

Update 15 January 2024: Please note that the UTU-GreDiT call for applications has been extended by two weeks. The new deadline for applications is Monday 5 February 2024 at 15:00 (local time in Finland).

Update 21 December 2023: Please note that the University of Turku Graduate School (UTUGS) has updated language requirements in terms of the countries where a previous degree completed in English is sufficient to demonstrate the required language skills on 21 December 2023. Updated requirements apply to the UTU-GreDiT applicants. Please see pages 6 and 11.



UTU-GreDiT

**Solutions for Green and
Digital Transition**

MSCA Horizon 2022 UTU-GreDiT

***Guide for applicants:* Instructions for applying for a funded doctoral researcher position at University of Turku “Solutions for Green and Digital Transition” (UTU-GreDiT) doctoral training programme**



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1. Introduction to UTU-GreDiT and University of Turku, Finland

“Solutions for Green and Digital Transition” (UTU-GreDiT), led by University of Turku (UTU), Finland, is a unique COFUND doctoral training programme that trains 25 doctoral researchers to deliver transformative change towards sustainable societies, with skills and knowledge to operate across sectors, at regional, national and international level. UTU-GreDiT is co-funded by European Union’s Horizon Europe research and innovation programme’s Marie Skłodowska-Curie Action (MSCA).

We are currently witnessing a major global ecological crisis challenging the living conditions on the Earth. Climate change and biodiversity losses have caused over €145 billion in economic losses in the EU over the past decade, in addition to inestimable human costs. The crisis increasingly threatens food, water and energy security in Europe and globally, resulting in serious socio-economic challenges. Transformative change is urgently needed. Interdisciplinary research and education in Green and Digital Transition provide a key means of addressing these complex crises by catalysing change towards sustainable socio-economic growth.

The UTU-GreDiT announced 30 specific PhD projects (Table 1) and an open PhD project option of which the best 25 PhD project applications will be granted. UTU-GreDiT will integrate cutting-edge research infrastructures, experienced supervisors and the existing knowledge base of 14 research groups with >45 professors, adjunct professors and experienced researchers with a wide national and international network. Each PhD project is associated with experienced research group(s) and secondment position(s). Research groups of UTU-GreDiT include expertise from biodiversity research, biochemistry, biology, physical geography, human geography, geology, computer science, information and communication technology, management and organisation, materials engineering, molecular plant biology, sustainable biotechnological processes.

The UTU-GreDiT associated partners provide national or international 4-6 months secondments and other training activities to the doctoral researchers. Besides enhancing the doctoral researchers’ academic skills and producing new interdisciplinary knowledge, UTU-GreDiT will



provide transferable skills training for doctoral researchers including scientific writing, project management, the culture of open science and entrepreneurial skills that are essential for widening their career prospects.

The University of Turku (UTU), founded in 1920 and located in Southwest of Finland, has over 22000 students and over 3300 staff members. Almost 2300 international students from over 100 countries study annually at UTU. UTU is a multidisciplinary, international, research-intensive, entrepreneurial university, ranked 291st worldwide (QS Ranking 2023). UTU has eight faculties: Humanities, Law, Education, Social Sciences, Turku School of Economics, Science, Technology and Medicine. The University of Turku Graduate School (UTUGS), established in 2011, consists of 16 Doctoral Programmes covering all disciplines and all doctoral researchers of UTU.

The doctoral degree at UTU includes a doctoral thesis and postgraduate studies. The doctoral thesis may be in the form of either a compilation of several scientific publications, including an introductory chapter summarising the publications, or a monograph. Doctoral researchers follow the study requirements of their doctoral programme, with emphasis with the recommendations of UTU-GreDiT. The UTU-GreDiT postgraduate studies include courses on the research topic and in relevant fields as well as studies on transferable skills, networking and mobility in the form of secondment(s). UTU-GreDiT doctoral researchers will belong to one of three doctoral programmes: (1) Doctoral Programme in Biology, Geography and Geology (BGG), (2) Doctoral Programme in Technology (DPT) or (3) Doctoral Programme of Turku School of Economics.

