>	<ul style="list-style-type: none"> <li>- Acoustic scene analysis and Machine listening</li> <li>- Algorithms</li> <li>- Artificial Intelligence in agrifood</li> <li>- Automatic planning and scheduling</li> <li>- Autonomous systems</li> <li>- Blockchain and Digital ledger technologies</li> <li>- Computational biology and Bioinformatics</li> <li>- Computational intelligence and Optimization</li> <li>- Computer vision</li> <li>- Crowdsourcing and Human-in-the-loop Artificial Intelligence</li> <li>- Cyber-security</li> <li>- Data science and Big data analytics</li> <li>- Digital Humanities</li> <li>- 3D digitalization with Artificial Intelligence</li> <li>- Distributed systems: models and applications</li> <li>- Formal methods and Automatic verification</li> <li>- Human-Computer interaction, Auditory-tactile interfaces</li> <li>- Knowledge representation and Automatic reasoning</li> <li>- Information retrieval</li> <li>- Internet of things: platforms and technologies</li> <li>- Logics in computer science</li> <li>- Machine learning and Deep learning</li> <li>- Medical informatics, Tele-medicine and e-Health</li> <li>- Methodologies, languages and techniques for problem solving in artificial intelligence</li> <li>- Natural language processing</li> <li>- Predictive monitoring, diagnostics and maintenance</li> <li>- Social systems and Recommendation systems</li> <li>- Software engineering</li> <li>- Virtual reality, Serious games.</li> </ul>
<b>Research programs</b>	Decided by the Teaching Board within the PhD programme Research topics.
<b>Programme website</b>	<a href="https://www.uniud.it/it/ricerca/lavorare-nella-ricerca/dottorato-ricerca/inostricorsi/area-physical-science-and-engineering/informatica-e-intelligenza-artificiale/il-dottorato">https://www.uniud.it/it/ricerca/lavorare-nella-ricerca/dottorato-ricerca/inostricorsi/area-physical-science-and-engineering/informatica-e-intelligenza-artificiale/il-dottorato</a> <a href="https://www.dmif.uniud.it/dottorato/iai/">https://www.dmif.uniud.it/dottorato/iai/</a> <a href="https://phd.fbk.eu/https://phd.fbk.eu/">https://phd.fbk.eu/https://phd.fbk.eu/</a>

**ADMISSION REQUIREMENTS**

**TABLE 2 – PhD Programme in COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

<b>Required degree</b>	Italian Laurea (before DM 509/99) or Italian Laurea Specialistica/Magistrale (ex DM 509/1999 and Decree DM 270/04) or equivalent degree obtained abroad. Foreign degrees and titles: refer to art. 3 and 4 of the Call.
<b>Knowledge of the following foreign language</b>	English

**DOCUMENTS AND TITLES TO BE ATTACHED TO THE APPLICATION FOR ADMISSION**

<b>Mandatory documents (Art. 5 of the Call) UNDER PENALTY OF EXCLUSION</b>	<ol style="list-style-type: none"> <li>1. Certification issued by the University or, if the Candidate is a European Union citizen (refer to art. 5 paragraph 5 of the Call), self-certification of the academic title (already awarded or to be issued by October 31, 2024) needed for admission to the PhD programme;</li> <li>2. Curriculum vitae et studiorum, dated and signed, containing a complete and detailed description of all studies and working experiences (refer also to the downloadable template);</li> <li>3. Copy of a valid identity document (citizens of countries not belonging to the European Union: copy of a valid passport, comprehensive of the pages containing the holder's photo, personal details, passport number, date and place of issue, date of expiry);</li> <li>4. Research project, dated and signed, referred to the aforementioned research topics and to the research programs specified in this Table, with specific reference on the Teaching Board skills described in <a href="https://www.dmif.uniud.it/dottorato/iai/collegio-docenti/">https://www.dmif.uniud.it/dottorato/iai/collegio-docenti/</a> (approximately between 5,000 and 10,000 characters, in English, refer also to the downloadable template).</li> </ol>
<b>Optional documents that will be evaluated if presented (Art. 5 of the Call)</b>	<ol style="list-style-type: none"> <li>1. Publications (max 3);</li> <li>2. Recommendation letters (max 2) written by university professors, scientific researchers or other experts in the specific research topics (art. 6 of the Call);</li> <li>3. Master thesis ("Tesi di Laurea") or its abstract (approximately between 15,000 and 25,000 characters) in Italian or English associated to the degree/title providing access to the PhD programme. The abstract can be submitted also by Applicants who are not graduated on the expiration date of this Call.</li> </ol>
<b>All titles must be submitted exclusively in PDF format, dated and signed by the candidate.</b>	

**SELECTION COMMITTEE**

<b>Appointed Members</b>	Agostino Dovier – Full Professor – University of Udine Alessandro Cimatti – Director of Research Center – Bruno Kessler Foundation Vincenzo Della Mea – Associate Professor – University of Udine Luca Di Gaspero – Associate Professor – University of Udine Gabriele Puppis – Associate Professor – University of Udine
<b>Alternate Members</b>	Antonio Bucchiarone – Head of Research Unit – Bruno Kessler Foundation Fabio Remondino – Head of Research Unit – Bruno Kessler Foundation Federico Fontana – Associate Professor – University of Udine Dario Della Monica – Associate Professor – University of Udine

**ADMISSION**

**GENERAL COMPETITION (art. 8 of the Call for Applications)**



**TABLE 2 – PhD Programme in COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

Positions available: 14					
Detailed description	N.	Funding	Annual gross amount	Period abroad	Research program
<b>Positions WITH SCHOLARSHIP: 11</b>	3	University of Udine	€ 19,367.00	max 6 months optional	In line with the research topics of the PhD programme.
	3	Regional Programme (PR) ESF+ 2021/2027 of the Autonomous Region Friuli Venezia Giulia (Decree n. 17895/GRFVG of 19 April 2023) and subsequently amended and supplemented – CUP G23C23001130008*	€ 19,367.00	max 6 months optional	<ol style="list-style-type: none"> <li>1. Study and development of Artificial Intelligence techniques for optimising the water use and energy consumption of industrial plant.</li> <li>2. Multisensory interactions and auditory/tactile interfaces for rendering digital experiences beyond vision.</li> <li>3. XAI-FVG Explainability of Weather Forecasting in FVG.</li> <li>4. The Role of New Technologies in the Green Deal: More Efficient Models for Artificial Intelligence and Deep Learning.</li> <li>5. Towards AI Solutions for CSI-based Wireless Sensing and Positioning to Support Pervasive Home and Health Care.</li> <li>6. Machine Learning methods for Disability Identification in Electronic Health Records.</li> <li>7. Diagnosis of dysphonia and laryngeal pathologies using advanced numerical models of phonation and AI techniques.</li> <li>8. Immersive therapeutics for chronic pain management.</li> <li>9. SistAnimalID - Animal Recognition System.</li> <li>10. BioSubAcque - Underwater Image Analysis for Environmental Monitoring.</li> <li>11. TrustVision - Efficient and Reliable Artificial Vision for Industry 4.0.</li> </ol> <p><i>Description at "Research programs of ESF scholarships"</i></p>
	5	Associated Institution: Fondazione Bruno Kessler*	€ 19,367.00	max 12 months optional	<ul style="list-style-type: none"> <li>- Reconfigurable and trustworthy pandemic simulation.</li> <li>- Methodologies for parametric systems testing.</li> <li>- Epistemic Runtime Verification</li> <li>- Condition monitoring and predictive maintenance of complex industrial systems:</li> </ul>



**TABLE 2 – PhD Programme in COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

					<p>Model-based reasoning meets Data Science.</p> <ul style="list-style-type: none"> <li>- Planning and scheduling with time and resource constraints for flexible manufacturing.</li> <li>- Meta-learning for advanced 3D representations.</li> <li>- Multi-modal learning-based SLAM.</li> <li>- AI-based Models and Tools for Next-Generation Serious Game.</li> <li>- Pareto-based optimization methods to support one-click deployments of EdgeAI application flows.</li> </ul>
<b>Positions WITHOUT SCHOLARSHIP: 3</b>	<b>3</b>	-	-	max 6 months optional	In line with the research topics of the PhD programme.

\*Scholarships funded by "External Institutions" and associated locations can be assigned subject to the successful completion of the agreement that governs their funding or the decree's issuance granting funding or approving the operation (art. 13 p. 7).

Competition procedure and schedule		
<b>Evaluation of titles and oral examination.</b>		
For the evaluation of applicants' attitude for scientific research and their basic skills before the course program, the Selection Committee can attribute up to 100 points to each applicant: at most 30 points to the titles and at most 70 points to the oral examination. The applicant is admitted to the oral examination if he/she scores at least 18 points for the titles. The oral examination is passed by scoring at least 49 points. The applicant is eligible for the PhD programme if he/she passes the oral examination. Only for eligible applicants, the points attained in the oral examination will be added to the points of the titles.		
<b>DATE FOR THE PUBLICATION OF ADMITTED APPLICANTS TO THE INTERVIEW: within July 11, 2024.</b>		
<b>DATE FOR THE PUBLICATION OF THE FINAL RANKING LIST: within July 31, 2024.</b>		
<b>Language that can be used for the exam</b>	Italian or English	
<b>Evaluation of the titles</b>	Curriculum vitae et studiorum and master thesis (or its abstract)	Max 20 points
	Research project, scientific publications, and recommendation letters	Max 10 points
<b>Oral examination</b>	Written test about fundamental topics in computer science and artificial intelligence	Max 20 points
	Interview about written test, titles, previous career and research project also aimed at understanding the Applicant's knowledge about fundamental topics in computer science and artificial intelligence, as well as his or her full eligibility to receive, if preferred, a scholarship funded by external institutions. Reading and understanding a short scientific text in English	Max 50 points
<b>Calendar of the oral examination</b>	<b>Date</b>	<b>July 23, 2024</b>
	<b>Time</b>	<b>9:30 AM (Italian time)</b>
	<b>Place</b>	<b>Department of Mathematics, Computer Science and Physics, (DMIF) "Sala Riunioni" – via delle Scienze 206, 33100 Udine. <a href="https://www.dmif.uniud.it/il-dipartimento/sedi/">https://www.dmif.uniud.it/il-dipartimento/sedi/</a></b>

**TABLE 2 – PhD Programme in COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

	<p>The oral examination consists of completing an initial written test and attending a subsequent interview. The initial written test will be held at the same time for all candidates (start time 9:30 a.m. Italian time). Thereafter, the order of convocation for each candidate's interview will be scheduled. Interviews can also be organized over several days. The oral examination (written test and interview) may be taken remotely upon motivated request and in accordance with the provisions of the call (art. 8 p.4 of the call). Detailed instructions on the organization of the oral examination will be communicated to the admitted candidates. To attend the examination tests, the candidates must exhibit a valid identity document or other personal identification document (possibly the same document attached to the application), under penalty of exclusion from the selection procedure. Citizens of non-EU states must mandatorily exhibit their passport.</p>
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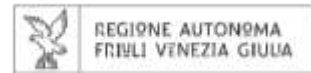
RESEARCH PROGRAMS of ESF SCHOLARSHIPS		
Title	S4 Trajectory	FVG Regional impact
<p>1. Study and development of Artificial Intelligence techniques for optimising the water use and energy consumption of industrial plant. <i>Prof. Gian Luca Foresti</i></p>	<p>Energy transition, circular economy and environmental sustainability - Maximum energy efficiency systems for industry</p>	<p>Several companies in the country have plants with advanced production facilities that require a large use of energy, mainly electricity, for their operation, and in many cases are characterized by high water consumption. The challenge for the "better 2030", i.e. the climate neutrality of production activities, confronts companies, especially large ones, with the need to articulate a programme based on continuous improvement in terms of energy efficiency and reduction of water consumption in production processes. The main objective of the proposed research activity is to study and develop Artificial Intelligence techniques capable of improving the energy efficiency of industrial production plants. The proposal is based on the idea that reducing the energy consumption of production processes does not necessarily imply lower production, but rather an improvement in the productivity and effectiveness of plants, allowing the same amount of product to be produced with fewer resources.</p>
<p>2. Multisensory interactions and auditory/tactile interfaces for rendering digital experiences beyond vision. <i>Prof. Federico Fontana</i></p>	<p>Research Development Technological Innovation for Creative Industries</p>	<p>An increasing number of regional young companies and startups are participating in the development and marketing of virtual reality scenarios for the public, such as those that will see the light at the Digital Experience Centre of the Maritime Museum in Trieste. Completing visual feedback with 3D audio and somatosensory elements is key for realizing virtual experiences hosted by future museums and entertainment spaces. The PhD candidate will research concepts, prototype software and adapt existing hardware around interaction components at the intersection between sonic and haptic interaction design, with the goal of enabling novel multisensory virtual objects and scenes having also corporate interest.</p>
<p>3. XAI-FVG Explainability of Weather Forecasting in FVG.</p>	<p>Energy transition, circular economy and</p>	<p>Following an experience gained from a multi-year collaboration with researchers from the ARPAFVG</p>

**TABLE 2 – PhD Programme in COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

<p><i>Prof. Agostino Dovier</i></p>	<p>environmental sustainability</p>	<p>(Osmer), in particular for neural network models for the prediction of extreme events (lightning, hail), we wish to study the possible application of automatic symbolic AI techniques , both programmed upstream with expert knowledge and automatically and dynamically extracted from the data, to explain the reasons for the predictions (Explainable AI, or XAI) applicable both to the aforementioned extreme events and to daily forecasts on a regional basis. These explanations may also be useful for modifying the sub-symbolic models used so far as a result of rapid climate variations.</p>
<p><b>4. The Role of New Technologies in the Green Deal: More Efficient Models for Artificial Intelligence and Deep Learning.</b> <i>Prof. Giuseppe Serra</i></p>	<p>Research Development Technological Innovation for Creative Industries</p>	<p>Artificial Intelligence and Deep Learning systems are crucial for today's businesses, but their complexity requires a lot of energy. This project aims to develop lighter and more efficient models, without sacrificing performance and accuracy, through optimization techniques, data compression, quantization and intelligent resource management. The primary objective is to encourage the mitigation of environmental impact, offering direct support to the achievement of the Green Deal objectives promoted by the FVG region.</p>
<p><b>5. Towards AI Solutions for CSI-based Wireless Sensing and Positioning to Support Pervasive Home and Health Care.</b> <i>Prof. Andrea Brunello, Prof. Angelo Montanari, Prof. Nicola Saccomanno</i></p>	<p>Solutions and systems for innovative therapies: integrated pharmaceutical and biopharmaceutical (biotech) development for personalized and sustainable medicine. Solutions and systems of active &amp; assisted living for frailty support.</p>	<p>The research will explore the possibility of exploiting Channel State Information (CSI) from wireless sources to perform sensing and positioning in complex and critical scenarios, like, for instance, home and health care. The goal is to collect meaningful information, like respiratory rate, heartbeat, people gestures, movements, and location, using minimal, non-dedicated devices only, e.g., smartwatch, smartphone, and access points, to be used to develop a general framework that supports assisted living. Concrete applications range from fall to abnormal behaviour detection, from apnea recognition to remote monitoring of the recovery of stroke-affected patients. Despite the potential of CSI, its effectiveness is currently limited by degradation effects that significantly alter signal patterns over time. Thus, to a large extent, the research will focus on studying and developing time- and space- invariant Machine and Deep Learning models to mitigate such problems. The research will be carried out in collaboration with some local hospital medical units.</p>
<p><b>6. Machine Learning methods for Disability Identification in Electronic Health Records.</b> <i>Prof. Vincenzo Della Mea</i></p>	<p>Solutions and systems of active &amp; assisted living for frailty support.</p>	<p>Aim of the present project is to study methods and techniques to identify and represent disability and frailty signs in electronic health records, by means of machine learning (ML). ML could be applied in two directions: (i) to detect signals in already available text and data or (ii) to support healthcare professionals in coding frailty and disability conditions by means of available classifications such as ICF. The Friuli Venezia Giulia Region has</p>

**TABLE 2 – PhD Programme in COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

		a regressive population structure with a relatively high elderly component, more at risk of frailty. Furthermore, for some disability conditions (in particular motor and deafness) the Region is among those with the highest prevalence. The use of machine learning methods can on the one hand help operators to adequately codify the conditions (for example, also but not only for certification purposes), on the other to recognize signs, for example in the ESF, which can allow provide the necessary supports to people with disabilities, always respecting privacy.
<b>7.</b> Diagnosis of dysphonia and laryngeal pathologies using advanced numerical models of phonation and AI techniques. <i>Prof. Carlo Drioli</i>	Innovative biomedical solutions and systems: integrated development of medical devices	From a methodological point of view, the project will benefit from access to Big Medical Data databases and repositories and from the possibility of exploiting the computing resources of the Cloud High Performance Computing (HPC). Data Center for the development of complex numerical models public and private, mainly regional. The project will also analyze the possibilities of integrating such a diagnostic system within regional healthcare and research structures.
<b>8.</b> Immersive therapeutics for chronic pain management. <i>Prof. Luca Chittaro</i>	Innovative biomedical solutions and systems: integrated development of medical devices	The issue of management of chronic pain conditions is increasingly relevant in the region, also due to an increasing ageing of the population. Chronic pain is a major research topic in Virtual Reality (VR), and some applications have been successful in clinical contexts. The current challenge for research is to empower patients with the capability of using VR at home as an immersive therapeutic tool for chronic pain management. Moreover, the possibility of applying Augmented and Mixed reality in addition to VR for chronic pain is still unexplored. The PhD candidate will work at designing, implementing, and evaluating (also in collaboration with expert doctors from regional hospitals) an immersive therapeutics system for home use. Central goals of the system will be a very high level of usability, to allow its use by anyone, including older adults, and a compelling user experience, in order to keep the user engaged over long periods in such a way that the analgesic effect will not wear off over time.
<b>9.</b> SistAnimalID - Animal Recognition System. <i>Prof. Niki Martinel</i>	Smart Factory and Sustainable Development, Maritime Technologies	The development of an animal recognition system based on artificial intelligence can promote innovation and sustainability in the regional livestock and fisheries sector. It would allow for more efficient monitoring of livestock and fish species, improving animal welfare and production efficiency. It would represent a frontier application of intelligent technologies in key sectors of the territory.
<b>10.</b> BioSubAcque - Underwater Image Analysis for Environmental Monitoring. <i>Prof. Niki Martinel</i>	Environment and Energy, Blue Growth	Advanced analysis of underwater images via deep learning can support the monitoring of the marine and coastal ecosystems of the FVG. It would promote environmental protection, the sustainable



Si è beneficiato del sostegno cofinanziato dal Fondo Sociale Europeo Plus della Regione Autonoma Friuli Venezia Giulia

**TABLE 2 – PhD Programme in COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE**

		management of fish resources and the development of innovative solutions for the regional Blue Economy. It would contribute to efforts to transition towards a circular blue economy.
<b>11.</b> TrustVision - Efficient and Reliable Artificial Vision for Industry 4.0. <i>Prof. Niki Martinel</i>	Environment and Energy, Blue Growth	The development of efficient and certified artificial vision models can unlock new sustainable industrial applications. These intelligent systems can automate production processes, inspect plants and optimize logistics, promoting innovation in local manufacturing companies. Energy waste would be reduced and the circular economy would be increased thanks to predictive monitoring.