This “*Guide for applicants: Instructions for applying for a funded doctoral researcher position at University of Turku “Solutions for Green and Digital Transition” (UTU-GreDiT) doctoral training programme*” aims at helping applicants with their applications. In addition, the guide makes the recruitment procedure as transparent as possible. The recruitment process will emphasise the excellence and motivation of the applicants and their research plans, and is designed to be open, merit-based, transparent, impartial, and give equal opportunities to all applicants.



2. Eligibility Criteria for Applicants

Please read through the Eligibility Criteria carefully. **All applicants must meet the MSCA and UTU Eligibility Criteria. No exceptions will be made.**

- A. Eligible applicants are **early-stage researchers**. At the time of recruitment by the host organisation, the applicant must not have been awarded a doctoral degree. Researchers who have successfully defended their doctoral thesis but who have not yet formally been awarded the doctoral degree are not eligible to apply.
- B. Eligible applicants **hold a Master's degree or an equivalent degree in a relevant discipline for UTU-GreDiT PhD research project in question** (<https://sites.utu.fi/utugredit/research-projects/>). **The degree must have been completed when the application time ends.** The total grade of the Master's degree must be at least on the level good (i.e. the weighted average grade of all courses and a Master's degree must be at least 60% of the maximum grade).
- C. **Mobility rule: An eligible applicant must not have resided or carried out their main activity (work, studies, etc.) in Finland for more than 12 months in 36 months immediately before the deadline of the application call.** Compulsory national service, short stays such as holidays, and time spent as part of a procedure for obtaining refugee status under the Geneva Convention are not considered.
- D. **English language proficiency:** The emphasis of postgraduate education is on research and the purpose of the courses included in the degree is to support the skills required of a researcher and expert. From the perspectives of both the progress of studies and research and integration into the academic community, the people selected for postgraduate education are required to possess fluent oral and written communication skills in English. **The applicant must prove their English proficiency with an English Test accepted by the University of Turku Graduate School. Applicants are exempt from doing an English language test if they for example hold a Bachelor's degree (or higher) completed in English in Australia, Canada, New Zealand, the UK, the USA, Switzerland or in an**





EU/EEA country (**this list is not exhaustive**). Please carefully check the language requirements on the website of the University of Turku Graduate School:

<https://www.utu.fi/en/research/utugs/how-to-apply/language>. **Please note that the**

University of Turku Graduate School (UTUGS) has updated language requirements in terms of the countries where a previous degree completed in English is sufficient to demonstrate the required language skills on 21 December 2023. Updated rules apply to the UTU-GreDiT applicants.

3. Application process

UTU utilises the electronic application system “TalentAdore”. You can find the application link from UTU-GreDiT web site. Please read the separate guidelines on how to fill the electronic application. During the application period from **23 November 2023 to 5 February 2024 (please note the updated end date)**, you can apply for a fixed-term doctoral researcher position under an employment contract. The electronic form and attachments have to be submitted by 5 February 2024 at 15:00 (local time in Finland; please note the new end date) via the electronic application system. The application should be written in English. Applications that arrive after the application period has ended will not be processed.

The position of a doctoral researcher is set to begin from 1 June 2024 at the earliest and 1 August 2024 at the latest, and for the duration of four years. **An applicant can apply to only one research project.** UTU-GreDiT PhD projects are summarised in Table 1. UTU-GreDiT PhD projects, research groups descriptions, and links to the research group websites can be found in more detail in the following link on the UTU-GreDiT website:

<https://sites.utu.fi/utugredit/research-projects/>.





Table 1: UTU-GreDiT PhD Projects. See full PhD project and research group descriptions including links to research group webpages at: <https://sites.utu.fi/utugredit/research-projects/>.

PhD Project	Principal Supervisor	UTU-GreDiT Research group	Department and Faculty to which the thesis belongs to
1. Remote sensing and morphodynamic modelling in hydromorphological and sediment connectivity analyses	Prof. Petteri Alho, mipeal@utu.fi	Fluvial and Coastal Research Group	Department of Geography and Geology / Faculty of Science
2. Climatological and anthropogenic controls on catchment scale hydrological processes in Boreal and Sub-Arctic environments	Dr. Elina Kasvi, UTU, emkasv@utu.fi	Fluvial and Coastal Research Group	Department of Geography and Geology / Faculty of Science
3. Nature-based solutions in urban water management and climate change mitigation	Dr. Elina Kasvi, UTU, emkasv@utu.fi	Fluvial and Coastal Research Group	Department of Geography and Geology/ Faculty of Science COTUTELLE: Department of Building and Environmental Technology/ Faculty of Engineering/ Lund University
4. Pollution-related food chain changes and their consequences to passerine birds	Dr. Tapio Eeva, teeva@utu.fi	Eco-physiological responses of organisms to environmental stressors	Department of Biology/ Faculty of Science
5. Ecophysiological consequences of surface water browning on aquatic fauna	Prof. Katja Anttila, katja.anttila@utu.fi	Eco-physiological responses of organisms to environmental stressors	Department of Biology/ Faculty of Science
6. Diverse values of nature supporting human and other species wellbeing in urban green infrastructure planning	Prof. Nora Fagerholm, ncfage@utu.fi	Landscape Sustainability	Department of Geography and Geology/ Faculty of Science
7. Challenges and tensions in regenerative business preventing green and just transition	Asst. Prof. Anne Quarshie, UTU/TSE, amquar@utu.fi	Biodiversity and regenerative business	Department of Management and Entrepreneurship/Turku School of Economics (TSE)





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8. Effects of regenerative business on species and ecosystems	Prof. Ilari Sääksjärvi, ileesa@utu.fi	Biodiversity and regenerative business	Biodiversity Unit
9. Big Earth data, citizen science and AI in co-creation and deployment of innovative climate risk data products and tools for African cities	Prof. Niina Käyhkö, nivuore@utu.fi	Digital Data Innovation	Department of Geography and Geology / Faculty of Science
10. Open data, digital tools and youth engagement in public works for green transition and climate resilience in Africa	Prof. Niina Käyhkö, nivuore@utu.fi	Digital Data Innovation	Department of Geography and Geology / Faculty of Science
11. Understanding the ecology and evolution of antibiotic resistance in microbiomes	Prof. Teppo Hiltunen, teppo.hiltunen@utu.fi	Microbial biodiversity and evolution	Department of Biology / Faculty of Science
12. Plant-microbe interactions in changing climate	Prof. Kari Saikkonen, karisaik@utu.fi	Microbial biodiversity and evolution	Biodiversity Unit
13. Ecosystem consequences of an invasive marine predator in shallow benthic habitats	Prof. Veijo Jormalainen, vejor@utu.fi	Social-ecological systems	Department of Biology / Faculty of Science
14. Effects of renewable energy sources on wildlife in the boreal forest	Prof. Toni Laaksonen, tokra@utu.fi	Social-ecological systems	Department of Biology / Faculty of Science
15. Understanding the public perceptions of invasive species to enhance management	Dr. Satu Ramula, satu.ramula@utu.fi	Social-ecological systems	Department of Biology / Faculty of Science
16. Collaborative Unmanned Surface and Aerial Vehicles for Sustainable Environment Monitoring	Prof. Tomi Westerlund, tovewe@utu.fi	Turku Intelligent Embedded and Robotic Systems	Department of Computing, Faculty of Technology
17. Drone Fleet-based Active Environmental Data Perception in Uncertain and Dynamic Environments	Assoc. Prof. Wallace Moreira Bessa, wallace.moreirabessa@utu.fi	Turku Intelligent Embedded and Robotic Systems	Department of Mechanical and Materials Engineering, Faculty of Technology
18. Human genomic changes due to past epidemics and environment in north-eastern Europe	Prof. Päivi Onkamo, paivi.onkamo@utu.fi	Human evolutionary health	Department of Biology / Faculty of Science
19. Evolution of human health in past and modern environments	Dr. Mirkka Lahdenperä, mirkka.lahdenpera@utu.fi	Human evolutionary health	Department of Biology / Faculty of Science
20. Cost sensitive machine learning for sustainable development	Prof. Tapio Pahikkala, aatapa@utu.fi	Algorithms and Computational Intelligence	Department of Computing / Faculty of Technology