**TABLE 3 – PhD Programme INDUSTRIAL AND INFORMATION ENGINEERING**

<b>THE PhD PROGRAMME</b>	
<b>Administrative location</b>	University of Udine, Polytechnic Department of Engineering and Architecture (DPIA) - via delle Scienze 206, 33100 Udine, ITALY (tel.
<b>Associated location</b>	-
<b>Location for training, teaching and research activity</b>	Teaching and other training activities will take place primarily at the administrative programme location or in other locations of the University of Udine. The research program will be mainly developed, depending on the scholarship (see art. 10 and 13 of the Call) and/or on the supervisor assigned, at one of these locations: administrative location or financial supporter's location (if the financial supporter is an external institution).
<b>Coordinator</b>	Prof. David Esseni (david.esseni@uniud.it)
<b>Programme duration</b>	3 years
<b>Curricula</b>	<ol style="list-style-type: none"> <li>1. New management paradigms and fabrication technologies for competitive enterprises with low environmental impact;</li> <li>2. Information and communication technology for the inclusive society;</li> <li>3. Design of innovative thermo-electro-mechanical systems and development of advanced methods for the assessment of structural damage and reliability for energy saving;</li> <li>4. Mechanical technologies and electronic devices for domotics, medical diagnostic and safety.</li> </ol>
<b>Research topics</b>	<p>- <i>Curriculum 1 - New management paradigms and fabrication technologies for competitive enterprises with low environmental impact</i></p> <ol style="list-style-type: none"> <li>1. Lean management, agile project management, operations management, production planning and control, supply chain management, purchasing and supplier management, innovation management, new product development, global manufacturing, complexity management, performance measurement systems;</li> <li>2. System and machinery efficiency for industrial production;</li> <li>3. Cognitive features of products development in view of CAD-PLM technologies;</li> <li>4. Characteristics and applicability of emerging prototyping methodologies (augmented reality, functional mock-up, interaction design, etc.);</li> <li>5. Smart logistics: computation models and algorithms;</li> <li>6. New technologies for the manufacturing of innovative materials;</li> <li>7. Systems for monitoring and control of machine tools;</li> <li>8. Methodologies for the design of automatic systems with a high energy and production efficiency. Approaches to system and product innovation;</li> <li>9. Robotic systems for the industrial sustainability;</li> <li>10. Robotic systems for production and energy efficiency.</li> </ol> <p>- <i>Curriculum 2 - Information and communication technology for the inclusive society</i></p> <ol style="list-style-type: none"> <li>1. Nano-electronic devices (MOSFETs, Steep Slope, etc.) for energy efficient and high performance electronics. Non volatile Memories for massive 3D integration (Flash, charge trap);</li> <li>2. Advanced electron devices based on innovative materials and architectures in the Beyond CMOS and More than Moore domains: graphene, 2D crystals, III-V compound semiconductor devices;</li> <li>3. Semi-classical (BTE) and quantum mechanical (NEGF) simulation of nanoelectronics devices;</li> <li>4. Integrated circuit design for energy efficient communications, energy conversion and management;</li> <li>5. Innovative communication paradigms and systems: systems with multiple antennae, distributed communication systems, HW and SW architectures for telecommunications;</li> <li>6. Multimedia signals processing and analysis: video and image encoding, video streaming based on peer-to-peer networks, joint source/channel encoding, compressive sensing;</li> </ol>



TABLE 3 – PhD Programme INDUSTRIAL AND INFORMATION ENGINEERING

	<p>7. Test and development of metaheuristic algorithms for combinatorial problems;</p> <p>8. Pervasive computing, cloud computing, overlay networking, distributed computing in miscellaneous networks of computers;</p> <p>9. Artificial vision system, virtual sound, machine learning;</p> <p>10. Wireless communication systems and networks, signal processing for communication, physical substrate algorithms, transmission system algorithms.</p> <p>11. Data and Information Fusion.</p> <p><i>Curriculum 3 – Design of innovative thermo-electro-mechanical systems and development of advanced methods for the assessment of structural damage and reliability for energy saving</i></p> <p>1. Energy harvesting systems for self powered, smart, distributed sensors;</p> <p>2. Electro-mechanical devices for innovative production and storage energy systems;</p> <p>3. New paradigms, systems, technologies for surface and air transportation vehicles with low energy consumption;</p> <p>4. Improving the performance and energy efficiency of industrial systems through innovative power electronic converters, machines and electric drives;</p> <p>5. Power electronic converters, electrical machines and drives for electric power generation and distribution, and electric mobility of the future;</p> <p>6. On board electronics: terrestrial and satellite localisation and navigation systems; communication networks and systems;</p> <p>7. Green mechatronics: mechatronics for energy saving;</p> <p>8. Design methodologies for materials handling systems characterised by low environmental impact;</p> <p>9. Holistic design of lightweight structures for low emissions and low energy consumption vehicles;</p> <p>10. Design of energy efficiency industrial plants;</p> <p>11. Stress and strain analysis of materials and structures subjected to time-dependant deformation processes;</p> <p>12. Methods for structural integrity design and verification;</p> <p>13. Developments of damage-tolerant design methods;</p> <p>14. Multi-physics analyses for the evaluation of the stress/strain state in materials and engineering structures;</p> <p>15. Micromechanical damaging processes in materials;</p> <p>16. Behaviour characterisation and modelling of materials processed by advanced manufacturing techniques;</p> <p>17. Modeling and control of mechanical and mechatronic systems;</p> <p>18. Modeling and control of vibrations in mechanical systems;</p> <p>19. Numerical modeling for the simulation of electromagnetic devices and fields.</p> <p><i>Curriculum 4 – Mechanical technologies and electronic devices for domotics, medical diagnostic and safety</i></p> <p>1. Smart systems and technologies for home, working and leisure environments</p> <p>2. Systems for safety at work, on the road, at home; systems for the management of home assistance activities;</p> <p>3. Sensors, devices and instrumentation for medical care and tests and for the support of the elderly; systems for the planning and support of hospital activities;</p> <p>4. Innovative paradigms for the interaction of domotics, surgery and security devices;</p> <p>5. Passive and active control of noise and vibration for industrial, home and surface-air transport vehicles applications;</p> <p>6. Devices and instrumentation for the detection of biomedical parameters: nanosensors</p> <p>7. Robots for elderly and disable people assistance;</p> <p>8. Robots for surgery applications;</p>
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**TABLE 3 – PhD Programme INDUSTRIAL AND INFORMATION ENGINEERING**

	9. Large scale tri-dimensional image modelling, automatic synthesis of binocular video flows from monocular sources; 10. Geophysics; seismic data acquisition, vulcanology, geostatics, seismic risk evaluation.
<b>Research programs</b>	Research programs are selected by the Teaching Board among the topics offered by the curricula.
<b>Programme website</b>	<a href="https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-physical-science-and-engineering/industrial-and-information-engineering/ph-d-programme/industrial-and-information-engineering?set_language=en">https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-physical-science-and-engineering/industrial-and-information-engineering/ph-d-programme/industrial-and-information-engineering?set_language=en</a> <a href="https://phd.diegm.uniud.it/ie-phd/">https://phd.diegm.uniud.it/ie-phd/</a>

**ADMISSION REQUIREMENTS**

<b>Required degree</b>	Italian Laurea (before DM 509/99) or Italian Laurea specialistica/magistrale (ex DM 509/1999 and DM 270/04) or equivalent degree obtained abroad. Foreign degrees and titles: refer to art. 3 and 4 of the Call.
<b>Knowledge of the following foreign language</b>	English

**DOCUMENTS AND QUALIFICATIONS TO BE ATTACHED TO THE APPLICATION FOR ADMISSION**

<b>Mandatory documents (art. 5 of the Call) UNDER PENALTY OF EXCLUSION</b>	1. Certification or self-certification (pursuant to art. 5 c. 5 of the Call) of the academic qualification for admission to the doctoral program (Italian Laurea Specialistica/Magistrale or Italian Laurea before DM 509/99 or foreign degree); 2. Curriculum vitae et studiorum, dated and signed; 3. Copy of a valid identity document (citizens of countries not belonging to the European Union a copy of a valid passport, comprehensive of the pages containing the holder's photo, personal details, passport number, date and place of issue, date of expiry).
<b>Optional documents (art. 5 of the Call)</b>	1. Master thesis ("Tesi di Laurea") associated to the degree/title providing access to the PhD programme. Applicants who are not graduated on the expiration date of this Call can submit an extended abstract in place of the complete thesis, in Italian or English, signed by themselves and by their thesis Supervisor (approximate limit: 25.000 characters, including spaces); 2. Motivational letter by which the applicant explains the reasons for admission to the PhD programme, dated and signed (approximate limit: 2,500 characters, included spaces); 3. Publications (max 2); 4. Letters of reference (max 2), from university professors, scientific researchers or other experts in the field (art. 6 of the Call).
<b>All titles must be submitted exclusively in PDF format, dated and signed by the candidate.</b>	

**SELECTION COMMITTEE**

<b>Appointed members</b>	Daniele Casagrande – Assistant Professor – University of Udine Stefano Saggini – Associate Professor – University of Udine Marco Sartor – Associate Professor – University of Udine
<b>Substitute members</b>	David Esseni – Full Professor – University of Udine Stefano Filippi – Full Professor – University of Udine Roberto Rinaldo – Full Professor – University of Udine

**ADMISSION**

**GENERAL COMPETITION (art. 8 of the Call for Applications)**

**Positions available: 6**

<i>Detailed description</i>	<i>N.</i>	<i>Funding</i>	<i>Annual gross amount</i>	<i>Period abroad</i>	<i>Research program</i>
<b>Positions WITH SCHOLARSHIP: 5</b>	<b>3</b>	Univ. Udine	€ 19,367.00	max 6 months optional	Research program in line with research topics.



**TABLE 3 – PhD Programme INDUSTRIAL AND INFORMATION ENGINEERING**

	<b>2</b>	Regional Programme (PR) ESF+ 2021/2027 of the Autonomous Region Friuli Venezia Giulia (Decree n. 17895/GRFVG of 19 April 2023) and subsequently amended and supplemented – CUP G23C23001130008*	€ 19,367.00	max 6 months optional	<ol style="list-style-type: none"> <li>1. Digital Imaging Diagnostics in Human and Pre-clinical Settings; Augmented and Virtual Reality, Robotics, and Artificial Intelligence (AI).</li> <li>2. Probabilistic Approaches based on Physics-guided Machine Learning for the evaluation of fatigue strength in additively manufactured metallic materials.</li> <li>3. New adaptive meta-materials formed by honeycomb structures with resonators and/or vacuum structured fabrics for the creation of tunable treatments/devices aimed at controlling vibrations and noise.</li> <li>4. Dynamic modelling and trajectory planning for energy efficiency in mechatronic and robotic systems.</li> </ol> <p><i>Description at "Research programs of ESF scholarships"</i></p>
<b>Positions WITHOUT SCHOLARSHIP: 1</b>	<b>1</b>	-	-	max 6 months optional	Research program in line with research topics.

\*Scholarships funded by "External Institutions" and associated locations can be assigned subject to the successful completion of the agreement that governs their funding or the decree's issuance granting funding or approving the operation (art. 13 p. 7).

<b>Competition procedure and test schedule</b>		
<p>Evaluation of qualifications and oral examination.</p> <p>For the evaluation of applicants' attitude for scientific research and their basic skills to tackle the course program, the Selection Committee can attribute up to 100 points to each applicant: max 30 points to the titles and max 70 points to the oral examination. The applicant is admitted to the oral examination if his/her titles receive at least 16 points. The oral examination is passed with at least 49 points. The applicant is eligible to the PhD programme if he/she passes the oral examination. Only for eligible applicants, the points attained in the oral examination will be added to the points of the titles.</p> <p><b>DATE FOR THE PUBLICATION OF ADMITTED APPLICANTS TO THE ORAL EXAMINATION: within July 8, 2024.</b></p> <p><b>DATE FOR THE PUBLICATION OF THE FINAL RANKING LIST: within July 31, 2024.</b></p>		
<b>Language that can be used for the exam</b>	Italian or English	
<b>Evaluation Criteria of qualifications</b> <i>During the preliminary meeting the Selection Committee may establish sub-criteria for the evaluation</i>	Curriculum vitae et studiorum	15
	Scientific publications	5
	Thesis/Abstract	2
	Letters of reference	4
	Motivational letter for admission to the PhD programme	4
<b>Oral examination</b>	<p>The oral examination consists of an individual interview of about 15 minutes aiming to assess the applicant flair to undertake a research doctorate and to carry out the research tasks in the areas of interest for the doctorate.</p> <p>The interview will be assessed considering the following criteria:</p>	



**TABLE 3 – PhD Programme INDUSTRIAL AND INFORMATION ENGINEERING**

	a) technical and scientific competence in the topics of the doctorate; b) knowledge of the state of the art for the doctorate curricula; c) mastery of English.	
<b>Calendar of the oral examination</b>	<b>Date</b>	<b>July 18, 2024</b>
	<b>Time</b>	<b>09:30 AM (Italian time)</b>
	<b>How to conduct the examination</b>	<b>The oral examination will be held online.</b>
	Based on the number of applicants, the oral examination may take place in more than one day. To attend the examination tests, the candidates must exhibit a valid identity document or other personal identification document (possibly the same document attached to the application), under penalty of exclusion from the selection procedure. Citizens of non-EU states must mandatorily exhibit their passport.	

**RESEARCH PROGRAMS of ESF SCHOLARSHIPS**

<b>Title</b>	<b>Trajectory S4</b>	<b>Impact on FVG Region</b>
<b>1:</b> Digital Imaging Diagnostics in Human and Pre-clinical Settings; Augmented and Virtual Reality, Robotics, and Artificial Intelligence (AI). <i>Prof. Lauro Snidaro</i>	Trajectory 2 of the "Health, Quality of Life, Agri-food, and Bioeconomy" area "Innovative Biomedical Solutions and Systems: Integrated Development of Medical Devices". Keywords: Health, Diagnostic Imaging, Digital Twin, Big Medical Data.	Technological Advancement: The research will contribute to technological innovation in the region, fostering the development of skills and attracting investments in the field of diagnostic imaging and Artificial Intelligence. Health Improvement: More accurate and timely diagnostic solutions will improve the health of FVG citizens, reducing diagnostic times and optimizing treatments.
<b>2:</b> Probabilistic Approaches based on Physics-guided Machine Learning for the evaluation of fatigue strength in additively manufactured metallic materials. <i>Prof. Enrico Salvati</i>	These themes are included in Trajectory 1 of the area "Smart Factory and Sustainable Development of Made in Italy supply chains" of the S4 FVG document: "Solutions and technologies for product innovation"  Keywords: sustainability, artificial intelligence, additive manufacturing, circular economy, structural integrity	The project offers FVG companies the opportunity to develop and innovate their products and compete internationally in sectors related to 3D printing of metal materials. Other positive impacts include: Development of innovative processes Increased productivity, creation of new skills and jobs, Growth of projects based on Research & Development & Innovation (R&D&I) The project represents an important opportunity for FVG to position itself as a leader in this innovative technology, with positive impacts on the economy, the environment, and society.
<b>3:</b> New adaptive meta-materials formed by honeycomb structures with resonators and/or vacuum structured fabrics for the creation of tunable treatments/devices aimed at controlling vibrations and noise. <i>Prof. Paolo Gardonio</i>	Trajectory 1 "Solutions and technologies for product innovation" of the Specialization Area "Smart Factory and Sustainable Development of Made in Italy supply chains"	This research topic will contribute to the development of: <ul style="list-style-type: none"> <li>- smart products with additive technologies;</li> <li>- innovative and intelligent materials and new active treatments/devices;</li> <li>- sustainable materials that respond to the "4Rs": Repair, Remanufacture, Reuse, Recycle.</li> </ul>
<b>4:</b> Dynamic modelling and trajectory planning for energy efficiency in mechatronic and robotic systems <i>Prof. Alessandro Gasparetto and prof. Lorenzo Scalera</i>	Trajectory 3 of the area "Intelligent factory and sustainable development of Made in Italy supply chains" of the S4 FVG document: "Solutions and technologies for process innovation". Keywords: Energy efficiency, Industry 4.0, Robotics, Collaborative Robotics, Sustainability.	The research project concerns topics of interest to large industrial companies and SMEs in the FVG in the context of automation, robotics and sustainable manufacturing. The aim of the project is to develop methodologies for energy efficiency and sustainability in mechatronic and robotic systems, also in the context of collaborative robotics, through advanced techniques of dynamic modelling, planning and optimization of motion laws. The positive effects include energy saving,





**TABLE 3 – PhD Programme INDUSTRIAL AND INFORMATION ENGINEERING**

		increased sustainability and competitiveness, the creation of new skills and the improvement of working conditions: all of this could have a significantly positive impact on companies in the FVG region.
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**TABLE 4 – PhD Programme in MOLECULAR MEDICINE**

THE PhD PROGRAMME	
<b>Administrative location</b>	University of Udine, Department of Medicine (DMED) –via Colugna 50, 33100 Udine, ITALY (tel. +39 0432 494301).
<b>Associated location</b>	C.R.O. - Centro di Riferimento Oncologico (National Cancer Institute Aviano) – via Franco Gallini 2, 33081 Aviano (PN) ITALY.
<b>Location for training, teaching and research activity</b>	Teaching and other training activities will take place primarily at the administrative programme location or in other locations of the University of Udine. The research program will be mainly developed, with reference to the scholarship (see art. 10 and 13 of the Call) and/or to the supervisor assigned, at one of these locations: administrative location, associated location, financial supporter's location (if the financial supporter is an external institution).
<b>Coordinator</b>	Prof. Alessandra Corazza (alessandra.corazza@uniud.it)
<b>Programme duration</b>	3 years
<b>Curriculum</b>	-
<b>Research topics</b>	<ul style="list-style-type: none"> <li>– Cancer: from molecular oncology to innovative therapies;</li> <li>– Immunity and inflammation;</li> <li>– Molecular mechanisms of cellular senescence and therapeutic perspectives;</li> <li>– Molecular pathogenesis of protein misfolding diseases</li> </ul>
<b>Research programs</b>	<p><b>1. Proteomic and miRnomic investigations of senescence-derived exosomes to identify circuits modulating cancer chemoresistance and tumor microenvironment (Supervisor Prof. Giulia Antoniali – DMED UNIUD)</b></p> <p>An emerging concept proposes that extracellular vesicles (EVs) play a role in facilitating tumor progression and chemoresistance through intercellular signaling and induction of paracrine senescence. In this context, exosomes derived from tumor cells that have undergone therapy-induced senescence (TIS) may represent a pathway by which TIS tumor cells clear proteins and contribute to tumor cell survival and resistance to chemotherapy. Although the secretome of senescent cells has been extensively studied, changes in EV secretion by senescent TIS cells have only recently received significant research interest. Using a cellular model of chemotherapy-induced senescence lung cancer, the project aims to investigate the proteomic and miRnomic content of exosomes associated with early and late senescence, together with the evaluation of the SASP phenotype, to understand their contribution in the modulation of chemoresistance of cancer and inflammation of the tumor microenvironment of recipient cells. Through the combination of different unbiased screening and molecular approaches we aim to identify exosomal proteins, directly involved in the modulation of DNA damage response (DDR) signaling activation, responsible for microenvironment inflammation associated with chemoresistance as well identify exosome-contained miRNAs and their target genes associated with cancer chemoresistance and DDR/SASP activation.</p> <p><b>2. The role of mechanical forces and proteolysis in the conversion of transthyretin from a soluble protein into an amyloid fibre studied using nuclear magnetic resonance (Supervisor Prof. Alessandra Corazza – DMED UNIUD)</b></p> <p>What causes a structured, soluble protein such as transthyretin (TTR) to convert under physiological conditions into amyloid fibres that are deposited on tissues and cause irreparable damage to the organs involved? Over the years, a multifactorial view of the pathological process of amyloid aggregation of TTR has led to the formulation of a hypothesis involving the concomitant action of proteolysis and mechanical stress. This</p>



**TABLE 4 – PhD Programme in MOLECULAR MEDICINE**

	<p>hypothesis has not only been validated in vitro, but has also been successfully tested in a transgenic mouse expressing a highly aggressive variant of TTR. The proposed project aims to study the structural and dynamic properties that determine and accompany the aggregation process of TTR in the presence of protease and mechanical forces by means of nuclear magnetic resonance (NMR). Clarifying the molecular aspects involved in the development of systemic TTR amyloidosis is of twofold importance: on the one hand, it contributes to a deeper understanding of the mechanisms leading to the onset of the disease, and on the other hand, it allows new possible strategies to treat the disease to be discovered.</p> <p><b>3. Arginine deimination, at the crossroad between epigenetic plasticity and metabolic regulation (Supervisor prof. Eros Di Giorgio co-supervisor Prof. Valentina Rapozzi – DMED UNIUD)</b> Arginine deimination controls the allosteric activity of enzymes involved in the regulation of metabolism and cell-mediated immunity. We have recently shown that selective inhibition of peptidyl arginine deiminase (PADI) enzymes together with forced degradation of the KRAS oncogene by a PROTAC compound leads to potent anti-oncogenic and pro-apoptotic activity in 2D and 3D models of pancreatic adenocarcinoma. In this project we propose to: 1) develop a cellular model of loss of function of PADI1 and PADI3 using Cas9/KRAB; 2) evaluate in vivo the antineoplastic efficacy of co-treatment to achieve synthetic lethality; 3) map arginine deimination to basic histone tails; 4) identify by mass spectrometry all deiminated residues on key regulated metabolic enzymes; 5) identify the link between epigenetic and metabolic regulation. The activity will be carried out in the biochemistry laboratory of the Faculty of Medicine of Udine and benefits from the collaboration with the University of Bordeaux, which offers the candidate the possibility of an international experience.</p> <p><b>4. Unraveling the Molecular Mechanisms of Gastrointestinal Neuroendocrine Tumors: Exploring FAK and SYK Pathways in the Tumor Microenvironment using 3D Culture Models (Supervisor Prof. Teresa Gagliano – DMED UNIUD)</b> Gastrointestinal Neuroendocrine Tumors (GI-NETs) present a significant clinical challenge due to limited targeted therapies. This proposed research aims to elucidate the molecular mechanisms underlying GI-NET progression, focusing on the FAK (Focal Adhesion Kinase) and SYK (Spleen Tyrosine Kinase) signaling pathways. Preliminary findings suggest that these pathways hold promise as therapeutic targets specifically in GI-NET cells. Through comprehensive investigations utilizing molecular, cellular, and bioinformatic techniques, we will explore the role of FAK and SYK in GI-NET cell signaling within the tumor microenvironment. This research project seeks to identify novel therapeutic targets, biomarkers, and regulators for GI-NETs, paving the way for more effective treatment strategies in the future.</p> <p><b>5. Role of epigenetic modifications in the control of cellular senescence (Supervisor Prof. Claudio Brancolini – DMED UNIUD)</b> Cellular senescence triggers profound epigenetic changes that cause the senescent cell to alter not only its proliferative state but also its surrounding microenvironment. This affects tissue functionality, immune defences and causes latent inflammatory states that are responsible for ageing. The best-known phenomenon of microenvironmental influence is known as SASP. SASP may also be responsible for contradictory effects in the context of neoplastic disease: protective in early stages, deleterious in</p>
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**TABLE 4 – PhD Programme in MOLECULAR MEDICINE**