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21. New ML methods for natural resource inventory and biodiversity estimation	Prof. Jukka Heikkonen, jukhei@utu.fi	Algorithms and Computational Intelligence	Department of Computing / Faculty of Technology
22. The battery and base metal mineralization processes and comparison of Svecofennian metallogenic provinces	Prof. Esa Heilimo, esa.heilimo@utu.fi	Geological resources	Department of Geography and Geology/ Faculty of Science
23. The origin and green energy element potential of Archean metabasalts	Prof. Esa Heilimo, esa.heilimo@utu.fi	Geological resources	Department of Geography and Geology/ Faculty of Science
24. Morphogenetic evidence of subglacial hydrology underneath the Fennoscandian Ice Sheet – implications to rate of ice sheet melting, evolution of drainage systems and glacial dynamics	Prof. Antti E.K. Ojala, antti.e.ojala@utu.fi	Geological resources	Department of Geography and Geology/ Faculty of Science
25. Engineering the photosynthetic biohybrid system for solar-driven NH ₃ production	Prof. Yagut Allahverdiyeva-Rinne, allahve@utu.fi	Photosynthetic Microbes	Department of Life Technologies/Faculty of Technology
26. Engineering solid-state algal cell factories for efficient H ₂ production	Prof. Yagut Allahverdiyeva-Rinne, allahve@utu.fi	Photosynthetic Microbes	Department of Life Technologies/Faculty of Technology
27. Enhancing Photosynthesis to boost Crop Yield and Climate Resilience	Prof. Yagut Allahverdiyeva-Rinne, allahve@utu.fi	Photosynthetic Microbes	Department of Life Technologies/Faculty of Technology
28. Photosynthesis research and AI-based energy optimization of controlled environment agriculture	Prof. Jukka Heikkonen, jukhei@utu.fi	Maximal efficiency photo bio production	Department of Computing / Faculty of Technology
29. Molecular light acclimation mechanisms affecting the light-use efficiency of photosynthetic machinery in controlled environment agriculture	Assistant professor Mikko Tikkanen, misati@utu.fi	Maximal efficiency photo bio production	Department of Life Technologies/ Faculty of Technology
30. Flexible hydrogen electrolysis	Prof. Pekka Peljo, pekka.peljo@utu.fi	Battery Materials and Technologies	Materials Engineering / Faculty of Technology

If you are interested in UTU-GreDiT, please fill our expression of interest form. Expression of interest form can be used if you have a question about a specific PhD project, you want to notify the supervisor about your interest in the project, or you want to receive notifications regarding the call. [Link to UTU-GreDiT expression of interest form.](#)

Before starting the application, read carefully this (1) *Guide for applicants: Instructions for applying for a funded doctoral researcher position at University of Turku “Solutions for Green and Digital Transition” (UTU-GreDiT) doctoral training programme*, as well as the (2) UTU-



GreDiT guide for filling the electronic application, and (3) prepare all the mandatory attachments. The link to the application form can be found from UTU-GreDiT website during the application time: <https://sites.utu.fi/utugredit/>. To avoid any potential technical problems with your application submission, please submit the application well in advance. You can modify your application after submission until the application period ends.

The attachments of the UTU-GreDiT application are as follows:

- 1) A **motivation (cover) letter** (max. 2 pages) is a freeform document, in which an applicant is expected to describe their motivation for pursuing doctoral studies and for conducting research, as well as their research interests. Applicants should also describe their interests toward the research groups at UTU and/or Associated Partners. If the motivation letter exceeds the maximum length, only the first two pages will be considered.
- 2) **Curriculum Vitae** (max. 2 pages) of the applicant including the list of peer-reviewed scientific publications with full reference details. A recommended template for the curriculum vitae is available on the website of the Finnish National Board of Research integrity: <https://tenk.fi/en/advice-and-materials/template-researchers-curriculum-vitae>. If the CV exceeds the maximum length, only the first two pages will be considered.
- 3) **List of publications.** [Link to list of publications template.](#)
- 4) **Degree certificates and study transcripts.** Scanned original Master's degree certificate and transcript of study records (in the language that the degree was completed in). If the original degree certificates or transcripts of study records are not written in English, Finnish, or Swedish, official translations to one of these languages must also be submitted. An official translation refers to a translation of the educational documents issued by the awarding institution, or a translation made by an authorised translator.
- 5) **Certificate of the language proficiency.** This is either a valid language proficiency test certificate or a degree certificate supplement which follows the requirements of the eligibility considering the language proficiency. See the language requirements for





admission on the UTU's Graduate School website:

<https://www.utu.fi/en/research/utugs/how-to-apply/language>. **Please note that the University of Turku Graduate School (UTUGS) has updated language requirements in terms of the countries where a previous degree completed in English is sufficient to demonstrate the required language skills on 21 December 2023. Updated rules apply to the UTU-GreDiT applicants.**

- 6) **Research plan** (maximum length of the research plan is three A4 pages, font Times New Roman, 12pt, margins 1,5cm and spacing 1). The research plan should include:
- The applicant's name
 - Title of the planned research project (one of the titles in Table 1 or open PhD project plan)
 - Introduction to the research topic
 - Research objectives
 - Methods and required infrastructure or other resources
 - Potential research outcome
 - Planned timetable of the research
 - Publication plan for research articles

If the research plan exceeds the maximum length, only the first three pages will be considered. The research plan can be checked with the *Turnitin Originality Check* plagiarism detection software. The use of artificial intelligence to assist in the preparation of the research plan should be clearly indicated in the research plan.

- 7) **Ethics self-assessment form.** An applicant must fill in and submit the ethics self-assessment form. The template is available in the UTU-GreDiT website. The form follows the [ethics issues checklist and instructions of European Commission](#).
- 8) **Reference letters.** Applicants can submit the reference letters as attachment of the electronic application, or referees can send letters directly to the Programme Coordinator of UTU-GreDiT (utu-credit@utu.fi). Reference letters are not compulsory attachments.





- 9) **For those applying with their own PhD project:** Signed letter of commitment from new partner(s) beyond the partners provided by UTU-GreDiT. Please request the formal template from the UTU-GreDiT Coordinator (utu-gredit@utu.fi). This document is not needed if the associated partner is listed on the UTU-GreDiT website.

4. Selection process

In line with the European Charter and Code, UTU-GreDiT recruits 25 doctoral researchers through an open, transparent, non-discriminatory, merit-based, impartial and equitable selection procedure. The selection process will emphasise excellence and motivation of the candidate and quality of the research proposal. Evaluation process is openly communicated online and in the call documents. Applicants are updated throughout the process, receiving copies of evaluations and details for contacting UTU-GreDiT and UTU, as well as for making complaints and appeals. Selection schedule is shown in Figure 1.

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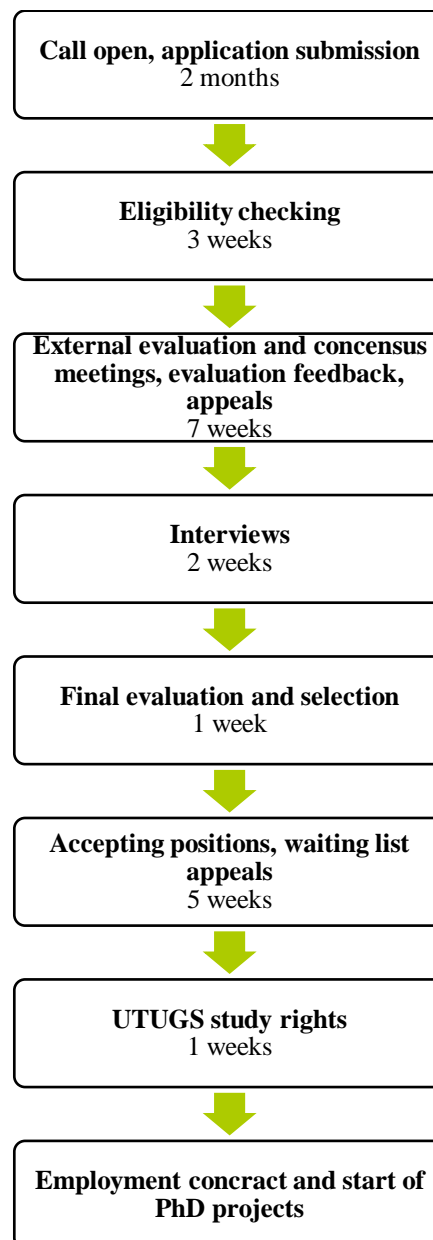