	<p>advanced stages and recurrence. The research project will use innovative approaches and methodologies to better define the epigenetic modifications underlying cellular senescence and SASP. Models of replicative senescence and oncogene-induced senescence will be used. The project aims to compare the early stages of the senescence process and to understand the role of DNA damage and epigenetic modifications. Particular attention will be paid to defining enhancers and super-enhancers that control senescence using NGS approaches. Genome editing techniques will be used to verify the role of enhancers and super-enhancers in establishing the cellular senescence process.</p> <p><b>6. Title: Structural and functional characterization of Ovarian Cancer-related onco-miRNA containing G4-structures to identify novel anticancer drugs Research Project (Supervisor Prof. Gianluca Tell – DMED UNIUD)</b></p> <p>High-grade serous ovarian cancer (HGSOC) is the most aggressive cancer of the female genital tract and affects &gt;5000 women every year in Italy. Novel findings regarding acquired mechanisms of tumoral progression and chemoresistance in ovarian (OC) cancers rely on epitranscriptional mechanisms involving the dysregulation of oncogenic miRNA (oncomiR) biogenesis. High exposition to oxidative stress, induces widespread, sequence-specific modifications of guanines (G) in the seed regions of miR, altering gene expression and influencing tumorigenesis. Damaged miR, including abasic (AP) and oxidized (8-oxoG), may have detrimental effects on gene expression causing chemoresistance. Although the canonical processing pathways of miR maturation are known, information on the regulatory and quality-controlling mechanisms of damaged oncomiR, is missing. Recently, an alternative pathway of miR maturation, specifically tuned to G-rich pre-miRs, which involves a non-canonical secondary structure called RNA G-quadruplex (rG4), has been described. The possible regulatory functions exerted by rG4s on miR function, maturation, and processing are still unknown.</p> <p>Apurinic/apyrimidinic endodeoxyribonuclease 1 (APE1), an essential enzyme of the BER pathway that operates to maintain genome stability which is considered a prognostic and predictive factor in OC cancers. APE1 regulates oncomiRs maturation, decay and sorting in extracellular vesicles in cancer cells and identified a miR-signature regulated by APE1 characterized by the presence of rG4 structures. These promising findings suggest novel unexplored APE1 mechanisms potentially involved in regulating cancer cell chemoresistance.</p> <p>This project will lead to:</p> <ol style="list-style-type: none"> <li>1. Identify and functionally characterize prognostic rG4-oncomiR in OC regulated by APE1;</li> <li>2. The biophysical, structural and functional characterization of the effects of 8-oxoG and AP-sites in the selected rG4-oncomiRNAs to identify small molecules interfering with the selected APE1/rG4-oncomiR as potential novel therapeutic bullets.</li> </ol> <p>These goals will be pursued by combining biochemical/biophysical and structural approaches also using Nuclear Magnetic Resonance (NMR) spectroscopy techniques, along with investigations on immortalized cell lines and PDOs from Ovarian cancer models, as promising non-animal models for drug screening.</p> <p>The Expected results are to characterize novel APE1 functions associated with oncomiRs regulation with relevance in OC. Small molecules will be identified to specifically inhibit the interaction between APE1 and rG4-miR. Indeed, this Project will push ahead with current studies on APE1 by integrating various molecular approaches and multilevel network analyses to develop unexplored anticancer drugs, leading to the development of</p>
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**TABLE 4 – PhD Programme in MOLECULAR MEDICINE**

	<p>novel in vitro cancer models and the identification of new targets for designing personalized novel approaches in cancer therapy. Since combined chemotherapy using DNA-damaging agents and inhibitors of DNA-repair enzymes represents a promising direction in promoting synthetic lethality, our project will identify small molecules acting as effective tools for the development of new antitumor agents.</p> <p>This project is fully in line with the 'Health, Quality of Life, Agrifood and Bioeconomy' area of the Regional Strategy for the Intelligent Specialisation of Friuli Venezia Giulia and in particular with the trajectory 'Solutions and systems for innovative therapies: integrated development of drugs and biopharmaceuticals (biotech) for personalised and sustainable medicine'.</p> <p><b>7. Molecular and metabolic signatures that characterize B cells in health and disease (autoimmune disease, chronic inflammation, cancer) (Supervisor prof. Carlo Pucillo, co-supervisor prof.ssa Barbara Frossi – DMED UNIUD)</b></p> <p>Recent research has established a critical link between metabolism and immune function. Understanding immunometabolism may provide new therapeutic opportunities for immune-mediated diseases. Our research focuses on B lymphocytes, which are known for producing antibodies. In addition to this function, these cells can also act as antigen-presenting cells and secrete a wide range of pro- and anti-inflammatory cytokines. B cells can adapt their metabolism to meet specific energetic demands and maintain their functions, depending on their differentiation stage, environmental factors, nutrient accessibility, and tissue localization. The candidate will study B cells in different pathological contexts, such as colorectal cancer and multiple sclerosis, linking their immune profile, metabolism, and clinical characteristics of the patients.</p> <p>The project falls under the 'Health, Quality of Life, Agrifood and Bioeconomy' category of the Regional Strategy for smart specialization of Friuli Venezia Giulia. Specifically, it aligns with the 'Solutions and systems for innovative therapies' trajectory, which focuses on the integrated development of drugs and biopharmaceuticals (biotech) for personalized and sustainable medicine. Understanding the role of B cells in different stages of the disease will aid in comprehending the pathogenic mechanisms of the disease and developing new therapeutic approaches. <i>This will benefit patients by providing the possibility of a highly personalized therapy that targets B cells, resulting in an improved quality of life and economic savings for the healthcare system.</i></p> <p><b>8. Investigating the role of iRhom2 in cardiovascular diseases. (Supervisor prof. Antonio Beltrami – DMED UNIUD)</b></p> <p>Nowadays, Cardiovascular Diseases (CVDs) are the leading cause of death globally, with an estimated 17.9 million people and an overall 32% of global death. Of these deaths, 85% were due to heart attack and stroke. Numerous CVDs are associated with mitochondrial dysfunction whose dysregulated metabolism compromises cardiomyocyte functionality and, ultimately, leads to heart disease. Therefore, the identification of new targets and the full comprehension of their molecular role in modulating mitochondria dysfunction in CVDs must be elucidated to provide insights for new therapeutic interventions.</p> <p>iRhom2 has emerged as a major regulator of a number of cellular control processes, but is best characterized as a regulatory cofactor of the metalloprotease ADAM17, and consequently of inflammatory and growth factor signaling.</p> <p>We recently discovered that iRhom2 expression is altered in pericytes of patients affected by end-stage heart disease of ischemic etiology. This</p>
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**TABLE 4 – PhD Programme in MOLECULAR MEDICINE**

	<p>finding may be detrimental in CVDs by deregulating mitochondria metabolism in a non-canonical ADAM17-independent manner, in turn promoting a senescent-phenotype associated with heart failure. This opens a new perspective for understanding the regulatory mechanism by which iRhom2 may control CVDs onset and development, thus unlocking the possibility to modulate its activity as new therapeutic target for the disease.</p> <p>The main objective of this project is to study iRhom2 as a new potential therapeutic target for CVDs by using an array of avant-garde methods in cell biology, proteomics, and metabolomics. Specifically, the proposed project comprises three specific objectives:</p> <ol style="list-style-type: none"> <li>1. Investigating the role of iRhom2 in the onset and progression of CVDs.</li> <li>2. Dissect the molecular mechanism by which iRhom2 controls CVDs.</li> <li>3. Identify a compound that modulate iRhom2 activity in pericytes.</li> </ol> <p>This project is fully in line with the 'Health, Quality of Life, Agrifood and Bioeconomy' area of the Regional Strategy for the Intelligent Specialisation of Friuli Venezia Giulia and in particular with the trajectory 'Solutions and systems for innovative therapies: integrated development of drugs and biopharmaceuticals (biotech) for personalised and sustainable medicine'.</p> <p><b>9. The role of tumor microenvironment in disease progression and drug resistance (Supervisor dr. Paola Spessotto - CRO Aviano National Cancer Institute)</b></p> <p>This project focuses on studying the relationships between tumor cells and the microenvironment, in particular with components of the extracellular matrix, stroma, and vascular cells, both in the initial stages of engraftment and in the more advanced stages (extravasation, intravasation, and formation of the metastatic niche) and during the response to treatments (vascular permeability, immunosuppression, etc.), in order to identify new molecular mechanisms underlying tumor growth, metastasis, and drug resistance. To carry out this project, we have already developed and will use complex preclinical models such as GEMM, xenografts, and PDX. We will use functional genomics and gene sequencing approaches in conjunction with in vitro and in vivo studies in the most appropriate cell models. The project will focus on solid tumors. The ultimate goal is to identify novel diagnostic, prognostic and/or predictive biomarkers and, most importantly, novel therapeutic targets and subsequently validate them in preclinical models.</p> <p><b>10. Molecular determinants and therapeutic vulnerabilities of 12q-amplified tumors (Supervisor dr. Roberta Maestro, co-supervisor dr. Luca Sigalotti - CRO Aviano National Cancer Institute)</b></p> <p>The amplification of the chromosome region 12q13-15 is a common finding in different tumors and is a hallmark of a subset of sarcomas (well-differentiated and dedifferentiated liposarcomas, intimal sarcomas, and low-grade osteosarcomas). This region harbors three oncogenes, MDM2, CDK4, and HMGA2, which are considered major oncogenic drivers. However, the 12q13-15 amplicon encompasses several additional coding and non-coding genes whose role in the biology of 12q-amplified tumors remains to be defined. The consistence of the expression pattern of co-amplified genes suggests that most of these genes have a role in tumor biology. Based on these premises, this project aims at defining the biological significance of the genes included in the 12q amplicon, elucidate their functional interplay and identify potential synthetic lethal interactions. To address these issues, we will make use of state-of-the-art approaches, including functional genomics, drug screenings and multi-omics profiling.</p>
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**TABLE 4 – PhD Programme in MOLECULAR MEDICINE**

	<p><b>11. Definition of host immunogenomic features to be included in a multiparametric model for predicting response to neoadjuvant chemoradiation in gastrointestinal cancer (Supervisor dr. Erika Cecchin - CRO Aviano National Cancer Institute)</b></p> <p>In patients with locally advanced rectal cancer (LARC) and other gastrointestinal cancers treated with neoadjuvant chemoradiation (nCRT), pathological complete response (pCR) is associated with favorable long-term outcome. Early identification of patients who may have pCR is an unmet clinical need to avoid under- or over- treatment and could be used as a criterion for multimodality treatment selection. Activation of the immune system plays a crucial role in the local and systemic effects of nCRT. This group previously highlighted an association between germline polymorphisms in immuno-related genes and pCR occurrence and prognosis in gastrointestinal cancer patients treated with fluoropyrimidine-based nCRT. Host immune related genomic features will be analyzed in prospectively collected biological samples from an already existing biobank of gastrointestinal cancer patients clinically characterized. Advanced bioinformatic techniques will be applied to select the predictive features of pCR and to integrate them in a multiparametric model.</p> <p><b>12. Study of disease modifying mechanisms and their therapeutic potential in Gaucher disease (GD) (Supervisor dr.ssa Andrea Dardis (Azienda sanitaria universitaria Friuli Centrale)</b></p> <p>Gaucher disease (GD) is an autosomal recessive lysosomal storage disorder caused by the deficient activity of lysosomal <math>\beta</math>-glucocerebrosidase (GCase) enzyme, encoded by the GBA1 gene. The enzymatic defect leads to the accumulation of glucosylceramide (GlcCer) within the lysosomes, particularly in monocytes and macrophages. The disease has been classified into three major clinical phenotypes: type 1 GD, the most common phenotype, presenting only visceral symptoms; type 2 GD, a rare phenotype associated with an acute neurodegenerative course and a life expectancy of about 2 years, and type 3 GD, a chronic neuronopathic GD, which is compatible with survival into adulthood. Two therapeutic modalities, enzyme replacement therapy (ERT) and substrate reduction therapy (SRT), have been approved only for GD1, while no treatment is available for GD2 and GD3. Beyond this classification, the age at onset, clinical manifestations and response to therapy are remarkably heterogeneous even among patients with the same clinical subtype. To date, more than 500 pathogenic variants of the GBA1 gene have been reported in GD patients and they explain only part of the phenotypic variability. Indeed, for several GBA1 genotypes, a considerable variability in disease severity is documented, even among monozygotic twins. Therefore, it has become clear that GD is not a strictly monogenic disorder, but exhibits features of a complex disease, in which modifier genes, and other unknown factors, strongly dictate the expression of symptoms. Identification and therapeutic exploitation of these factors represent a high priority for the GD community. Therefore, by applying a multi-omic approach this project aims at identifying compensatory and aggravating mechanisms associated with disease severity and response to therapy. The generated data will be exploited to develop new therapeutic interventions.</p> <p><b>13. Systems Biology using <i>C. elegans</i>: The influence of genetic variations on drug response (Supervisor prof. Gennaro Esposito, co-supervisors prof. Fabio Piano and Dr. Hala Fahs – New York University in Abu Dhabi)</b></p>
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**TABLE 4 – PhD Programme in MOLECULAR MEDICINE**

	<p>Inter-individual genetic variation can have profound effects on drug action, influencing drug efficacy and safety, yet the underlying mechanisms are poorly understood. Studying how natural genetic variations affect individual responses to drugs is a major challenge in pharmacogenomics. The nematode <i>Caenorhabditis elegans</i> is a powerful model genetic system to study animal development and physiology, leading to five Nobel Prize winners. Paralleling human data, diverse natural strains of <i>C. elegans</i> can react differently to the same drug. The <i>C. elegans</i> Natural Diversity Resource (CeNDR), harbors genomic information about hundreds of <i>C. elegans</i> strains that were collected worldwide from natural habitats. A high-throughput robotic platform with quantitative image analysis for <i>C. elegans</i> drug screening is available for the proposed project that aims to investigate the effect of chemical perturbations in a variety of natural <i>C. elegans</i> strains and disease mutants. The project will follow three specific aims. First, known compounds showing nematocidal or paralytic activity will be studied for their quantitative responses (IC50) in the genetically diverse natural isolates. Second, genome-wide association (GWA) mappings coupled with metabolomics studies will be used to determine the molecular cause of phenotypic variation. Third, the specific case of an established amyloid aggregation model using <i>C. elegans</i> will be explored in the context of transgenic mutants, diverse genetic backgrounds, and different drugs. The findings will potentially enhance our understanding of personalized medicine and contribute to the development of more effective and tailored therapeutic interventions.</p> <p>Some research programs may be financed later, within the time limits set in the Call.</p>
<b>Programme website</b>	<p><a href="https://www.uniud.it/it/ricerca/lavorare-nella-ricerca/dottorato-ricerca/inostricorsi/area-life-science/scienze-biomediche-e-biotecnologiche/il-dottorato">https://www.uniud.it/it/ricerca/lavorare-nella-ricerca/dottorato-ricerca/inostricorsi/area-life-science/scienze-biomediche-e-biotecnologiche/il-dottorato</a>  <a href="https://www.uniud.it/it/ateneo-uniud/ateneo-uniud-organizzazione/dipartimenti/dame/ricerca/dottorati/biomedical-biotechnological-sciences">https://www.uniud.it/it/ateneo-uniud/ateneo-uniud-organizzazione/dipartimenti/dame/ricerca/dottorati/biomedical-biotechnological-sciences</a></p>

**ADMISSION REQUIREMENTS**

<b>Required degree</b>	<p>Italian Laurea (before DM 509/99) or Italian Laurea Specialistica/Magistrale (ex DM 509/1999 and DM 270/04) or equivalent degree obtained abroad. Foreign degrees and titles: refer to art. 3 and 4 of the Call.</p>
<b>Knowledge of the following foreign language</b>	English

**DOCUMENTS AND TITLES TO BE ATTACHED TO THE APPLICATION FOR ADMISSION**

<b>Mandatory documents (art. 5 of the Call)</b>	<ol style="list-style-type: none"> <li>1. Certification or self-certification (pursuant to art. 5 c. 5 of the Call) of the academic qualification for admission to the doctoral program (Italian Laurea Specialistica/Magistrale or Italian Laurea before DM 509/99 or foreign degree);</li> <li>2. Curriculum vitae et studiorum, dated and signed, with emphasis on pre-doctoral experiences and on thesis activity (description of techniques acquired, personal contribution, etc.);</li> <li>3. Copy of a valid identity document (citizens of countries not belonging to the European Union a copy of a valid passport, comprehensive of the pages containing the holder's photo, personal details, passport number, date and place of issue, date of expiry).</li> <li>4. Research project, dated and signed, developed in accordance with one of the proposed research topics of the PhD program (approximate limit 10,000 characters, included spaces, in English).</li> </ol>
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**TABLE 4 – PhD Programme in MOLECULAR MEDICINE**

<b>Optional documents</b> (art. 5 of the Call)	<ol style="list-style-type: none"> <li>1. Master thesis (“Tesi di Laurea”) associated to the degree/title providing access to the PhD programme. Applicants who are not graduated on the expiration date of this Call can submit an extended abstract in place of the complete thesis, in Italian or English, signed by themselves and by their thesis Supervisor (approximate limit: 25,000 characters, included spaces);</li> <li>2. Motivation letter by which the applicant explains the reasons for admission to the PhD program, dated and signed (approximate limit: 1,000 characters, included spaces);</li> <li>3. Publications (max 2);</li> <li>4. Letters of reference (max 2) written by university professors, scientific researchers or other experts in the field (art. 6 of the Call).</li> </ol>
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**SELECTION COMMITTEE**

<b>Appointed Members</b>	Alessandra Corazza – Associate professor – University of Udine Barbara Frossi – Associate Professor – University of Udine Giulia Antoniali – Associate professor – University of Udine
<b>Substitute Members</b>	Gianluca Tell – Full Professor – University of Udine Claudio Brancolini – Full Professor – University of Udine Giovanna Lippe – Full Professor – University of Udine

**ADMISSION**

**GENERAL COMPETITION (art. 8 of the Call for Applications)**

**Positions available: 10**

<i>Detailed description</i>	<i>N.</i>	<i>Funding</i>	<i>Annual gross amount</i>	<i>Period abroad</i>	<i>Research program</i>
<b>Positions WITH SCHOLARSHIP: 9</b>	<b>2</b>	University of Udine	€ 17,805.00	max 6 months optional	1, 2, 3,4
	<b>1</b>	External Institution: Department of Medicine (DMED)	€ 17,805.00	max 6 months optional	5
	<b>2</b>	Regional Programme (PR) ESF+ 2021/2027 of the Autonomous Region Friuli Venezia Giulia (Decree n. 17895/GRFVG of 19 April 2023) and subsequently amended and supplemented – CUP G23C23001130008*	€ 17,805.00	max 6 months optional	6, 7, 8
	<b>3</b>	Associated Institution: CRO-Aviano with legal venue in Aviano (UD)	€ 17,805.00	max 6 months optional	9, 10, 11
	<b>1</b>	External Institution: University Health Company Central Friuli (ASUFC)*	€ 17,805.00	max 6 months optional	12
<b>Positions</b>	<b>1</b>	-	-	max 6 months	13

Si è beneficiato del sostegno cofinanziato dal Fondo Sociale Europeo Plus della Regione Autonoma Friuli Venezia Giulia

**TABLE 4 – PhD Programme in MOLECULAR MEDICINE**

<b>WITHOUT SCHOLARSHIP: 1</b>				optional	
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\*Scholarships funded by "External Institutions" and associated locations can be assigned subject to the successful completion of the agreement that governs their funding or the decree's issuance granting funding or approving the operation (art. 13 p. 7).

<b>Competition procedure and test schedule</b>		
<p>Evaluation of qualifications and oral examination. For the evaluation of applicants' attitude for scientific research and their basic skills to tackle the course program, the Selection Committee can attribute up to 100 points to each applicant: max 30 points to the titles and max 70 points to the oral examination. Applicant is admitted to the oral examination if his/her titles receive at least 15 points. The oral examination is passed with at least 49 points. The applicant is eligible to the PhD program if he/she passes the oral examination. Only for eligible applicants, the points attained in the oral examination will be added to the points of the titles. <b>DATE FOR THE PUBLICATION OF ADMITTED APPLICANTS TO THE INTERVIEW: within 11 July, 2024</b> <b>DATE FOR THE PUBLICATION OF THE FINAL RANKING LIST: within 21 July, 2024</b></p>		
<b>Foreign language that can be used for examination</b>	Italian or English	
<b>Evaluation Criteria of qualifications</b> <i>During the preliminary meeting the Selection Committee may establish sub-criteria for the evaluation</i>	Curriculum vitae	4
	Scientific publications	2
	Thesis/Abstract	3
	Letters of reference	2
	Motivation letter for admission to the PhD program	2
	Grades reported in the exams taken in the undergraduate programs	7
	Masters, additional training courses, experiences abroad, etc.	2
	Research project: - Central hypothesis - Objectives - Research Design	8
<b>Oral examination</b>	Part of the oral examination will be in English.	
<b>Calendar of the oral examination</b>	<b>Date</b>	<b>22 July 2024</b>
	<b>Time</b>	<b>09:30 AM (Italian time)</b>
	<b>Place</b>	<b>Department of Medicine (DMED), Seminar Room – Piazzale Kolbe 4, 33100 Udine ITALY</b>
	Based on the number of applicants, the oral examination may take more than one day. Applicants must exhibit a valid ID for admission to the oral examination. Citizens of non-EU states must show their passport.	

<b>RESEARCH PROGRAMS of ESF SCHOLARSHIPS</b>		
<b>Title</b>	<b>S4 Trajectory</b>	<b>Impact on the FVG Region</b>
<b>1:</b> Structural and functional characterization of Ovarian Cancer-related onco-miRNA containing G4-structures to identify novel anticancer drugs. <i>Prof. Gianluca Tell</i>	Area of specialization: Health, Quality of Life, Agrifood and Bioeconomy.  Trajectory 4: Solutions and systems for innovative therapies: integrated development of drugs and biopharmaceuticals (biotech) for personalised and sustainable medicine.	Chemotherapy combined with DNA-damaging agents and DNA repair enzyme inhibitors represents a promising direction to promote synthetic lethality. In this line, our project will identify small molecules that act as effective tools for the development of new anti-cancer agents that may provide extensive benefits to patients in the FVG region with clear advantages in improving quality of life and cost savings for the Regional Health System.





**TABLE 4 – PhD Programme in MOLECULAR MEDICINE**

<p><b>2:</b> Molecular and metabolic signatures that characterize B cells in health and disease (autoimmune disease, chronic inflammation, cancer). <i>Prof. Carlo Pucillo and prof.ssa Barbara Frossi</i></p>	<p>Area of specialization: Health, Quality of Life, Agrifood and Bioeconomy.</p> <p>Trajectory 4: Solutions and systems for innovative therapies: integrated development of drugs and biopharmaceuticals (biotech) for personalised and sustainable medicine.</p>	<p>Understanding the role of B-cells in the different stages of the disease will help understand its pathogenetic mechanisms and develop new therapeutic approaches. Patients in the region will benefit from a highly personalised therapy, currently unavailable, targeting B-cells, resulting in improved quality of life and cost savings for the regional health system (reduced hospitalisation, increased effectiveness of treatment).</p>
<p><b>3:</b> Investigating the role of iRhom2 in cardiovascular diseases. <i>Prof. Antonio Beltrami</i></p>	<p>Area of specialization: Health, Quality of Life, Agrifood and Bioeconomy.</p> <p>Trajectory 4: Solutions and systems for innovative therapies: integrated development of drugs and biopharmaceuticals (biotech) for personalised and sustainable medicine.</p>	<p>The following project aims to validate and use iRhom2 as a therapeutic target for CVDs. The development of a drug that inhibits the activity of this protein would allow a substantial improvement in modern therapies, which could be used in other pathological contexts where iRhom2 plays a role such as Alzheimer's, ischaemia and reperfusion injury in transplants and various inflammatory diseases. The FVG region would benefit from this project by being the leader in the development of the drug and its patents and thus the resulting public and private investments. Moreover, patients in the region could be among the first beneficiaries of the treatment, with important health benefits and economic savings for the regional health system.</p>



Si è beneficiato del sostegno cofinanziato dal Fondo Sociale Europeo Plus della Regione Autonoma Friuli Venezia Giulia

**TABLE 5 – PhD Programme in FOOD SCIENCE**

<b>THE PhD PROGRAMME</b>	
<b>Administrative location</b>	University of Udine - Department of Agricultural, Food, Environmental and Animal Sciences (DI4A) – via delle Scienze n. 206, 33100 Udine,
<b>Associated location</b>	-
<b>Location for training, teaching and research activity</b>	Teaching and other training activities will take place primarily at the administrative programme location or in other locations of the University of Udine. The research program will be mainly developed, with reference to the scholarship (see art. 10 and 13 of the Call) and/or to the supervisor assigned, at the administrative programme location, other locations of the University of Udine or financial supporter's location (if the financial supporter is an external institution).
<b>Coordinator</b>	Prof. Walter Baratta (walter.baratta@uniud.it)
<b>Programme duration</b>	3 years
<b>Curriculum</b>	-
<b>Research topics</b>	<ul style="list-style-type: none"> <li>– Chemical, physical, microbiological, nutritional and sensory aspects of foods</li> <li>– Innovative technological approaches to ensure safety, improve quality and extend the shelf-life of foods</li> <li>– Strategies to improve the nutritional and technological functions of ingredients and foods</li> <li>– Development of innovative foods and processes</li> <li>– Relationship between the structure of foods and their sensorial, nutritional and technological performances</li> <li>– Relationship between diet and health</li> <li>– Monitoring, prevention and reduction of biological, chemical and physical contamination</li> <li>– Optimization and study of microbial fermentations for food and beverage production</li> <li>– Relationships/interactions between food microbiota and human microbiota/microbiome</li> <li>– Genetic and physiological characterization of microbial strains relevant for food</li> <li>– Development and validation of innovative methods and tools (analytical devices, sensors and green biosensors) to define food quality, traceability and safety</li> <li>– Development of rapid methods for in situ analysis and monitoring of biological processes in food</li> <li>– Development of eco-sustainable packaging</li> <li>– Improving sustainability in the food sector</li> <li>– Use of waste from the agri-food chain for the production of food / ingredients / bioactive molecules / packaging materials</li> <li>– Reduction of the environmental impact, of the emission of polluting substances and energy saving in the food sector.</li> </ul>
<b>Research programmes</b>	<ol style="list-style-type: none"> <li>1. Development of novel technologies to ensure safety, improve quality and extend the shelf-life of foods;</li> <li>2. Development of technological strategies to improve the bioaccessibility of nutrients and bioactive compounds;</li> <li>3. Development of innovative “green” packaging for food safety</li> <li>4. Innovative methods for diagnostics, for the study of biodiversity and of the particular technological and pro/postbiotic attitudes of microorganisms of food and health interest;</li> </ol>



Si è beneficiato del sostegno cofinanziato dal Fondo Sociale Europeo Plus della Regione Autonoma Friuli Venezia Giulia

**TABLE 5 – PhD Programme in FOOD SCIENCE**

	<p>5.Strategies for prevention and reduction of microbial contamination; 6.Development of innovative methods and tools for food safety evaluation and/or processing systems suitable to guarantee health protection, food traceability, as well as monitor environmental, processing and packaging contaminants (biotic and abiotic) in foods; 7.Development and production, also by fermentative processes, of bioactive molecules, their transformations and impact on human health; 8.Development of processes for the transformation of waste products into food / ingredients / bioactive molecules</p>
<b>Programme website</b>	<a href="https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-life-science/scienze-degli-alimenti/ph-d-programme/scienze-degli-alimenti?set_language=en">https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-life-science/scienze-degli-alimenti/ph-d-programme/scienze-degli-alimenti?set_language=en</a>

**ADMISSION REQUIREMENTS**

<b>Required degree</b>	Italian Laurea (before DM 509/99) or Italian Laurea Specialistica/Magistrale (ex DM 509/1999 and Decree DM 270/04) or equivalent degree obtained abroad. Foreign degrees and titles: refer to art. 3 and 4 of the Call.
<b>Knowledge of the following foreign language</b>	English

**DOCUMENTS AND QUALIFICATIONS TO BE ATTACHED TO THE APPLICATION FOR ADMISSION**

<b>Mandatory documents (art. 5 of the Call) UNDER PENALTY OF EXCLUSION</b>	<ol style="list-style-type: none"> <li>1. Certification or self-certification (pursuant to art. 5 c. 5 of the Call) of the academic qualification for admission to the doctoral program (Italian Laurea Specialistica/Magistrale or Italian Laurea before DM 509/99 or foreign degree).</li> <li>2. Curriculum vitae et studiorum, dated and signed;</li> <li>3. Copy of a valid identity document (citizens of countries not belonging to the European Union a copy of a valid passport, comprehensive of the pages containing the holder's photo, personal details, passport number, date and place of issue, date of expiry);</li> <li>4. Research project, dated and signed, developed under the research programs listed in this table (approximate limit: 10,000 characters, included spaces, in English).</li> </ol>
<b>Optional documents (art. 5 of the Call)</b>	<ol style="list-style-type: none"> <li>1. Master thesis ("Tesi di laurea") associated to the degree/title providing access to the PhD programme. Applicants who are not graduated on the expiration date of this Call can submit an extended abstract in place of the complete thesis, in Italian or English signed by themselves and by their thesis Supervisor (approximate limit: 25,000 characters, included spaces);</li> <li>2. Publications (max 2);</li> <li>3. Letters of reference (max 2), from university professors, scientific researchers or other experts in the field (art. 6 of the Call).</li> </ol>

**All qualifications must be submitted exclusively in PDF format, dated and signed by the candidate.**

**SELECTION COMMITTEE**

<b>Appointed members</b>	Walter Baratta – Full Professor – University of Udine Lara Manzocco – Associate Professor – University of Udine Giuseppe Comi – Full Professor – University of Udine
<b>Substitute members</b>	Rosanna Toniolo – Associate Professor – University of Udine Marisa Manzano – Associate Professor – University of Udine



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**TABLE 5 – PhD Programme in FOOD SCIENCE**

ADMISSION					
GENERAL COMPETITION (art. 8 of the Call for Applications)					
Positions available: 5					
Detailed description	N.	Funding	Annual gross amount	Period abroad	Research program
Positions WITH SCHOLARSHIP: 5	3	Univ. Udine	€ 17,805.00	max 6 months optional	In line with the research topics.
	2	Regional Programme (PR) ESF+ 2021/2027 of the Autonomous Region Friuli Venezia Giulia (Decree n. 17895/GRFVG of 19 April 2023) and subsequently amended and supplemented – CUP G23C23001130008*	€ 17,805.00	max 6 months optional	<p><b>1:</b> Development of innovative functional foods exploiting waste deriving from the transformation of plant-based foods of interest of the FVG region.</p> <p><b>2:</b> Analytical devices constructed by sustainable and/or waste materials from agro-food production for food quality and food loss and waste control.</p> <p><b>3:</b> Development of analytical methodologies and smart sensors aimed at integrating and improving the food safety and quality of sustainable supply chains.</p> <p><i>Description at "Research programs of ESF scholarships"</i></p>
Positions WITHOUT SCHOLARSHIP: 0	0	-	-	-	-

\*Scholarships funded by "External Institutions" and associated locations can be assigned subject to the successful completion of the agreement that governs their funding or the decree's issuance granting funding or approving the operation (art. 13 p. 7).

Competition procedure and test schedule	
<p>Evaluation of titles and oral examination. For the evaluation of applicants' attitude for scientific research and their basic skills to tackle the course program, the Selection Committee can attribute up to 100 points to each applicant: max 30 points to the titles and max 70 points to the oral examination. Applicant is admitted to the oral examination if his/her titles receive at least 21 points. The oral examination is passed with at least 49 points. The applicant is eligible to the PhD programme if he/she passes the oral examination. Only for eligible applicants, the points attained in the oral examination will be added to the points of the titles.</p> <p><b>DATE FOR THE PUBLICATION OF ADMITTED APPLICANTS TO THE INTERVIEW: within July 5, 2024.</b> <b>DATE FOR THE PUBLICATION OF THE FINAL RANKING LIST: within July 31, 2024</b></p>	
Foreign language that can be used for examination	Italian or English



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**TABLE 5 – PhD Programme in FOOD SCIENCE**

<b>Evaluation Criteria of qualifications</b> <i>During the preliminary meeting the Selection Committee may establish sub-criteria for the evaluation</i>	Curriculum vitae et studiorum		10
	Research project		14
	Scientific publications		2
	Thesis/Abstract		2
	Letters of reference		2
<b>Oral examination</b>	Part of the oral examination will be in English.		
<b>Calendar of the oral examination</b>	<b>Date</b>	<b>July 16, 2024</b>	
	<b>Time</b>	<b>9:00 AM (Italian time)</b>	
	<b>Place</b>	Department of Agricultural, Food, Environmental and Animal Sciences (DI4A) – via Sondrio 2/A, 33100 Udine	
	Based on the number of applicants, the oral examination may take place in more than one day. To attend the examination tests, the candidates must exhibit a valid identity document or other personal identification document (possibly the same document attached to the application), under penalty of exclusion from the selection procedure. Citizens of non-EU states must mandatorily exhibit their passport.		





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**TABLE 5 – PhD Programme in FOOD SCIENCE**

RESEARCH PROGRAMS of ESF SCHOLARSHIPS		
Title	S4 Trajectory	Impact on the region FVG
<p><b>1:</b> Development of innovative functional foods exploiting waste deriving from the transformation of plant-based foods of interest of the FVG region. <i>Prof.ssa Sonia Calligaris</i></p>	<p>Area of specialization: Health, quality of life, Agro-food and bioeconomy of the Sustainable Smart Specialisation Strategy (S4) of the FVG region.</p> <p>Trajectories 1 and 5: systems and solutions for the maintenance of health: nutraceutical, food supplements, functional foods, medical nutrition functional cosmetics and development of an integrated bio-economical approach for the increase of the value of the local resources favouring the security and safety of the productions and the resilience of the chain value of the regional business system, through the integration of interventions for innovation of a sustainable and circular food-chain able to deliver value to consumers.</p>	<p>The research results will contribute for the development of the food-production sector of the region FVG by favouring the integration between food companies producing and commercializing food ingredients, food supplements and functional foods with health promoting capacity, with those transforming plant-based food and beverages. The final objective is to valorize wasted materials deriving from the processes of plant-based foods studying the feasibility of their conversion into sustainable and high-value ingredients, thus favoring the circular economy.</p> <p>The development of innovative health promoting ingredients from food waste typical of the local productions would allow food industries of FVG region to increase their competitiveness in the functional food sector.</p>
<p><b>2:</b> Analytical devices constructed by sustainable and/or waste materials from agro-food production for food quality and food loss and waste control. <i>Prof. Nicola Dossi</i></p>	<p>Area of specialization: Intelligent Factory and Sustainable Development of Made in Italy supply chains.</p> <p>Trajectory 1: solutions and technologies for product innovation.</p>	<p>This project aims to develop analytical devices capable of operating with minimal quantities of reagents and reduced energy consumption by exploiting simple and inexpensive construction approaches that guarantee maximum accessibility and replicability, in line with the principles of environmental, economic and social sustainability on which the 2030 Agenda is based.</p> <p>Their assembly will be carried out using sustainable materials such as paper or other biopolymers of protein or polysaccharide origin, reagents Generally Recognised as Safe (GRAS) and "green" solvents, favouring where possible substances which could represent a waste from regional agro-food production, in compliance with the principles of the 5Rs (Refuse, Reduce, Reuse, Repurpose, and Recycle).</p> <p>The assembled devices may be used as Point of Care (POC) systems and in some cases may be proposed as systems to be integrated directly into intelligent packaging to monitor indicators of the degree of ripeness, freshness and contamination of food, in order to enhance their properties and</p>



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**TABLE 5 – PhD Programme in FOOD SCIENCE**

		contribute to the reduction of food waste with a view to a circular economy that brings value to the consumer while enhancing the resources of the territory.
<p><b>3:</b> Development of analytical methodologies and smart sensors aimed at integrating and improving the food safety and quality of sustainable supply chains. <i>Prof.ssa Rosanna Toniolo</i></p>	<p>Areas of specialization: Health, Quality of Life, Agri-food, and Bioeconomy and Intelligent Factory and Sustainable Development of Made in Italy supply chains.</p> <p>Trajectories 5 and 1: Development of an integrated bio-economic approach to increase the value of territorial resources, favoring the safety and security of productions and the resilience of the value chains of the regional entrepreneurial system, through the integration of innovation interventions on sustainable and circular supply chains capable of bringing value to the consumer and Solutions and technologies for product innovation (1. Smart systems and machines).</p>	<p>The main objective of this project is to provide the food industry with cheaper and more efficient measurement approaches, with the aim of tangibly reducing food waste and ensuring food safety. The devices developed could have a significant impact for some regional companies, including Electrolux Italia, and for companies operating in the wine sector, contributing to innovation in the regional production system and improving the quality and sustainability of the product.</p> <p>The project will focus on two main themes:</p> <p>1) Low-cost sensors for monitoring volatile substances such as:</p> <p>a) CO<sub>2</sub> in refrigerated systems of industrial nature in order to guarantee the freshness of food and reduce food waste.</p> <p>b) SO<sub>2</sub> and other volatile substances particularly important in the wine sector to reduce the risk of contaminations and improve the quality of wine.</p> <p>2) Green sensors and biosensors for the control of safety and quality in local food supply chains:</p> <p>a) Devices designed to detect traces of allergens.</p> <p>b) Devices designed to detect contaminants, such as pesticide residues, at various stages of food production, from cultivation to processing and distribution.</p>



**TABLE 6 – PhD Programme in ENVIRONMENTAL AND ENERGY ENGINEERING SCIENCE**

<b>THE PhD PROGRAMME</b>	
<b>Administrative location</b>	University of Udine - Polytechnic Department of Engineering and Architecture (DPIA) - via delle Scienze 206, 33100 Udine, ITALY (tel.
<b>Associated location</b>	-
<b>Location for training, teaching and research activity</b>	Teaching and other training activities will take place primarily at the administrative programme location or in other locations of the University of Udine. The research program will be mainly developed, with reference to the scholarship (see art. 10 and 13 of the Call) and/or to the supervisor assigned, at one of these locations: administrative location, financial supporter's location (if the financial supporter is an external institution).
<b>Coordinator</b>	Prof. Cristian Marchioli (cristian.marchioli@uniud.it)
<b>Programme duration</b>	3 years
<b>Curriculum</b>	-
<b>Research topics</b>	<ul style="list-style-type: none"> <li>- Energy efficiency and sustainability of machines, processes and plants;</li> <li>- Materials for energy and/or environmental applications;</li> <li>- Catalysis Science and Technology;</li> <li>- Energy transport, conversion, storage and distribution;</li> <li>- Safety engineering and emergency management;</li> <li>- Chemical technologies and processes for energy and environment;</li> <li>- Computational transport phenomena;</li> <li>- UNESCO Chair - Safety for Disaster Risk Reduction and Resilience.</li> </ul> <p>The PhD Programme cooperates with the UNESCO Chair in Intersectoral Safety for Disaster Risk Reduction and Resilience.</p>
<b>Research programs</b>	Research programs will be decided by Teaching Board of the Ph.D. programme within the research topics.
<b>Course website</b>	<a href="https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-physical-science-and-engineering/environmental-and-energy-engineering-science/ph-d-programme/environmental-and-energy-engineering-science?set_language=en">https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-physical-science-and-engineering/environmental-and-energy-engineering-science/ph-d-programme/environmental-and-energy-engineering-science?set_language=en</a> <a href="https://phd.diegm.uniud.it/ees-phd/">https://phd.diegm.uniud.it/ees-phd/</a>

<b>ADMISSION REQUIREMENTS</b>	
<b>Required degree</b>	Italian Laurea (before DM 509/99) or Italian Laurea specialistica/magistrale (ex DM 509/1999 and DM 270/04) or equivalent degree obtained abroad. Foreign degrees and titles: refer to art. 3 and 4 of the Call.
<b>Knowledge of the following foreign language</b>	English

<b>DOCUMENTS AND QUALIFICATIONS TO BE ATTACHED TO THE APPLICATION FOR ADMISSION</b>	
<b>Mandatory documents (art. 5 of the Call) UNDER PENALTY OF EXCLUSION</b>	<ol style="list-style-type: none"> <li>1. Certification or self-certification (pursuant to art. 5 c. 5 of the Call) of the academic qualification for admission to the doctoral program (Italian Laurea Specialistica/Magistrale or Italian Laurea before DM 509/99 or foreign degree);</li> <li>2. Curriculum vitae et studiorum, dated and signed;</li> </ol>



**TABLE 6 – PhD Programme in ENVIRONMENTAL AND ENERGY ENGINEERING SCIENCE**

	<p>3. Copy of a valid identity document (citizens of countries not belonging to the European Union a copy of a valid passport, comprehensive of the pages containing the holder's photo, personal details, passport number, date and place of issue, date of expiry);</p> <p>4. Research project, dated and signed, developed under the topics listed in this table (approximate limit 10,000 characters, included spaces, in English);</p> <p>5. Motivational letter, dated and signed, by which the applicant explains the reasons for admission to the PhD programme (approximate limit 2,500 characters, included spaces).</p>
<b>Optional documents (art. 5 of the Call)</b>	<p>1. Master thesis ("Tesi di Laurea") associated to the degree/title providing access to the PhD programme. Applicants who are not graduated on the expiration date of this Call can submit an extended abstract in place of the complete thesis, in Italian or English, signed by themselves and by their thesis Supervisor (approximate limit 10,000 characters, included spaces);</p> <p>2. Publications (max 2);</p> <p>3. Letters of reference (max 2), from university professors, scientific researchers or other experts in the field (art. 6 of the Call).</p>
<b>All titles must be submitted exclusively in PDF format, dated and signed by the candidate.</b>	

**SELECTION COMMITTEE**

<b>Appointed members</b>	<p>Sara Colussi – Associate Professor – University of Udine Stefano Grimaz – Associate Professor – University of Udine Cristian Marchioli – Full Professor – University of Udine Antonella Meneghetti – Full Professor – University of Udine Daniele Zuccaccia – Associate Professor – University of Udine</p>
<b>Substitute members</b>	<p>Francesco Andreatta – Associate Professor – University of Udine Paola D'Agaro – Associate Professor – University of Udine Andrea Melchior – Associate Professor – University of Udine</p>

**ADMISSION**

**GENERAL COMPETITION (art. 8 of the Call for Applications)**

**Positions available: 6**

<i>Detailed description</i>	<i>N.</i>	<i>Funding</i>	<i>Annual gross amount</i>	<i>Period abroad</i>	<i>Research program</i>
<b>Positions WITH SCHOLARSHIP: 6</b>	<b>2</b>	Univ. of Udine	€ 19,367.00	max 6 months optional	In line with the research topics of the PhD programme
	<b>3</b>	Regional Programme (PR) ESF+ 2021/2027 of the Autonomous Region Friuli Venezia Giulia (Decreto n. 17895/GRFVG of 19	€ 19,367.00	max 6 months optional	<p><b>1:</b> Dynamics of micro- and nano-plastics in turbulent flow.</p> <p><b>2:</b> Innovative technologies for CO2 capture and storage.</p> <p><b>3:</b> Nanostructured catalysts for hydrogen</p>



**TABLE 6 – PhD Programme in ENVIRONMENTAL AND ENERGY ENGINEERING SCIENCE**

Positions available: 6					
		April 2023) and subsequently amended and supplemented – CUP G23C23001130008*			production by ammonia decomposition. <b>4:</b> Environmentally friendly mechano-chemical synthesis of pharmaceuticals, cosmetics and fine chemicals from biomass waste. <b>5:</b> Recovery of critical raw materials: speciation, structure and modeling of separation processes. <b>6:</b> Rare earth compounds for sensing and diagnostics: speciation, structure and spectroscopic properties. <b>7:</b> Development of CO2 hydrogenation catalysts for the valorization of renewable resources. <i>Description at "Research programs of ESF scholarships"</i>
	<b>1</b>	UNESCO Chair on Intersectoral Safety for Disaster Risk Reduction and Resilience	€ 19,367.00	max 6 months optional	Intersectoral safety for disaster risk reduction and resilience <a href="https://phd.diegm.uniud.it/eees-unesco-chair/">https://phd.diegm.uniud.it/eees-unesco-chair/</a>
<b>Positions WITHOUT SCHOLARSHIP: 0</b>	<b>0</b>	-	-	-	-

\*Scholarships funded by "External Institutions" and associated locations can be assigned subject to the successful completion of the agreement that governs their funding or the decree's issuance granting funding or approving the operation (art. 13 p. 7).

Competition procedure and test schedule		
<p>Evaluation of qualifications and oral examination. For the evaluation of applicants' attitude for scientific research and their basic skills to tackle the course program, the Selection Committee can attribute up to 100 points to each applicant: max 30 points to the titles and max 70 points to the oral examination. The applicant is admitted to the oral examination if his/her titles receive at least 21 points. The oral examination is passed with at least 49 points. The applicant is eligible to the PhD programme if he/she passes the oral examination. Only for eligible applicants, the points attained in the oral examination will be added to the points of the titles.</p> <p><b>DATE FOR THE PUBLICATION OF ADMITTED APPLICANTS TO THE INTERVIEW: within July 1, 2024.</b> <b>DATE FOR THE PUBLICATION OF THE FINAL RANKING LIST: within July 31, 2024.</b></p>		
Language that can be used for the exam	Italian or English	
Evaluation Criteria of qualifications	Curriculum vitae et studiorum	12





**TABLE 6 – PhD Programme in ENVIRONMENTAL AND ENERGY ENGINEERING SCIENCE**

<i>During the preliminary meeting the Selection Committee may establish sub-criteria for the evaluation</i>	Research Project	6
	Scientific publications	2
	Thesis/Abstract	4
	Letters of reference	2
	Motivational letter for admission to the PhD programme.	4
<b>Oral examination</b>	Interview based on technical, motivational and scientific discussion.	
<b>Calendar of the oral examination</b>	<b>Date</b>	<b>July 11, 2024</b>
	<b>Time</b>	<b>02:00 PM (Italian time)</b>
	<b>Place</b>	Polytechnic Department of Engineering and Architecture (DPIA), Sala Riunioni Verde (Meeting room "Sala Verde") DPIA – via delle scienze 206, 33100 Udine.
	Based on the number of applicants, the oral examination may take place in more than one day. To attend the examination tests, the candidates must exhibit a valid identity document or other personal identification document (possibly the same document attached to the application), under penalty of exclusion from the selection procedure. Citizens of non-EU states must mandatorily exhibit their passport.	

**RESEARCH PROGRAMS of ESF SCHOLARSHIPS**

<b>Title</b>	<b>Trajectory S4</b>	<b>Impact on FVG Region</b>
<b>1:</b> Dynamics of micro- and nano-plastics in turbulent flow. <i>prof. Cristian Marchioli</i>	Specialization Area: Health, Quality of Life, Agribusiness and Bioeconomy. Trajectory 5. Development of an integrated bi-economic approach for increasing the value of territorial resources by promoting the productions safety (safety and security) and the resilience of the value chains of the regional entrepreneurial system, through the integration of innovation interventions on sustainable and circular supply chains capable of bringing value to the consumer.	The study of the dispersion dynamics of micro- and nano-plastics generated by human activities in the atmosphere or in large bodies of water (characterized by the presence of turbulent phenomena) will make it possible to understand how micro-/nano-plastics can impact on soil fertility, e.g. for agricultural use, or on coastal and lagoon areas in the region. It will also allow to improve the environmental sustainability of the materials produced and used in the processes that generate micro/nano-plastics, by correlating dispersion dynamics (where micro/nano-plastics concentrate in the environment) with the chemical-physical and geometric properties of micro/nano-plastics, thus fostering industrial innovation. Finally, the project will enable the University of Udine to become a point of reference for the industrial sector thanks to the expertise in terms of physical modelling and numerical characterization of the dispersion process that will be developed thanks to the PhD student recruited.
<b>2:</b> Innovative technologies for CO2 capture and storage. <i>prof. Cristian Marchioli</i>	Specialization Area: Energy transition, circular economy and environmental sustainability	Plants equipped with carbon dioxide (CO2) capture systems from coal gasification processes are an intrinsically clean system for energy production and, therefore, are particularly appropriate from an environmental viewpoint. The development of innovative and efficient



**TABLE 6 – PhD Programme in ENVIRONMENTAL AND ENERGY ENGINEERING SCIENCE**

	Trajectory 3. Maximum energy efficiency systems for industry.	technologies for the capture and confinement of CO <sub>2</sub> , known as CCS technologies, can certainly contribute to the transition of the energy system towards a de-carbonized future, with clear benefits in terms of industrial sustainability and the environmental impact of production processes in the region. Moreover, the project will enable the University of Udine to become a point of reference for the industrial sector thanks to the expertise in terms of physical modelling and experimental characterization of CCS processes that will be developed thanks to the PhD student recruited.
<b>3:</b> Nanostructured catalysts for hydrogen production by ammonia decomposition. <i>prof. Sara Colussi</i>	Specialization Area: Energy transition, circular economy and environmental sustainability. Trajectory 1: Application of circular economy at the system level (area, network, supply chain). Trajectory 3: Maximum energy efficiency systems for industry). Specialization Area: Intelligent Factory and Sustainable Development of Made in Italy supply chains. Trajectory 3: Solutions and technologies for process innovation.	The research contributes to the implementation of the use of hydrogen as an energy vector, and in this sense is fully part of the North Adriatic Hydrogen Valley project promoted by the FVG Region to foster the decarbonisation process of regional economic and energy systems. The issue can have a significant impact on the use and dissemination of hydrogen-based technologies in the region, eliminating the problems associated with its transport and storage.
<b>4:</b> Environmentally friendly mechano-chemical synthesis of pharmaceuticals, cosmetics and fine chemicals from biomass waste. <i>prof. Daniele Zuccaccia</i>	Specialization Area: Energy transition, circular economy and environmental sustainability. Trajectory 1: Application of circular economy at the system level (area, network, supply chain). Trajectory 3: Maximum energy efficiency systems for industry).	Development of new technologies with reduced environmental impact and possible industrial scale-up for a sustainable ecological transition in the regional production of biomass waste products.
<b>5:</b> Recovery of critical raw materials: speciation, structure and modeling of separation processes. <i>prof. Andrea Melchior</i>	Specialization Area: Energy transition, circular economy and environmental sustainability.	Generation of new knowledge in the Region FVG relevant to the recycling of critical raw materials from end-of-life products. The recovery of these important materials will be able to activate a circular economy capable of valorising waste and simultaneously reducing dependence on



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**TABLE 6 – PhD Programme in ENVIRONMENTAL AND ENERGY ENGINEERING SCIENCE**

	Trajectory 1: Application of circular economy at the system level (area, network, supply chain).	imports thus positively impacting on the supply chain. Furthermore, the early stage researcher will develop skills in a qualified context and international collaborations.
<b>6:</b> Rare earth compounds for sensing and diagnostics: speciation, structure and spectroscopic properties. <i>prof. Andrea Melchior</i>	Specialization Area: Health, Quality of Life, Agribusiness and Bioeconomy. Trajectory 2: Innovative biomedical solutions and systems: integrated medical devices development.	The proposed research will allow the acquisition of knowledge to develop luminescent probes for diagnostics, train a early stage researcher in the field, to interface with national and international collaboration networks and therefore overall improve skills and competitiveness in the FVG region.
<b>7:</b> Development of CO2 hydrogenation catalysts for the valorisation of renewable resources. <i>prof. Marta Boaro</i>	Specialization Area: Energy transition, circular economy and environmental sustainability. Trajectory 3: Maximum energy efficiency systems for industry).	The project contributes to: - develop new cross-sectoral and interdisciplinary skills in the region; - promote the green transition, through the innovation of supply chains for the production of alternative fuels and the exploitation of renewable resources; - promote the transfer of skills for the development of the region and new ecosystems for the development of a circular economy; - foster the achievement of the region's climate neutrality through the development of processes for the valorisation of CO2 and the use of alternative energy carriers (H2).



**TABLE 7 – PhD programme AGRICULTURAL SCIENCES AND BIOTECHNOLOGY**

<b>THE PhD PROGRAMME</b>	
<b>Administrative location</b>	University of Udine - Department of Agricultural, Food, Environmental and Animal Sciences (DI4A) – via delle Scienze n. 206, 33100 Udine,
<b>Associated location</b>	-
<b>Location for training, teaching and research activity</b>	Teaching and other training activities will take place primarily at the administrative programme location or in other locations of the University of Udine. The research program will be mainly developed, with reference to the scholarship (see art. 10 and 13 of the Call) and/or to the supervisor assigned, at one of these locations: administrative location, financial supporter's location (if the financial supporter is an external institution).
<b>Coordinator</b>	Prof. Stefano Bovolenta (stefano.bovolenta@uniud.it)
<b>Programme duration</b>	3 years
<b>Curricula</b>	1. Biology and plant production; 2. Biology and livestock science; 3. Biology of pathogens and plant protection.
<b>Research programs</b>	<p><b>Curriculum A. Biology and plant production</b></p> <p><b>A1.</b> Role of effectors in the modulation of nitrogen acquisition in plants (<i>supervisor: Laura Zanin, co-supervisor: Nicola Tomasi</i>)</p> <p><b>A2.</b> (FSE) Performance of multispectral / hyperspectral indexes and other non-destructive methods for the selective identification of grapevine biotic and abiotic stresses (<i>supervisor: Paolo Sivilotti</i>)</p> <p><b>A3.</b> (FSE) Use of bacteria (PGPR) strains to enhance the resilience of crops growing in phosphorous-deficient inducing conditions (<i>supervisor: Nicola Tomasi, co-supervisor: Laura Zanin</i>)</p> <p><b>A4.</b> Physiological responses of plants to abiotic stress in alpine environments (<i>supervisor: Marco Zancani, co-supervisor: Enrico Braidot</i>)</p> <p><b>A5.</b> (FSE) MetaBench: assessment of performance of metagenomic approaches (<i>supervisor: Fabio Marroni</i>)</p> <p><b>A6.</b> Breeding of raspberry for qualitative traits and resistance to biotic stress (<i>supervisor: Guido Cipriani</i>)</p> <p><b>Curriculum B. Biology and livestock science</b></p> <p><b>B1.</b> Feed efficiency and methane emissions: new assessment approaches in cattle farms (<i>supervisore: Mauro Spanghero, co-supervisore: Alberto Romanzin</i>)</p> <p><b>B2.</b> (FSE) Livestock-wildlife interactions in mountain dairy farm systems: socio-ecological and management implications (<i>supervisor: Edi Piasentier, co-supervisor: Marcello Franchini</i>)</p> <p><b>Curriculum C. Biology of pathogens and plant protection</b></p> <p><b>C1.</b> Investigations over epidemiological traits of grapevine yellows and molecular mechanisms underlying the pathogenesis of the associated phytoplasmas (<i>supervisor: Marta Martini, co-supervisors: Paolo Ermacora, Francesco Pavan</i>)</p>
<b>Programme website</b>	<a href="https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-life-science/agricultural-sciences-and-biotechnology/ph-d-programme/agricultural-sciences-and-biotechnology?set_language=en">https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-life-science/agricultural-sciences-and-biotechnology/ph-d-programme/agricultural-sciences-and-biotechnology?set_language=en</a>

**ADMISSION REQUIREMENTS**



**TABLE 7 – PhD programme AGRICULTURAL SCIENCES AND BIOTECHNOLOGY**

<b>Required degree</b>	Italian Laurea (before DM 509/99) or Italian Laurea specialistica/magistrale (ex DM 509/1999 and DM 270/04) or equivalent degree obtained abroad. Foreign degrees and titles: refer to art. 3 and 4 of the Call.
<b>Knowledge of the following foreign language</b>	English

**DOCUMENTS AND QUALIFICATIONS TO BE ATTACHED TO THE APPLICATION FOR ADMISSION**

<b>Mandatory documents (art. 5 of the Call) UNDER PENALTY OF EXCLUSION</b>	<ol style="list-style-type: none"> <li>1. Certification or self-certification (refer to art. 5 paragraph 5 of the Call) of the academic title needed for admission to the PhD programme (Laurea Specialistica/Magistrale programme or Italian programmes before D.M. 509/99 or foreign academic programmes;</li> <li>2. Curriculum vitae et studiorum, dated and signed;</li> <li>3. Copy of a valid identity document (citizens of countries not belonging to the European Union must attach a copy of a valid passport, comprehensive of the pages containing the holder's photo, personal details, passport number, date and place of issue, date of expiry);</li> <li>4. Statement concerning the choice of research program(s).</li> <li>5. Research project, dated and signed, drawn up in the framework of the research program indicated as first choice in the statement under point 4 (approximate length of the project in English: 10,000 characters, included spaces).</li> </ol>
<b>Optional documents (art. 5 of the Call)</b>	<ol style="list-style-type: none"> <li>1. Master thesis ("Tesi di Laurea") associated to the degree/title providing access to the PhD programme. Applicants who are not graduated by the expiration date of this call can submit an extended abstract in place of the complete thesis, in Italian or English, signed by themselves and by their thesis Supervisor (approximate limit: 25,000 characters, included spaces);</li> <li>2. Publications (max 2);</li> <li>3. Letters of reference (max 2), from university professors, scientific researchers or other experts in the field (art. 6 of the Call).</li> </ol>
<b>All qualifications must be submitted exclusively in PDF format, dated and signed by the candidate.</b>	

**SELECTION COMMITTEE**

<b>Appointed members</b>	Mirco Corazzin – Associate Professor - University of Udine Paolo Ermacora – Assistant Professor - University of Udine Fabio Marroni – Associate Professor - University of Udine Paolo Sivilotti – Associate Professor - University of Udine Mauro Spanghero – Full Professor - University of Udine Nicola Tomasi - Associate Professor - Università di Udine Marco Zancani - Associate Professor - University of Udine
<b>Substitute members</b>	Guido Cipriani - Full Professor – University of Udine Elisa Marraccini - Associate Professor – University of Udine Laura Zanin - Assistant Professor - University of Udine

**ADMISSION**

**GENERAL COMPETITION (art. 8 of the Call for Applications)**

**Positions available: 6**

<i>Detailed description</i>	<i>N.</i>	<i>Funding</i>	<i>Annual gross amount</i>	<i>Period abroad</i>	<i>Research program</i>
<b>Positions WITH SCHOLARSHIP: 6</b>	<b>3</b>	Univ. Udine	€ 17,805.00	max 6 months optional	A1, A4, A6, B1, C1 (one scholarship for each research program)





**TABLE 7 – PhD programme AGRICULTURAL SCIENCES AND BIOTECHNOLOGY**

Positions available: 6					
	3	Regional Programme (PR) ESF+ 2021/2027 of the Autonomous Region Friuli Venezia Giulia (Decree n. 17895/GRFVG of 19 April 2023) and subsequently amended and supplemented – CUP G23C23001130008*	€ 17,805.00	max 6 months optional	<p><b>1:</b> (A2) Performance of multispectral/hyperspectral indexes and other non-destructive methods for the selective identification of grapevine biotic and abiotic stresses.</p> <p><b>2:</b> (A3) Use of bacteria (PGPR) strains to enhance the resilience of crops growing in phosphorous-deficient inducing conditions.</p> <p><b>3:</b> (A5) MetaBench: assessment of performance of metagenomic approaches.</p> <p><b>4:</b> (B2) Livestock-wildlife interactions in mountain dairy farm systems: socio-ecological and management implications.</p> <p><i>Description at "Research programs of ESF scholarships"</i></p>
<b>Positions WITHOUT SCHOLARSHIP: 0</b>	0	-	-	-	-

\*Scholarships funded by "External Institutions" and associated locations can be assigned subject to the successful completion of the agreement that governs their funding or the decree's issuance granting funding or approving the operation (art. 13 p. 7).

Competition procedure and test schedule		
<p>Evaluation of qualifications and oral examination.</p> <p>For the evaluation of applicants' attitude for scientific research and their basic skills to tackle the course program, the Selection Committee can attribute up to 100 points to each applicant: max 30 points to the titles and max 70 points to the oral examination. The applicant is admitted to the oral examination if his/her titles receive at least 21 points. The oral examination is passed with at least 49 points. The applicant is eligible to the PhD programme if he/she passes the oral examination. Only for eligible applicants, the points attained in the oral examination will be added to the points of the titles.</p> <p><b>DATE FOR THE PUBLICATION OF ADMITTED APPLICANTS TO THE INTERVIEW: within July 11, 2024.</b></p> <p><b>DATE FOR THE PUBLICATION OF THE FINAL RANKING LIST: within July 31, 2024.</b></p>		
<b>Language that can be used for the exam</b>	Italian or English	
<b>Evaluation Criteria of qualifications</b> <i>During the preliminary meeting the Selection Committee may establish sub-criteria for the evaluation</i>	Curriculum vitae et studiorum	10
	Research project	10
	Scientific publications	2
	Thesis/Abstract	6
	Letters of reference	2
<b>Oral examination</b>	The oral examination is based on a discussion on the scientific titles submitted and includes an evaluation of English knowledge.	
<b>Calendar of the oral examination</b>	<b>Date</b>	<b>July 22, 2024</b>
	<b>Time</b>	<b>09:00 AM (Italian time)</b>
	<b>Place</b>	Department of Agricultural, Food, Environmental and Animal Sciences (DI4A), Bees room (B2-46) – via delle Scienze n. 206, 33100 Udine, ITALY



**TABLE 7 – PhD programme AGRICULTURAL SCIENCES AND BIOTECHNOLOGY**

	Based on the number of applicants, the oral examination may take place in more than one day. To attend the examination tests, the candidates must exhibit a valid identity document or other personal identification document (possibly the same document attached to the application), under penalty of exclusion from the selection procedure. Citizens of non-EU states must mandatorily exhibit their passport.
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RESEARCH PROGRAMS of ESF SCHOLARSHIPS		
Title	Trajectory S4	Impact on FVG Region
<p><b>1:</b> (A2) Performance of multispectral / hyperspectral indexes and other non-destructive methods for the selective identification of grapevine biotic and abiotic stresses. <i>Prof. Paolo Sivilotti</i></p>	<p>Area "Health, Quality of Life, Agribusiness and Bioeconomy". Trajectory 5: Development of an integrated bioeconomic approach for increasing the value of territorial resources by fostering the safety (safety and security) of productions and the resilience of the value chains of the regional entrepreneurial system, through the integration of innovation interventions on sustainable and circular supply chains capable of bringing value to the consumer.</p>	<p>In recent years, water stress events have become increasingly frequent, and alongside these, various phytosanitary issues are also affecting the wine sector. The calibration of multispectral/hyperspectral indices or other non-destructive methods could become an opportunity for winegrowers to:</p> <ul style="list-style-type: none"> <li>a. clearly identify water stress with the presence of disease;</li> <li>b. rationalise irrigation;</li> <li>c. provide a tool to work on pathogens in a preventive manner by limiting defence actions.</li> </ul>
<p><b>2:</b> (A3) Use of bacteria (PGPR) strains to enhance the resilience of crops growing in phosphorous-deficient inducing conditions. <i>Prof. Nicola Tomasi</i></p>	<p>Area "Health, Quality of Life, Agribusiness and Bioeconomy". Trajectory 5: Development of an integrated bioeconomic approach for increasing the value of territorial resources by fostering the safety (safety and security) of productions and the resilience of the value chains of the regional entrepreneurial system, through the integration of innovation interventions on sustainable and circular supply chains capable of bringing value to the consumer.</p>	<p>The research aims to evaluate the biostimulatory effects of the soil microbiome and of the root exudates to sustain the growth and resilience to abiotic stress of crops. This holistic approach would allow a reduction of the use of synthetic inputs (mineral fertilizers) and favor the use of nutrient sources which are already present in the soil but in forms poorly available for root acquisition, thus obtaining both an economic and environmental benefit (water quality, reduction of gaseous emissions into the atmosphere) and the use/re-use (circular economy) of organic sources of nutrients.</p>
<p><b>3:</b> (A5) MetaBench: assessment of performance of metagenomic approaches. <i>Prof. Fabio Marroni</i></p>	<p>Area "Health, Quality of Life, Agribusiness and Bioeconomy". Trajectory 5: Development of an integrated bioeconomic approach for increasing the value of territorial resources by fostering the safety (safety and security) of productions and the resilience of the value chains of the regional entrepreneurial system, through the integration of innovation interventions on sustainable and circular supply chains capable of bringing value to the consumer.</p>	<p>Metagenomic analyses have proven to be fundamental to studying phenomena related to the regional economy, such as viral diseases of grapevines, kiwi dieback and the microbiological composition of foods such as mozzarella and brovada. The standardisation of metagenomic analysis methodologies that the project aims at will significantly increase the safety of all the above-mentioned products.</p>
<p><b>4:</b> (B2) Livestock-wildlife interactions in mountain dairy farm systems: socio-ecological and management implications.</p>	<p>Area "Health, Quality of Life, Agribusiness and Bioeconomy". Trajectory 6: Enhancing the potential of the territory by supporting the development of</p>	<p>Extensive dairy cattle farming in mountainous areas not only provides high-quality products but also plays a territorial stewardship role, helping to combat degradation and maintain landscapes of</p>



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**TABLE 7 – PhD programme AGRICULTURAL SCIENCES AND BIOTECHNOLOGY**

<p><i>Prof. Edi Piasentier</i></p>	<p>smart and resilient local communities in full respect of biodiversity, mountain, rural and coastal ecosystems (including their ecosystem services) and by integrating into economic, social and environmental development the concepts of circularity and sustainability of extended bio-economic value chains (i.e. including logistics, distribution and marketing).</p>	<p>high environmental quality. In recent decades, the dramatic decline of these activities and livestock farming in general, particularly in the FVG Region, has led to a gradual re-naturalization of the territories and consequently a return of wildlife. The presence of wildlife, when not appropriately managed and monitored, can lead to predation, trophic competition, health issues, and damage to agricultural fields and equipment. Therefore, the study and adoption of innovative approaches and tools to promote forms of coexistence consistent with the territorial context are urgently needed, also in reference to the concept of One Health and Welfare (the health and well-being of humans and animals and environmental quality).</p>
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**TABLE 8 – PhD Programme MATHEMATICAL AND PHYSICAL SCIENCES**

<b>THE PhD PROGRAMME</b>	
<b>Administrative location</b>	University of Udine - Department of Mathematics, Computer Science and Physics (DMIF) – via delle Scienze 206, 33100 Udine, Italy (+39)
<b>Associated location</b>	-
<b>Location for training, teaching and research activity</b>	Teaching and other training activities will take place primarily at the administrative programme location or in other locations of the University of Udine. The research program will be mainly developed, with reference to the scholarship (see art. 10 and 13 of the Call) and/or to the supervisor assigned, at the administrative programme location, other locations of the University of Udine or financial supporter's location (if the financial supporter is an external institution).
<b>Coordinator</b>	Prof.ssa Roberta Musina (roberta.musina@uniud.it)
<b>Programme duration</b>	3 years
<b>Curriculum</b>	-
<b>Research topics</b>	- MATHEMATICS: Algebra and Topology; Numerical analysis; Mathematical and functional analysis; Algebraic geometry; Mathematical logic; Dynamical systems; Statistics; Operation research; Mathematics for applied economics and finance. - PHYSICS: Astrophysics; Physics education; Particle physics; Advanced detection systems; Bio- and Nanosystems simulation. More details at <a href="https://www.dmif.uniud.it/dottorato/smf/collegio-docenti/">https://www.dmif.uniud.it/dottorato/smf/collegio-docenti/</a>
<b>Research programs</b>	Decided by the Teaching Board within the PhD programme Research topics.
<b>Programme website</b>	<a href="https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-physical-science-and-engineering/mathematical-and-physical-sciences/ph-d-programme/mathematical-and-physical-sciences?set_language=en">https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-physical-science-and-engineering/mathematical-and-physical-sciences/ph-d-programme/mathematical-and-physical-sciences?set_language=en</a> <a href="https://www.dmif.uniud.it/dottorato/smf/">https://www.dmif.uniud.it/dottorato/smf/</a>

<b>ADMISSION REQUIREMENTS</b>	
<b>Required degree</b>	Italian Laurea (before DM 509/99) or Italian Laurea specialistica/magistrale (ex DM 509/1999 and DM 270/04) or equivalent degree obtained abroad. Foreign degrees and titles: refer to art. 3 and 4 of the Call.
<b>Knowledge of the following foreign language</b>	English

<b>DOCUMENTS AND TITLES TO BE ATTACHED TO THE APPLICATION FOR ADMISSION</b>	
<b>Mandatory documents (Art. 5 of the Call) UNDER PENALTY OF EXCLUSION</b>	1. Certification or self-certification (pursuant to art. 5 c. 5 of the Call) of the academic qualification for admission to the doctoral program (Italian Laurea Specialistica/Magistrale or Italian Laurea before DM 509/99 or foreign degree); 2. Curriculum vitae et studiorum, dated and signed; 3. Copy of a valid identity document (citizens of countries not belonging to the European Union a copy of a valid passport, comprehensive of the pages containing the holder's photo, personal details, passport number, date and place of issue, date of expiry);
<b>Optional documents (Art. 5 of the Call)</b>	1. Master thesis ("Tesi di Laurea") associated to the degree/title providing access to the PhD programme. Applicants who are not graduated on the expiration date of this Call must submit an extended abstract in place of the complete thesis, in Italian or English, signed by the thesis Supervisor (between 15,000 and 25,000 characters, included spaces).



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**TABLE 8 – PhD Programme MATHEMATICAL AND PHYSICAL SCIENCES**

	<p>2. Research project, dated and signed, referred to the research topics and research programs listed in this Table, with specific reference on the Teaching Board skills described in <a href="https://www.dmif.uniud.it/dottorato/smf/collegio-docenti/">https://www.dmif.uniud.it/dottorato/smf/collegio-docenti/</a> (between 5,000 and 10,000 characters, included spaces, in English);</p> <p>3. Motivation letter from the applicant explaining the reasons for admission to the PhD programme, dated and signed (between 1.500 and 2.500 characters, included spaces);</p> <p>4. Publications (max 3);</p> <p>5. Letters of reference (max 2) written by university professors, scientific researchers or other experts in the field (art. 6 of the Call).</p>
<b>All documents must be submitted exclusively in PDF format, dated and signed by the candidate.</b>	

<b>SELECTION COMMITTEE</b>	
<b>Appointed Members</b>	<p>Dimitri Breda – Associate Professor - University of Udine            Federico Fogolari - Associate Professor - University of Udine            Anna Giordano Bruno - Associate Professor - University of Udine            Valentina Mameli - Associate Professor - University of Udine            Simone Monzani - Assistant Professor - University of Udine</p>
<b>Alternate Members</b>	<p>Rossana Vermiglio – Full Professor - University of Udine            Andrea Molent - Assistant Professor - University of Udine            Marina Cobal - Full Professor - University of Udine            Roberta Musina - Full Professor - University of Udine</p>

**ADMISSION**

**GENERAL COMPETITION (art. 9 of the Call for Applications)**

<b>Positions available: 7</b>					
<i>Detailed description</i>	<i>N.</i>	<i>Funding</i>	<i>Annual gross amount</i>	<i>Period abroad</i>	<i>Research program</i>
<b>Positions WITH SCHOLARSHIP: 7</b>	<b>3</b>	Univ. Udine	€ 17,805.00	max 6 months optional	In line with the research topics of the PhD programme
	<b>3</b>	Regional Programme (PR) ESF+ 2021/2027 of the Autonomous Region Friuli Venezia Giulia (Decree n. 17895/GRFVG of 19 April 2023) and subsequently amended and supplemented – CUP G23C23001130008*	€ 17,805.00	max 6 months optional	<p><b>1:</b> Computational and data-driven methods for the analysis of advanced models for supply chains and sustainable processes</p> <p><b>2:</b> Advanced computational models for the dynamical analysis of complex systems</p> <p><b>3:</b> Tropical Geometry for Measuring Sustainability and Green Performance</p> <p><b>4:</b> Development of a computational pipeline and related methods, for genetic mutation analysis and drug development or repurposing. 1) Development of a curated integrative database of experimentally resolved structures and predictive models.</p>





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**TABLE 8 – PhD Programme MATHEMATICAL AND PHYSICAL SCIENCES**

					<p><b>5:</b> Development of a computational pipeline and related methods, for genetic mutation analysis and drug development or repurposing; 2) Development of methods to analyze and predict the impact of genetic mutations on protein structure, function and interactions</p> <p><b>6:</b> Creation of a prototype system to produce energy using the small waste biomass gasifier and the solar concentrator developed at the University of Udine. The system will be used to heat a small room and produce electricity in a completely autonomous way</p> <p><b>7:</b> Study and implementation of an integrated data acquisition and control system (DAQ and DCS) for the analysis and remote control of the system consisting of the small gasifier + solar concentrator developed in Udine and forming part of the Future Energy Park project of the University of Udine</p> <p><b>8:</b> Optimal control of navigation and autonomous navigation. <i>Description at "Research programs of ESF scholarships"</i></p>
	1	External Institution: INFN (National Institute for Nuclear Physics)*	€ 17,805.00	max 6 months optional	In line with the research topics of the PhD programme
<b>Positions WITHOUT SCHOLARSHIP: 0</b>	0	-	-	-	-

\*Scholarships funded by "External Institutions" and associated locations can be assigned subject to the successful completion of the agreement that governs their funding or the decree's issuance granting funding or approving the operation (art. 13 p. 7).

**Competition procedure and test schedule**

Evaluation of qualifications and oral examination.

For the evaluation of applicants' attitude for scientific research and their basic skills before the course program, the Selection Committee can attribute up to 100 points to each applicant: max 30 points to the titles and max 70 points to the oral examination. The applicant is admitted to the oral examination if his/her titles receive at least 15 points. The oral examination is passed with at least 49 points. The applicant is eligible for the PhD programme if he/she passes the oral examination. Only for eligible applicants, the points attained in in the oral examination will be added to the points of the titles.

**DATE FOR THE PUBLICATION OF ADMITTED APPLICANTS TO THE INTERVIEW: within June 28, 2024.**

**DATE FOR THE PUBLICATION OF THE FINAL RANKING LIST: within July 31, 2024.**

<b>Language that can be used for the exam</b>	Italian or English		
<b>Evaluation Criteria of qualifications</b>	Curriculum vitae et studiorum, Scientific publications, Reference letters		12



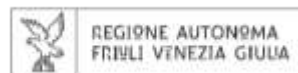
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**TABLE 8 – PhD Programme MATHEMATICAL AND PHYSICAL SCIENCES**

<i>During the preliminary meeting the Selection Committee may establish</i>	Thesis/Abstract	8
	Research project and Motivation letter	10
<b>Oral examination</b>	Interview about titles, previous career and research project also aimed at understanding the applicant's knowledge about fundamental topics in mathematics and/or physics, as well as his or her full eligibility to receive a scholarship funded by external institutions. Reading and understanding a short scientific text in English.	
<b>Calendar of the oral examination</b>	<b>Date</b>	<b>July 8, 2024</b>
	<b>Time</b>	<b>9:00 AM (Italian time)</b>
	<b>How to conduct the examination</b>	The oral examination will be held online.
	Based on the number of applicants, the oral examination may take place in more than one day. To attend the examination tests, the candidates must exhibit a valid identity document or other personal identification document (possibly the same document attached to the application), under penalty of exclusion from the selection procedure. Citizens of non-EU states must mandatorily exhibit their passport.	

**RESEARCH PROGRAMS of ESF SCHOLARSHIPS**

<b>Title</b>	<b>Trajectory S4</b>	<b>Impact on FVG Region</b>
<b>1:</b> Computational and data-driven methods for the analysis of advanced models for supply chains and sustainable processes SSD: MAT/08 Numerical Analysis. <i>Prof. Dimitri Breda e prof. Enrico Bozzo</i>	Solutions and technologies for process innovation / Sustainable development and commercial resilience for regional Made in Italy supply chains	The project proposal aims to introduce efficient computational practices in the industrial and more generally non-academic regional system through the study of advanced numerical methods, also data-driven, in the area of complex dynamical systems with applications to models that can act as a basis for applications of interest aimed at sustainable innovation. For further details see <a href="http://cdlab.uniud.it/projects/fse-grants">http://cdlab.uniud.it/projects/fse-grants</a> .
<b>2:</b> Advanced computational models for the dynamical analysis of complex systems SSD: MAT/08 Numerical Analysis. <i>Prof.ssa Rossana Vermiglio e prof. Enrico Bozzo</i>	Research Development Technological Innovation for Creative Industries	The project proposal aims to focus on process simulation and control systems relying on innovative models that are based on functional equations that can generate infinite-dimensional dynamical systems. These systems are potentially capable of describing the complexity of modern and innovative industrial processes of particular interest for the regional industrial system. For further details see <a href="http://cdlab.uniud.it/projects/fse-grants">http://cdlab.uniud.it/projects/fse-grants</a> .
<b>3:</b> Tropical Geometry for Measuring Sustainability and Green Performance. SSD: MAT/03 <i>Prof. Stefano Urbinati</i>	Energy transition, circular economy and environmental sustainability - Maximum energy efficiency systems for industry	The project is intended for a student who has acquired strong mathematical and informatics skills and who is interested in having direct contact with industries. We believe that the mathematical tools that are now available to the market are a strong resource that is often under-exploited, due to the few interactions between the world of business and that of pure research. In this project the researcher will be asked to work on planning and developing possible algorithms through geometry helping



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**TABLE 8 – PhD Programme MATHEMATICAL AND PHYSICAL SCIENCES**

		companies to understand the level of sustainability in their production processes and strategic plans.
<p><b>4:</b> Development of a computational pipeline and related methods, for genetic mutation analysis and drug development or repurposing. 1) Development of a curated integrative database of experimentally resolved structures and predictive models. SSD: FIS/07 <i>prof. Federico Fogolari</i></p>	<p>Specialization Area "Health, Quality of Life, Agribusiness and Bioeconomy," Trajectory 4: "Solutions and systems for innovative therapies: integrated development of drugs and biopharmaceuticals (biotech) for personalized and sustainable medicine"</p>	<p>Interpretation of genomic data requires appropriate bioinformatics tools that should interface with available sequence-based databases and functional or clinical data. The use of structural data to understand the effects of a mutation on the structure, dynamics, and thermodynamics of proteins and their complexes is largely unexplored in the clinical setting. Beyond the specific goals of this project, the databases that will be developed will enable structural analysis in hospital genetics institutes, genomic and medical centers, and universities or other research institutions. This project will enable the development of expertise and know-how for drug design, but also for healthcare in general, which must constantly keep up with the rapid changes in the field. In addition to public health, the databases we propose to develop will also be of interest to biomedical industries, private health care institutions, and pharmaceutical companies. The databases will enable to build mutant protein models and assess the impact of mutations on their functions.</p>
<p><b>5:</b> Development of a computational pipeline and related methods, for genetic mutation analysis and drug development or repurposing: 2) Development of methods to analyze and predict the impact of genetic mutations on protein structure, function and interactions. SSD: FIS/07 <i>prof. Federico Fogolari</i></p>	<p>Specialization Area "Health, Quality of Life, Agribusiness and Bioeconomy," Trajectory 4: "Solutions and systems for innovative therapies: integrated development of drugs and biopharmaceuticals (biotech) for personalized and sustainable medicine"</p>	<p>Interpretation of genomic data requires appropriate bioinformatics tools that should interface with available sequence-based databases and functional or clinical data. The use of structural data to understand the effects of a mutation on the structure, dynamics, and thermodynamics of proteins and their complexes is largely unexplored in the clinical setting. Beyond the specific goals of this project, the tools that will be developed will be used by hospital genetics institutes, genomic and medical centers, and universities or other research institutions. This project will enable the development of expertise and know-how for drug design, but also for healthcare in general, which must constantly keep up with the rapid changes in the field. In addition to public health, the tools we propose to develop will also be of interest to biomedical industries, private health care institutions, and pharmaceutical companies. It is estimated that there are 10000 to 12000 amino acid substitutions in each genome compared to a reference human genome. Some of these are noted in publicly available databases as being associated with disease. The steadily decreasing cost of sequencing (less than</p>



**TABLE 8 – PhD Programme MATHEMATICAL AND PHYSICAL SCIENCES**

		\$1,000 to sequence the whole exome today) suggests that the technologies developed in this project will have a huge impact in the near future, resulting in economic potential for all public and private health-related activities.
<p><b>6:</b> Creation of a prototype system to produce energy using the small waste biomass gasifier and the solar concentrator developed at the University of Udine. The system will be used to heat a small room and produce electricity in a completely autonomous way. SSD: FIS/01, FIS/07 <i>Prof.ssa Marina Cobal</i></p>	<p>Energy sustainable buildings /Solutions and technologies for process innovation</p>	<p>The impact that the creation of such a prototype plant can have is multiple: <u>Reduction of CO2 emissions:</u> compared to the use of traditional fossil fuels in the gasifier. Reduced dependence on fossil fuels, with greater energy security and reduced vulnerability to fuel price fluctuations. <u>Reduction of local pollution:</u> as biomass can be grown sustainably and the proposed gassifier is cleaner than the standard ones. <u>Promotion of the local economy</u> through the use of local biomass. <u>Long-Term Energy Cost Savings:</u> If well designed and managed, a self-contained system combining biomass gasifiers and solar concentrators can reduce long-term energy costs, especially considering that renewable energy sources like the sun are free.</p>
<p><b>7:</b> Study and implementation of an integrated data acquisition and control system (DAQ and DCS) for the analysis and remote control of the system consisting of the small gasifier + solar concentrator developed in Udine and forming part of the Future Energy Park project of the University of Udine. SSD: FIS/01, FIS/07, INF/01 <i>Prof.ssa Marina Cobal</i></p>	<p>Energy sustainable buildings / Solutions and technologies for process innovation</p>	<p>The impact that the creation of such a prototype plant can have is multiple: <u>Reduction of CO2 emissions:</u> compared to the use of traditional fossil fuels in the gasifier. Reduced dependence on fossil fuels, with greater energy security and reduced vulnerability to fuel price fluctuations. <u>Reduction of local pollution:</u> as biomass can be grown sustainably and the proposed gassifier is cleaner than the standard ones. <u>Promotion of the local economy</u> through the use of local biomass. <u>Long-Term Energy Cost Savings:</u> If well designed and managed, a self-contained system combining biomass gasifiers and solar concentrators can reduce long-term energy costs, especially considering that renewable energy sources like the sun are free.</p>
<p><b>8:</b> Optimal control of navigation and autonomous navigation. SSD: MAT/05 Mathematical Analysis <i>Prof. Lorenzo Freddi</i></p>	<p>Technologies, systems, and smart solutions for ships, shipyards, ports, and their land connections</p>	<p>An analytical study of the mathematical problems of navigation linked to the morphological and weather-climatic characteristics of the northern Adriatic sea would be able to provide a valuable scientific basis for the development of navigation control strategies and autonomous navigation tools that take into account the territorial specificities of the region.</p>

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**TABLE 9 – PhD Programme in CLINICAL AND TRANSLATIONAL MEDICAL SCIENCES**

THE PhD PROGRAMME	
<b>Administrative location</b>	University of Udine, Department of Medical Area (DAME) –via Colugna 50, 33100 Udine, ITALY (tel. +39 0432 494301).
<b>Associated location</b>	
<b>Location for training, teaching and research activity</b>	Teaching and other training activities will take place primarily at the administrative programme location or in other locations of the University of Udine. The research program will be mainly developed, with reference to the scholarship (see art. 10 and 13 of the Call) and/or to the supervisor assigned, at one of these locations: administrative location, financial supporter's location (if the financial supporter is an external institution).
<b>Coordinator</b>	Prof. Giuseppe Damante (giuseppe.damante@uniud.it)
<b>Programme duration</b>	3 years
<b>Curriculum</b>	-
<b>Research topics</b>	<ul style="list-style-type: none"> <li>• Eating Behavior Disorders</li> <li>• Equity, safety, and quality of care and treatment in global health</li> <li>• Study of minor cardiovascular risk factors and their impact on renal and cardiac function and in residual risk of cardiovascular disease</li> <li>• Biomarkers of acute lung and central nervous system damage (lipidomics and metabolomics)</li> <li>• Biomedical applications with stable isotopes and natural abundance of Carbon 13 and Deuterium (study of in vivo metabolism in humans and pharmacokinetic studies)</li> <li>• Molecular mechanisms underlying neurodegenerative diseases</li> <li>• Oxidative energy metabolism (respiratory, cardiovascular, microvascular/endothelial, muscular, mitochondrial functions) following disuse, in particular environmental conditions and in pathological conditions)</li> <li>• Microvascular and mitochondrial functions in humans following exposure to inactivity/microgravity ("bed rest").</li> <li>• Drugs of retinal diseases.</li> <li>• Analysis of neuromuscular and metabolic parameters of the lower limbs associated with motor function in the elderly population and study of the effects of exercise, with and without neuromodulation, in improving motor function</li> <li>• Causal factors, mechanisms and effects of Unfinished Nursing Care</li> <li>• Effectiveness of continuing education strategies in health care professionals</li> <li>• Tools and methods for nutritional epidemiology from a translational perspective to assess the impact of nutritional patterns on human health;</li> <li>• Impact of nutrition on the outcome of neuroinflammatory and neurodegenerative diseases. Evaluation by clinical-instrumental methods of functional performance (motor, cognitive and quality of life), biological markers of inflammation and changes in the gut microbiota.</li> <li>• Creation of consumption databases and assessment of the environmental impact of food choices.</li> <li>• Mechanisms of pressure regulation and organ damage production in the action of adrenal hormones and the renin-angiotensin system;</li> <li>• Double betelactam in the therapy of infections: concept of PBP (penicillin binding protein) saturation</li> </ul>





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**TABLE 9 – PhD Programme in CLINICAL AND TRANSLATIONAL MEDICAL SCIENCES**

	<ul style="list-style-type: none"> <li>• CSF biomarkers in the prognosis of central nervous system infections</li> <li>• Clinical integration in oncology of imaging-derived biomarkers, including artificial intelligence</li> <li>• Clinical integration in lung pathology of imaging-derived biomarkers, including artificial intelligence</li> <li>• Clinical integration in rheumatology of imaging-derived biomarkers, including artificial intelligence</li> <li>• ICU acquired weakness strategies for diagnosis and therapy (nutrition hormones, microbiome)</li> <li>• Sepsis, diagnosis, markers and prognosis</li> <li>• Solid organ transplantation (liver and/or kidney) and acute renal failure, diagnosis, prevention, management</li> <li>• Hemodynamic monitoring, new systems, risk-benefit, outcome, utilization;</li> <li>• Nursing health services research</li> <li>• Knowledge of the biological mechanisms underlying stemness and potential clinical uses, quality controls and legislation related to the use of stem cells for human use</li> <li>• Tissue engineering and regenerative medicine</li> <li>• Role of cathelicidin (LL-37) in foreign body reaction mechanisms and its clinical implication</li> <li>• Inflammation and cardiovascular diseases</li> <li>• Innovative tools for the treatment of infectious diseases</li> </ul>
<b>Research programs</b>	Decided by the Teaching Board within the PhD programme Research topics.
<b>Programme website</b>	<a href="https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-life-science/scienze-mediche-cliniche-e-traslazionali/ph-d-programme/eng-scienze-mediche-cliniche-e-traslazionali?set_language=en">https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-life-science/scienze-mediche-cliniche-e-traslazionali/ph-d-programme/eng-scienze-mediche-cliniche-e-traslazionali?set_language=en</a>

**ADMISSION REQUIREMENTS**

<b>Required degree</b>	Italian Laurea (before DM 509/99) or Italian Laurea specialistica/magistrale (ex DM 509/1999 and DM 270/04) or equivalent degree obtained abroad. Foreign degrees and titles: refer to art. 3 and 4 of the Call.
<b>Knowledge of the following foreign language</b>	English

**DOCUMENTS AND TITLES TO BE ATTACHED TO THE APPLICATION FOR ADMISSION**

<b>Mandatory documents (art. 5 of the Call) UNDER PENALTY OF EXCLUSION</b>	<ol style="list-style-type: none"> <li>1. Certification or self-certification (pursuant to art. 5 c. 5 of the Call) of the academic qualification for admission to the doctoral program (Italian Laurea Specialistica/Magistrale or Italian Laurea before DM 509/99 or foreign degree).</li> <li>2. Curriculum vitae et studiorum, dated and signed;</li> <li>3. Copy of a valid identity document (citizens of countries not belonging to the European Union a copy of a valid passport, comprehensive of the pages containing the holder's photo, personal details, passport number, date and place of issue, date of expiry);</li> <li>4. Definition of the research topic chosen from those listed above</li> </ol>
<b>Optional documents (art. 5 of the Call)</b>	<ol style="list-style-type: none"> <li>1. Publications on impact factor journals (max 2);</li> <li>2. Letters of reference (max 2) written by university professors, scientific researchers or other experts in the field (art. 6 of the Call).</li> </ol>
<b>All titles must be submitted exclusively in PDF format, dated and signed by the candidate.</b>	



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**TABLE 9 – PhD Programme in CLINICAL AND TRANSLATIONAL MEDICAL SCIENCES**

SELECTION COMMITTEE	
<b>Appointed Members</b>	Giuseppe Damante – Full Professor – University of Udine Matteo Balestrieri – Full Professor – University of Udine Alvisa Palese – Full Professor – University of Udine
<b>Substitute Members</b>	Bruno Grassi – Full Professor – University of Udine Stefano Lazzer – Associate Professor – University of Udine Piercamillo Parodi - Associate Professor – University of Udine Maria Parpinel - Associate Professor – University of Udine

**ADMISSION**

**GENERAL COMPETITION (art. 8 of the Call for Applications)**

Positions available: 8					
Detailed description	N.	Funding	Annual gross amount	Period abroad	Research program
<b>Positions WITH SCHOLARSHIP: 6</b>	2	Univ. Udine	€ 17,805.00	max 6 months optional	Consistent with the research topics of the PhD programme
	1	External Institution: National Institute of Health (ISS)*	€ 17,805.00	max 6 months optional	Development and validation of a questionnaire on dietary habits for cardiovascular risk assessment
	1	External Institution: Department of Medicine (DMED)*	€ 17,805.00	max 6 months optional	Protecting You And Others: Community infection prevention behaviour change program
	2	Regional Programme (PR) ESF+ 2021/2027 of the Autonomous Region Friuli Venezia Giulia (Decree n. 17895/GRFVG of 19 April 2023) and subsequently amended and supplemented – CUP G23C23001130008*	€ 17,805.00	max 6 months optional	<p><b>1:</b> Effects of physical exercise with combinatorial strategies on the neuromuscular system of the lower limbs and functional independence in the elderly population.</p> <p><b>2:</b> Nutrition, sport and sustainability: study of the eating habits of a sample of athletes in Friuli Venezia Giulia for the promotion of correct dietary practices and the consumption of low-impact foods and food supplements.</p> <p><b>3:</b> Interventions to detect early and nutritional preventive bio-markers on progression to dementia in the mild</p>



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**TABLE 9 – PhD Programme in CLINICAL AND TRANSLATIONAL MEDICAL SCIENCES**

					cognitive disorder population. <i>Description at "Research programs of ESF scholarships"</i>
<b>Positions WITHOUT SCHOLARSHIP: 2</b>	<b>2</b>	-	-	max 6 months optional	Consistent with the research themes of the PhD Programme

\*Scholarships funded by "External Institutions" and associated locations can be assigned subject to the successful completion of the agreement that governs their funding or the decree's issuance granting funding or approving the operation (art. 13 p. 7).

<b>Competition procedure and test schedule</b>		
<p>Evaluation of qualifications and oral examination. For the evaluation of applicants' attitude for scientific research and their basic skills to tackle the course program, the Selection Committee can attribute up to 100 points to each applicant: max 30 points to the titles and max 70 points to the oral examination. Applicant is admitted to the oral examination if his/her titles receive at least 15 points. The oral examination is passed with at least 49 points. The applicant is eligible to the PhD programme if he/she passes the oral examination. Only for eligible applicants, the points attained in the oral examination will be added to the points of the titles. <b>DATE FOR THE PUBLICATION OF ADMITTED APPLICANTS TO THE INTERVIEW: within July 5, 2024.</b> <b>DATE FOR THE PUBLICATION OF THE FINAL RANKING LIST: within July 31, 2024.</b></p>		
<b>Foreign language that can be used for examination</b>	Italian or English	
<b>Evaluation Criteria of qualifications</b> <i>During the preliminary meeting the Selection Committee may establish sub-criteria for the evaluation</i>	Curriculum vitae and studiorum	10
	Scientific publications	4
	Letters of reference	2
	Research topic	14
<b>Oral examination</b>	Part of the oral examination will be in English.	
<b>Calendar of the oral examination</b>	<b>Date</b>	<b>July 17, 2024</b>
	<b>Time</b>	<b>9:30 AM (Italian time)</b>
	<b>Place</b>	<b>Department of Medicine (DMED), Room B – Piazzale Kolbe 4, 33100 Udine ITALY</b>
Based on the number of applicants, the oral examination may take place in more than one day. To attend the examination tests, the candidates must exhibit a valid identity document or other personal identification document (possibly the same document attached to the application), under penalty of exclusion from the selection procedure. Citizens of non-EU states must mandatorily exhibit their passport.		

<b>RESEARCH PROGRAMMES ESF</b>		
<b>Title</b>	<b>S4 Trajectory</b>	<b>Impact on the region FVG</b>
<p><b>1:</b> Effects of physical exercise with combinatorial strategies on the neuromuscular system of the lower limbs and functional independence in the elderly population. <i>Prof. Stefano Lazzar</i></p>	<p>Area of specialization: Health, Quality of Life, Agribusiness and Bioeconomy.</p> <p>Trajectory 3: Active &amp; assisted living solutions and systems to support frailty</p>	<p>The use of innovative technological solutions will enable an increasing number of people, including the elderly, to engage in proper physical activity, with an important impact on quality of life and a foreseeable saving of resources for the regional health system. It will also be possible to involve companies in the region for the further development and implementation of the technological solution, thus also impacting on employment.</p>



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**TABLE 9 – PhD Programme in CLINICAL AND TRANSLATIONAL MEDICAL SCIENCES**

<p><b>2:</b> Nutrition, sport and sustainability: study of the eating habits of a sample of athletes in Friuli Venezia Giulia for the promotion of correct dietary practices and the consumption of low-impact foods and food supplements. <i>Prof.ssa Maria Parpinel</i></p>	<p>Area of specialization: Health, Quality of Life, Agribusiness and Bioeconomy.</p> <p>Trajectory 1: Systems and solutions for health maintenance and care support: nutraceuticals, food supplements, functional foods, medical nutrition and functional cosmetics.</p>	<p>The resulting guidelines at the conclusion of the research work will be translated into digital and printed information material and disseminated through the regional CONI (Italian National Olympic Committee), and will provide a practical tool for the region's sportsmen and sportswomen for conscious nutrition and integration. Thanks to the monitoring of local food resources and production potential, on the other hand, the foundations will be laid for proposals for the development of supplements and foodstuffs for sportsmen and sportswomen that are environmentally sustainable and enhance local production.</p>
<p><b>3:</b> Interventions to detect early and nutritional preventive bio-markers on progression to dementia in the mild cognitive disorder population. <i>Prof.ssa Mariarosaria Valente</i></p>	<p>Area of specialization: Health, Quality of Life, Agribusiness and Bioeconomy.</p> <p>Trajectory 1: Systems and solutions for health maintenance and care support: nutraceuticals, food supplements, functional foods, medical nutrition and functional cosmetics.</p>	<p>The incidence of dementia, particularly in the FVG population, is growing, but effective treatments are still lacking. A correct diet, supported by specific nutraceuticals, could prove useful in slowing down cognitive impairment, with an impact on the quality of life and a foreseeable saving of resources for the regional health system. In parallel, knowledge derived from the analysis of the intestinal microbiota in such subjects could lay the foundations for early, non-invasive and reliable diagnostic tests in early cognitive decline.</p>



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**TABLE 10 – PhD Programme in ART HISTORY, FILM STUDIES, MEDIA STUDIES AND MUSIC**

<b>THE PhD PROGRAMME</b>	
<b>Administrative location</b>	University of Udine, Department of Humanities and Cultural Heritage (DIUM) - vicolo Florio 2, 33100 Udine (+39 0432 556100)
<b>Associated location</b>	-
<b>Location for training, teaching and research activity</b>	Teaching and other training activities will take place primarily at the administrative programme location or in other locations of the University of Udine. The research program will be mainly developed, with reference to the scholarship (see art. 10 and 13 of the Call) and/or to the supervisor assigned, at the administrative programme location, other locations of the University of Udine or financial supporter's location (if the financial supporter is an external institution).
<b>Coordinator</b>	Prof. Alessandro Del Puppo (alessandro.delpuppo@uniud.it)
<b>Programme duration</b>	3 years
<b>Curricula</b>	1. Art History 2. Film Studies, Media Studies, Musicology
<b>Research topics</b>	<i>Art History</i> 1. Medieval Art History; 2. Modern Art History; 3. 19 <sup>th</sup> and 20 <sup>th</sup> Century Art History (Painting and Sculpture); 4. Museum Studies, Art Restoration History, Art Criticism; 5. Architecture History. 6. Museum and exhibit display at Palazzo Venezia in Rome  <i>Film Studies, Media Studies, Musicology</i> 1. Film, Photography and TV Studies; 2. Media Studies (game studies, media studies, screen studies); 3. Musicology.
<b>Research programs</b>	Research programs will be approved by the Teaching Board of the Ph.D. programme within the research topics of the programme.
<b>Programme website</b>	<a href="https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-social-science-and-humanities/art-history-film-studies-media-studies-and-music/ph-d-programme/art-history-film-studies-media-studies-and-music?set_language=en">https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-social-science-and-humanities/art-history-film-studies-media-studies-and-music/ph-d-programme/art-history-film-studies-media-studies-and-music?set_language=en</a> <a href="https://diium.uniud.it/en/didattica/corsi-di-studio/dottorati-di-ricerca/storia-dellarte-cinema-media-audiovisivi-e-musica/">https://diium.uniud.it/en/didattica/corsi-di-studio/dottorati-di-ricerca/storia-dellarte-cinema-media-audiovisivi-e-musica/</a>

<b>ADMISSION REQUIREMENTS</b>	
<b>Required degree</b>	Italian Laurea (before DM 509/99) or Italian Laurea specialistica/magistrale (ex DM 509/1999 and DM 270/04) or equivalent degree obtained abroad. Foreign degrees and titles: refer to art. 3 and 4 of the Call.
<b>Knowledge of the following foreign language</b>	One of the following: English, French, German, Spanish

<b>DOCUMENTS AND QUALIFICATIONS TO BE ATTACHED TO THE APPLICATION FOR ADMISSION</b>	
<b>Mandatory documents (art. 5 of the Call) UNDER PENALTY OF EXCLUSION</b>	1. Certification or self-certification (pursuant to art. 5 c. 5 of the Call) of the academic qualification for admission to the doctoral program (Italian Laurea Specialistica/Magistrale or Italian Laurea before DM 509/99 or foreign degree); 2. Master thesis ("Tesi di Laurea") associated to the degree/title providing access to the PhD programme. Applicants who are not graduated on the expiration date of this Call must submit an extended abstract in place of the complete thesis, in Italian or





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**TABLE 10 – PhD Programme in ART HISTORY, FILM STUDIES, MEDIA STUDIES AND MUSIC**

	<p>English, signed by themselves and by their thesis Supervisor (approximate limit 25,000 characters, included spaces);</p> <p>3. Curriculum vitae et studiorum, dated and signed;</p> <p>4. Copy of a valid identity document (citizens of countries not belonging to the European Union a copy of a valid passport, comprehensive of the pages containing the holder's photo, personal details, passport number, date and place of issue, date of expiry);</p> <p>5. Research project, dated and signed, referred to the research topics listed in this table (approximate limit 20.000 characters, included spaces, in English/Italian).</p> <p>The project's structure should touch upon the following questions:</p> <ul style="list-style-type: none"> <li>- Objectives;</li> <li>- State of the art;</li> <li>- Methodology;</li> <li>- Achievable results;</li> <li>- Timeline;</li> <li>- Bibliography.</li> </ul>
<b>Optional documents (art. 5 of the Call)</b>	<p>1. Motivation letter by which the applicant explains the reasons for admission to the PhD programme, dated and signed (approximate limit 2,500 characters, included spaces);</p> <p>2. Publications (max 5).</p>
<b>All qualifications must be submitted exclusively in PDF format, dated and signed by the candidate.</b>	

**SELECTION COMMITTEE**

<b>Appointed members</b>	<p>Vittorio Foramitti – Full Professor – University of Udine</p> <p>Orietta Lanzarini – Associate Professor – University of Udine</p> <p>Donata Levi – Full Professor – University of Udine</p> <p>Cosetta Saba – Associate Professor – University of Udine</p> <p>Francesco Pitassio – Full Professor – University of Udine</p>
<b>Substitute members</b>	<p>Roberto Calabretto – Full Professor – University of Udine</p> <p>Alessandro Del Puppo – Full Professor – University of Udine</p>

**ADMISSION**

**GENERAL COMPETITION (art. 8 of the Call for Applications)**

**Positions available: 7**

<i>Detailed description</i>	<i>N.</i>	<i>Funding</i>	<i>Annual gross amount</i>	<i>Period abroad</i>	<i>Research program</i>
<b>Positions WITH SCHOLARSHIP: 7</b>	2	Univ. Udine	€ 16,243.00	max 6 month optional	Program in line with research topics of the PhD programme.
	4	Regional Programme (PR) ESF+ 2021/2027 of the Autonomous Region Friuli Venezia Giulia (Decree n. 17895/GRFVG of 19 April 2023) and subsequently amended and supplemented –	€ 16,243.00	max 6 months optional	<p>1. Architecture of the second half of the Twentieth century in Friuli Venezia Giulia: creativity and valorization. The work of Angelo Masieri.</p> <p>2. Virtual museums: a model for cultural development and the tourist offers of the FVG region.</p>



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**TABLE 10 – PhD Programme in ART HISTORY, FILM STUDIES, MEDIA STUDIES AND MUSIC**

		CUP G23C23001130008*			3. Imaginaries and materiality of amateur cinema in Friuli Venezia Giulia (1950-1970). 4. Film festivals and the challenge of contemporary media. Branding strategies, production and association, taste building and cultural diplomacy. <i>Description at "Research programs of ESF scholarships"</i>
	1	External Institution: Department of Humanities and Cultural Heritage (DIUM)**	€ 16,243.00	max 6 month optional	Program in line with research topics: Digital Humanities e/o Heritage Science
<b>Positions WITHOUT SCHOLARSHIP: 0</b>	0	-	-	-	-

\*Scholarships funded by "External Institutions" and associated locations can be assigned subject to the successful completion of the agreement that governs their funding or the decree's issuance granting funding or approving the operation (art. 13 p. 7).

\*\* The scholarship is funded from the resources of the "Department of Excellence Project- Department of Humanities and Cultural Heritage (DIUM)" (CUP G23C22003370001) of the University of Udine and will be assigned to research projects consistent with Digital Humanities and/or Heritage Science topics. The Supervisor will be a professor/researcher belonging to the Department of Humanities and Cultural Heritage.

#### Competition procedure and test schedule

Evaluation of qualifications and oral examination.

For the evaluation of applicants' attitude for scientific research and their basic skills before the course program, the Selection Committee can attribute up to 100 points to each applicant: max 30 points to the titles and max 70 points to the oral examination.

Applicant is admitted to the oral examination if his/her titles receive at least 21 points. The oral examination is passed with at least 49 points. The applicant is eligible to the PhD programme if he/she passes the oral examination. Only for eligible applicants, the points attained in the oral examination will be added to the points of the titles.

**DATE FOR THE PUBLICATION OF ADMITTED APPLICANTS TO THE INTERVIEW: within July 5, 2024.**

**DATE FOR THE PUBLICATION OF THE FINAL RANKING LIST: within July 28, 2024.**

<b>Foreign language that can be used for examination</b>	Italian, English and/or French	
<b>Evaluation Criteria of qualifications</b> <i>During the preliminary meeting the Selection Committee may establish sub-criteria for the evaluation</i>	Curriculum vitae et studiorum	3
	Research project	16
	Scientific publications	3
	Thesis/Abstract	7
	Motivational letter for admission to the PhD programme	1
<b>Oral examination</b>	The oral examination aims at verifying the research skills of the applicants, with particular reference to the research project.	
<b>Calendar of the oral examination</b>	<b>Date</b>	<b>July 17, 2024</b>
	<b>Time</b>	<b>12:00 AM (Italian time)</b>
	<b>Location</b>	<b>Department of Humanities and Cultural Heritage (DIUM) - Sala del lampadario, Palazzo Caiselli, vicolo Florio 2, 33100 Udine.</b>

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**TABLE 10 – PhD Programme in ART HISTORY, FILM STUDIES, MEDIA STUDIES AND MUSIC**

Based on the number of applicants, the oral examination may take place in more than one day. To attend the examination tests, the candidates must exhibit a valid identity document or other personal identification document (possibly the same document attached to the application), under penalty of exclusion from the selection procedure. Citizens of non-EU states must mandatorily exhibit their passport.

RESEARCH PROGRAMS of ESF SCHOLARSHIPS		
Title	S4 Trajectory	Impact on the region FVG
<p><b>1:</b> Architecture of the second half of the Twentieth century in Friuli Venezia Giulia: creativity and valorization. The work of Angelo Masieri.</p> <p><i>Prof.ssa Orietta Lanzarini</i></p>	<p>Area of specialization: Cultural heritage, design, creative industry, tourism.</p> <p>Trajectory 5: System development for competitiveness through national and international levers and contexts for cultural and creative enterprises (ICC) and for tourism.</p>	<p>The analysis of Angelo Masieri's work and its relationship in the context of Twentieth-century architecture in FVG region will have a impact: a) on cultural and touristic ground (temporary exhibitions, thematic itineraries, conference cycles); b) formative program for schools and universities, professional associations and unions (especially in the field of digital reconstruction of projects and updating seminars); conservation of the archival funds and architectural works and their transfer into national and international repositories.</p>
<p><b>2:</b> Virtual museums: a model for cultural development and the tourist offers of the FVG region.</p> <p><i>Prof.ssa Donata Levi</i></p>	<p>Area of specialization: Cultural heritage, design, creative industry, tourism.</p> <p>Trajectory 5: System development for competitiveness through national and international levers and contexts for cultural and creative enterprises (ICC) and for tourism.</p>	<p>Inventory of historical images relating to the interiors of museums and collections in Friuli Venezia Giulia; experimentation of virtual tours new methodologies to increase the Region attractiveness and tourist offer.</p>
<p><b>3:</b> Imaginaries and materiality of amateur cinema in Friuli Venezia Giulia (1950-1970).</p> <p><i>Prof.ssa Cosetta Saba</i></p>	<p>Area of specialization: Cultural heritage, design, creative industry, tourism.</p> <p>Trajectory 1: System Building for Creative Industries (3.4.5).</p>	<p>The research program aims to map the archives of amateur cinema in Friuli Venezia Giulia, with the aim of describing, analyzing and classifying the film collections preserved by film archives and institutes, media libraries and film clubs.</p>
<p><b>4:</b> Film festivals and the challenge of contemporary media. Branding strategies, production and association, taste building and cultural diplomacy.</p> <p><i>Prof. Francesco Pitassio</i></p>	<p>Area of specialization: Cultural heritage, design, creative industry, tourism.</p> <p>Trajectories 1 and 5: System creation for Creative Industries; System development for competitiveness through national and international</p>	<p>This project develops along three main axes: a) the relationship between contemporary festivals and the selection, definition and production of cinematographic products, with particular regard to macro-regional collaborations, and for the construction of 'world cinema', through Global North/Global cooperation South; b) Collaborative strategies between different national and international festivals and platforms for</p>



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**TABLE 10 – PhD Programme in ART HISTORY, FILM STUDIES, MEDIA STUDIES AND MUSIC**

	<p>levers and contexts for Creative Industries and Tourism.</p>	<p>disseminating their respective selections; c) The function of festival spaces for cultural diplomacy initiatives, with particular attention to the relationship between institutional and private actors and festival events. The main effects for the FVG Region are: a comparative SWOT analysis on a national and macro-regional scale of the features of the local festival offer; the definition of policies to increase the cultural impact of festival initiatives, coordinated with the place branding strategies of the different contexts involved; the identification of good practices of participation in production, in order to strengthen existing institutional and private activities</p>
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**TABLE 11 – PhD Programme in LINGUISTICS AND LITERATURE**

<b>THE PHD PROGRAMME</b>	
<b>Administrative location</b>	University of Udine, Department of Languages and Literatures, Communication, Education and Society (DILL) - Palazzo Antonini - Via Petracco, 8 – Udine 33100 (ph. +39 0432 556750).
<b>Associated location</b>	University of Trieste (Department of Law, Language, Interpreting and Translation Studies; Department of Humanities) - Piazzale Europa 1, 34127 Trieste.
<b>Locations of lectures, seminars, and research activities</b>	Lectures, seminars and research activities will be held at the Universities of Udine and Trieste. The research program will be mainly developed, with reference to the scholarship (see art. 10 e 13 of the Call) and/or to the supervisor assigned, at one of these locations: administrative location, associated location, financial supporter's location (if the financial supporter is an external institution).
<b>Coordinator</b>	Prof. Elena Polledri (elena.polledri@uniud.it)
<b>Programme duration</b>	3 years
<b>Curricula</b>	1. Foreign Literatures; 2. Linguistics, Translation, Interpretation; 3. Italian Studies.
<b>Research topics</b>	<ul style="list-style-type: none"> <li>- <u>Foreign Literatures</u>: this curriculum focuses on the interpretation and analysis of texts pertaining to modern European and Extraeuropean literatures and cultures of the following areas: Anglophone and Anglo-American Studies, French and Francophone Studies, Spanish and Hispanophone Latin American Studies, German Studies, Russian Studies, Serbian and Croatian Studies;</li> <li>- <u>Linguistics, Translation and Interpretation</u>: this curriculum offers an interdisciplinary approach to the study of foreign languages and linguistics (including applied linguistics), general linguistics, historical linguistics, Germanic and Slavic philology, the theory and practice of translation and interpreting, in relation to their respective languages (French, English, Russian, Serbian and Croatian, Spanish, German);</li> <li>- <u>Italian Studies</u>: this curriculum intends to provide and refine skills and competence in the fields of Italian literary history, literary theory, history of the Italian language, Italian and Romance philology, History of the theatre and comparative literature.</li> </ul>
<b>Research lines</b>	The PhD programme board establishes the lines of research according to the specificities of the three PhD programme curricula.
<b>Programme website</b>	<a href="https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-social-science-and-humanities/language-and-literature/ph-d-programme/language-and-literature?set_language=en">https://www.uniud.it/en/research/do-research/doctorate-res/our-ph-d-programmes/area-social-science-and-humanities/language-and-literature/ph-d-programme/language-and-literature?set_language=en</a>

<b>ADMISSION REQUIREMENTS</b>	
<b>Degree required</b>	Italian Laurea (before DM 509/99) or Italian Laurea specialistica/magistrale (ex DM 509/1999 and DM 270/04) or equivalent degree obtained abroad. Laurea magistrale (ex DM 270/04): LM-5 in Archival and Library Studies; LM-14 in Modern Philology; LM-15 in Classical Philology, Literature and History; LM-37 in Modern European and American Languages and Literatures; LM-38 in Modern Languages for International Communication and Cooperation; LM-39 in Linguistics; LM-94 in Specialized Translation and Interpreting; LM-85bis five-year degree in Primary Education. Foreign degrees and titles: refer to art. 3 and 4 of the Call.





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**TABLE 11 – PhD Programme in LINGUISTICS AND LITERATURE**

<b>Good knowledge of Italian and at least one of the following foreign languages</b>	Croatian, French, English, Russian, Serbian, Spanish, German. (please indicate in your CV your level of knowledge, which will in any case be verified in the oral test)
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**APPLICATION REQUIREMENTS**

<b>Mandatory Documents (art. 5 of the Call) UNDER PENALTY OF EXCLUSION</b>	<ol style="list-style-type: none"> <li>1. Certification or self-certification (pursuant to art. 5 c. 5 of the Call) of the academic qualification for admission to the doctoral program (Italian Laurea Specialistica/Magistrale or Italian Laurea before DM 509/99 or foreign degree);</li> <li>2. Curriculum Vitae, dated and signed;</li> <li>3. Copy of a valid identity document (citizens of countries not belonging to the European Union a copy of a valid passport, comprehensive of the pages containing the holder's photo, personal details, passport number, date and place of issue, date of expiry);</li> <li>4. A description of the candidate's research project, dated and signed, relating to one of the research topics listed above (maximum 10.000 characters, included spaces, in Italian);</li> <li>5. A copy of the candidate's thesis submitted in fulfilment of the master's degree. Applicants who have not graduated before the application deadline must submit an extended abstract in place of the complete thesis, in Italian or English Language, signed by themselves and by their thesis supervisor (min 15,000 - max 25,000 characters, included spaces).</li> </ol>
<b>Optional documents (art. 5 of the Call)</b>	1 Publications (max 2);

**SELECTION COMMITTEE**

<b>Appointed members</b>	Elena Polledri – Full Professor – University of Udine Francesco Costantini – Associate Professor – University of Udine Enza del Tesco – Associate Professor - University of Trieste Alessandra Ferraro – Full Professor – Università of Udine Roberta Geffer – Associate Professor – University of Trieste Renata Londero – Full Professor – University of Udine Alessandra Riccardi – Full Professor – Università of Trieste
<b>Substitute members</b>	Alvise Andreose – Associate Professor – University of Udine Natka Badurina – Associate Professor – Università di Udine Raffaella Bombi – Full Professor – Università di Udine Leonardo Buonomo – Full Professor – Università di Trieste Tiziana Piras – Associate Professor – Università di Trieste Paolo Quazzolo – Associate Professor – Università di Trieste Angelo Variano – ricercatore – Università of Udine

**ADMISSION**

**GENERAL COMPETITION (art. 8 of the Call for Applications)**

**Positions available: 9**

<i>Detailed description</i>	<i>N.</i>	<i>Funding institution</i>	<i>Annual gross amount</i>	<i>Period abroad</i>	<i>Research program</i>
<b>Positions WITH SCHOLARSHIP: 9</b>	<b>2</b>	Univ. Udine	€ 16,243.00	Max 6 months optional	Consistent with the research topics listed above.

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**TABLE 11 – PhD Programme in LINGUISTICS AND LITERATURE**

Positions available: 9					
	3	Associated Institution: Univ. Trieste	€ 16,243.00	Max 6 months optional	Consistent with the research topics listed above.
	4	Regional Programme (PR) ESF+ 2021/2027 of the Autonomous Region Friuli Venezia Giulia (Decree n. 17895/GRFVG of 19 April 2023) and subsequently amended and supplemented – CUP G23C23001130008*	€ 16,243.00	Max 6 months optional	<p><b>1:</b> “Traduttore-Tradutòr” – on translation as a language of encounter. Towards new paradigms of rewriting: Russian classics in Friulian.</p> <p><b>2:</b> Narratourism: literature, stages, stories and plots for new narrative itineraries.</p> <p><b>3:</b> Multilingualism as a resource: a study of language repertoires and uses in Friuli Venezia Giulia.</p> <p><b>4:</b> Public communication, ‘Institutional Italian language’, corpus and digital training pathway. Interventions on language Quality.</p> <p><b>5:</b> Stories and Natural Environment for Young People’s Wellbeing: Ecoliteracy in English as Lingua Franca.</p> <p><b>6:</b> Roots literature: on the trail of Canadian immigration. Enhancing places of memory for sustainable cultural tourism in FVG.</p> <p><b>7:</b> The dialogue between Mitteleuropean languages, cultures, territories and neighboring spaces in German-speaking literatures.</p> <p><b>8:</b> Using computer-assisted interpreting tools for interpreting from German into Italian. Fostering future development and investigating how results can be applied at regional level.</p> <p><i>Description at “Research programs of ESF scholarships”</i></p>



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**TABLE 11 – PhD Programme in LINGUISTICS AND LITERATURE**

Positions available: 9				
<b>Positions WITHOUT SCHOLARSHIP: 0</b>	0	-	-	-

\*Scholarships funded by "External Institutions" and associated locations can be assigned subject to the successful completion of the agreement that governs their funding or the decree's issuance granting funding or approving the operation (art. 13 p. 7).

Competition procedure and test schedule		
<p>For the evaluation, aimed at verifying the candidate's research skills, the preparation for the course programme and research project, good knowledge of Italian and a second language to be chosen among Croatian, French, English, Russian, Serbian, Spanish, German, the Selection Committee can assign up to 100 points to each candidate:</p> <ul style="list-style-type: none"> <li>- max 30 points for the evaluation of the candidates' application materials;</li> <li>- max 70 points for the oral examination.</li> </ul> <p>The applicant is admitted to the oral examination if his/her application materials receive at least 21 points. Applicants are considered eligible for the PhD programme if they pass the oral examination. Only for eligible applicants, the points assigned to the application materials will be added to the points obtained in the oral examination.</p> <p>of the titles.</p> <p><b>DATE FOR THE PUBLICATION OF ADMITTED APPLICANTS TO THE INTERVIEW: within June 25, 2024.</b> <b>DATE FOR THE PUBLICATION OF THE FINAL RANKING LIST: no later than July 31, 2024.</b></p>		
<b>Language in which the exam can</b>	Italian	
<b>Criteria for the evaluation of CVs, research projects, publications, and thesis</b>	Curriculum vitae et studiorum	4
	Research project	16
	Publications	2
	Thesis/Abstract	8
<i>The Selection Committee may</i>		
<b>Oral examination</b>	The purpose of the oral test is to verify the candidate's research skills and his/her disciplinary background for the course programme and the research project, as well as his/her knowledge of the Italian language and of a second language. For all Curricula, the oral examination will also include a conversation in the foreign language related to the candidate's research project and chosen from: French, English, German, Russian, Serbian, Croatian, Spanish. In the event of admission to the oral examination of candidates who have chosen a language outside the selection committee's areas of expertise, the committee may avail itself of external consultants.	
<b>Oral examination schedule</b>	<b>Date</b>	<b>July 4, 2024</b>
	<b>Time</b>	<b>8:30 AM</b>
	<b>Location</b>	The oral examination will be held in person. <b>Università degli Studi di Udine, room 8, Palazzo Antonini - Via Petracco 8, Udine.</b>
	Based on the number of applicants, the oral examination may take place in more than one day. To attend the examination tests, the candidates must exhibit a valid identity document or other personal identification document (possibly the same document attached to the application), under penalty of exclusion from the selection procedure. Citizens of non-EU states must mandatorily exhibit their passport.	

RESEARCH PROGRAMS of ESF SCHOLARSHIPS		
Title	S4 Trajectory	Impact on the region FVG
<b>1: "Traduttore-Tradutôr" – on translation as a language of encounter.</b>	Area of specialisation: Cultural Heritage, Design, Creativity Industry, Tourism.	The Project contributes to strengthen the interaction between the production system, research institutes, regional tourism



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**TABLE 11 – PhD Programme in LINGUISTICS AND LITERATURE**

<p>Towards new paradigms of rewriting: Russian classics in Friulian. <i>Prof.ssa Margherita De Michiel</i></p>	<p>Trajectories 1 and 5: System Creation for Cultural and Creative Enterprises (CCI) and System development for competitiveness through national and international levers and frameworks for CCIs and Tourism.</p>	<p>organisations and European and extra-European academic partners through mechanisms of technological diffusion of the research results shaped on the twin transitions (green and digital). The Project takes the paradigm of translation as cultural “rewriting” as a starting point to structure innovative languages by proposing a de-automated reinterpretation of texts belonging to the universal heritage through the prism of the local linguistic heritage, with an immediate impact on the Region’s territory guaranteed by the use of strategies based on digitalisation, accessibility, inclusiveness, and the democratisation of knowledge, with the goal of broadening the horizons of the modern cultural dialogue while enriching all the actors involved. The research Project falls within the field of translation theory and connects a ‘major’ language (case study: Russian) with a so-called ‘minor’ language, with the general aim of developing new translation strategies to render literary texts, with the specific aim of testing as yet unseen heuristic possibilities of the target language (Friulian), which will be investigated and assessed through transversal scientific collaborations involving regional cultural bodies and national and international university institutions. By assessing the role of translation as a place of encounter and exchange between cultures, in a methodologically unprecedented comparison (considering the limited and non-systematic presence of Russian authors in the Friulian publishing scene), the Project establishes a connection between a source language (Russian) marked by constitutive paradoxes and particularly vulnerable to misrepresentation and the idiom par excellence of the Region, intended as an autonomous literary language that in the exercise of translational rewriting renews the opportunity to explore and expand its semiotic potential. By designing original forms of research and dissemination, the project structures a network that, by bringing together realities of international importance with regional excellences in the fields of business, culture and tourism, amplifies the Region’s visibility to the highest degree, contributing to the</p>
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**TABLE 11 – PhD Programme in LINGUISTICS AND LITERATURE**

		protection of its linguistic biodiversity and developing the intrinsic potential of its rich cultural habitat..
<p><b>2:</b> Narratourism: literature, stages, stories and plots for new narrative itineraries <i>Prof. Paolo Quazzolo e Prof.ssa Laura Pelaschiar</i></p>	<p>Area of specialisation: Cultural Heritage, Design, Creativity Industry, Tourism.</p> <p>Trajectory 3: Turismo 4.0 new business model</p>	<p>The goal of the project is the improvement and innovation of tourism practices, advance and origination of slow tourism with eco-sustainable ideas and practices of narrative tourism, The focus will also be on the practices of proximity tourism, which is being re-launched as a form of available/sustainable post covid 19 pandemics tourism in tourism industry at large.</p> <p>Inter-sectoral innovation to enable the creative/cultural regional tourist system to adopt and embrace new development models capable of dealing with and managing the new challenges posited by the supply and demand of tourism industry after 2020.</p> <p>Analysis and planning of narrative-performative itineraries enhancing and interconnectedly promoting the cultural, natural and wine-and- food resources of the Region.</p>
<p><b>3:</b> Multilingualism as a resource: a study of language repertoires and uses in Friuli Venezia Giulia <i>Dott. Angelo Variano</i></p>	<p>Area of specialisation: Cultural Heritage, Design, Creativity Industry, Tourism.</p> <p>Trajectory 5: System development for competitiveness through national and international levers and frameworks for CCI and Tourism.</p>	<p>The project intends to respond to the objectives set by the "Strategia regionale per la specializzazione intelligente del Friuli Venezia Giulia" " (document of November 2022), with particular reference to paragraphs 1.4.1. (coordination between innovation actors such as the University and the development and consolidation of collaboration models between the scientific system and the production system to generate open and continuous innovation processes), 1.5.1. (the commitment to university third-level training), 2. (in particular, the principle of broad participation and sharing with the main stakeholders of the territory's requests), 3. 3.5., 3.4.5. and 3.4.6. (the "Cultural heritage", i.e. multilingualism in and for the linguistic history of Friuli Venezia Giulia both as a critical awareness of the territory and as a vehicle for its promotion, thus promoting cross-sectoral cooperation between the worlds of culture and tourism</p>
<p><b>4:</b> Public communication, 'Institutional Italian language', corpus and digital training pathway. Interventions on language Quality.</p>	<p>Area of specialisation: Cultural Heritage, Design, Creativity Industry, Tourism.</p> <p>Trajectories 1 and 2: System Creation for Cultural and Creative Enterprises (CCI) and Research Development</p>	<p>The project aims to respond to some of the themes of the document "Strategia regionale per la specializzazione intelligente del Friuli Venezia Giulia" (with particular reference to point 3.4). The trajectories of the Cultural heritage area,</p>





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**TABLE 11 – PhD Programme in LINGUISTICS AND LITERATURE**

<p><i>Prof.ssa Raffaella Bombi</i></p>	<p>Technological Innovation for Creative Industries.</p>	<p>design, creativity industry, tourism. The area of specialization envisages - Trajectory 1: System creation for Cultural and Creative Enterprises. With a view to reach a greater collaboration between the university and the world of institutions (Public Administration e.g.), the project aims at the analysis of the quality and improvement of the expressive plans of the 'institutional Italian language' used in public communication and, with particular regard to the relationship between public administration workers and, in general, of institutions in regional area, with the citizens. Objective 1. Analysis of the regional linguistic repertoire as well as of the levels of analysis (lexical and morphosyntactic) of institutional Italian language, a very complex variety, and relationship with neo-standard Italian. Objective 2. Construction of a corpus of linguistic data and a digital training course of institutional Italian (on the model of Moocs, Massive open on-line courses) aimed at the P.A. users in order to elevate the overall productive and receptive skills and the quality of communication between institutions and citizens.</p>
<p><b>5:</b> Stories and Natural Environment for Young People's Wellbeing: Ecoliteracy in English as Lingua Franca. <i>Prof.ssa Maria Bortoluzzi</i></p>	<p>Area of specialisation: Cultural Heritage, Design, Creativity Industry, Tourism.</p> <p>Trajectory 5: System development for competitiveness through national and international levers and frameworks for CCI's and Tourism.</p>	<p>Valuing young people: enhancing intercultural connections through English as Lingua Franca among communities of regional and transnational groups of young people for citizen education in natural environments and natural/local museums of Friuli Venezia Giulia (e.g., Museo di Storia Naturale di Udine, Parco delle Dolomiti Friulane, Parco delle Prealpi Carniche, Carsiana, Isola della Cona, etc). Promoting their competences of wellbeing in natural environments through narratives in English as lingua franca for regional and macroregional communities; promoting citizenship education in FVG (e.g.: Museo di Storia Naturale di Udine, Parco delle Dolomiti Friulane, Parco delle Prealpi Carniche, Carsiana, Isola della Cona, etc). Promoting communication about and knowledge of the environments of Friuli Venezia Giulia for wellbeing ecotourism within sustainability and circular economy. Using new digital applications or existing digital applications innovatively for</p>



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**TABLE 11 – PhD Programme in LINGUISTICS AND LITERATURE**

		improving on intercultural communication and sharing stories in English as lingua franca about regional natural sites for young people's wellbeing and sustainable ecotourism.
<p><b>6:</b> Roots literature: on the trail of Canadian immigration. Enhancing places of memory for sustainable cultural tourism in FVG. <i>Prof.ssa Alessandra Ferraro</i></p>	<p>Area of specialisation: Cultural Heritage, Design, Creativity Industry, Tourism.</p> <p>Trajectory:</p>	<p>In the context of the important migratory movement from the Region to Canada, there are numerous Friulian and Veneto-Julian writers established in the North American country who evoke their origins. The project aims to repertory their writings in Italian, Friulian, French and English, with particular attention to the spatial dimension and representation of the places of memory.</p> <p>In synergy with already existing realities, it aims to create some itineraries in the villages of origin that will enrich the regional cultural-tourist offer in the framework of root tourism (<a href="https://www.esteri.it/servizi-consolari-e-visti/italiani-all-estero/turismo-delle-radici/">https://www.esteri.it/servizi-consolari-e-visti/italiani-all-estero/turismo-delle-radici/</a>).</p> <p>The work involves reconnaissance, census, filing, and setting up an information portal with georeferencing and interactive map.</p>
<p><b>7:</b> The dialogue between Mitteleuropean languages, cultures, territories and neighboring spaces in German-speaking literatures. <i>Prof. Simone Costagli and Prof.ssa Elena Polledri</i></p>	<p>Area of specialisation: Cultural Heritage, Design, Creativity Industry, Tourism.</p> <p>Trajectory 5: System development for competitiveness through national and international levers and frameworks for CCIs and Tourism.</p>	<p>The project impacts on areas 1.5.1 (University tertiary education), 1.6 (Positioning of the system with respect to neighboring regions), 3.3.5 (Cultural heritage, design, creativity industry, tourism) of the November 2022 document on the "Strategy regional for the intelligent specialization of Friuli Venezia Giulia".</p> <p>It will foster the training of a highly qualified figure with intercultural knowledge and skills, who will be able to implement cultural activities that foster the dialogue between FVG and German speaking countries. Furthermore, the project will raise intercultural awareness and encourage the Mitteleuropean dialogue in schools and universities through the knowledge of the intercultural and interlinguistic relationships which are present in German literary texts.</p>
<p><b>8:</b> Computer-assisted interpreting tools for interpreting from German into Italian <i>Prof.ssa Alessandra Riccardi e Prof.ssa Antonella Magris</i></p>	<p>Area of specialisation: Cultural Heritage, Design, Creativity Industry, Tourism.</p> <p>Trajectory 5 System development for competitiveness through national and international stimuli and domains for</p>	<p>The increasing use of artificial intelligence in the field of translation and interpretation has highlighted advantages and limits of available tools. The aim of the project is to compare computer-assisted interpreting tools for the German-Italian language pair. Cooperation with research institutes in the fields of cognitive science and computer engineering is envisaged to contribute higher qualification of human resource training through software innovation. The</p>



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**TABLE 11 – PhD Programme in LINGUISTICS AND LITERATURE**

	<p>cultural and creative enterprises and tourism</p>	<p>project results can contribute to the teaching of interlanguage interpreting at the SSLMIT, University of Trieste, to train linguistic experts in the field of new interpreting technologies. In addition, results may be used by regional enterprises for their international contacts. Given the current evolution of tourist flows in the Region Friuli Venezia Giulia, a higher number of foreign visitors will need written and oral interaction during their stay. Targeted digital solutions together with expert staff, specialized translators and interpreters could therefore foster interaction with German-speaking tourists, thus enhancing the attractiveness of the regional tourist offer.</p>
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