Figure 1: Approximate timeline for the UTU-GreDiT recruitment process

4.1. Eligibility check

After the application period ends, the eligibility of the applicants will be checked by the UTU-GreDiT Programme Coordinator and the student admission services of UTU. The original paper degree certificates of the accepted candidates will be checked prior the study right is given to the selected applicants. If an applicant does not complete the compulsory attachments, the application will not be considered in the evaluation. The applicants will be informed about



the results of their eligibility and process for appeals on procedural grounds. After notification of ineligibility, the candidate has one week in which to send a written request for re-evaluation of their eligibility. The UTU-GreDiT Programme Coordinator under the supervision of the Selection Committee will address these requests and re-evaluate the candidate’s eligibility.

4.2. Evaluation of the eligible applications

The application process is led by a Selection Committee, which consist of mainly members outside of UTU to confirm equal and transparent selection procedure. The Selection Committee will confirm the eligible applicants and make the decisions on applicants’ external evaluators. Each eligible applicant’s application will be evaluated by three external evaluators. The applications will be evaluated by the external evaluators by three main criteria: 1) quality of the applicant, 2) applicant’s motivation, and 3) quality of the research plan (see Table 2).

Table 2: Evaluation criteria of the UTU-GreDiT applicants. ESV= evaluation score weight; FSW=final score weight.

Evaluation criteria	ESV	Points	FSW
Quality of the applicant: <ul style="list-style-type: none"> Applicant’s prior relevant degree certificates and study transcripts: grades of the courses and MSc thesis Suitability of the previous degree to the applied research project Applicant’s curriculum vitae: previous experience and qualifications, capability to conduct the research planned, scientific publications, international activities and mobility Reference letters 	40 %	1-10	80 %
Applicant’s motivation: <ul style="list-style-type: none"> Applicant’s motivation for conducting the planned research (motivation letter) 	25 %	1-10	
Quality of the research plan: <ul style="list-style-type: none"> Connection to the Programme themes The quality of the research plan in terms of science Realism to produce a doctoral thesis in four years of full-time working Mobility plan including secondments, research visits and conferences Applicant’s compatibility with the Programme and the University of Turku 	35 %	1-10	
Interview		1-10	20 %

Evaluators will evaluate the applicant in each category and give a score between 1-10. The applicant’s final score at the first evaluation round is the weighted average of the scores of three categories. Hence, the score will be a real number between 1 and 10. Evaluation scores are: 1: Fail, 2: Poor, 3: Satisfactory, 4: Below average, 5: Average, 6: Above average, 7: Good,





8: Very good, 9: Excellent, and 10: Outstanding. An applicant must receive the score at least 7 to be considered in further evaluation phases. If the difference between the minimum and maximum evaluation grade of an application differs at least by four points, then the external evaluators are invited to a consensus meeting, where they will discuss their opinions and harmonise their evaluations. Every applicant will receive an evaluation score - a number between 1 and 10.

After the evaluations' outcomes, the Selection Committee will decide a shortlist of at most 50 applicants. Gender balance may be taken into the account when applicants are selected. All the applicants are informed of their evaluation and every applicant will receive a numerical evaluation of their application. If an applicant is unsatisfied with the evaluation process, they can leave a written justified appeal in seven days after receiving the evaluation. The applicant is not allowed to deliver any new application material in this phase. They cannot improve their research plan, but they have a possibility to explain details which might be wrong in their evaluation process. The Selection Committee will consider the received appeals, and, if there is a reason to believe that the application has been misprocessed, the evaluators are asked to reconsider the application.

4.3. Interviews

At most 50 of the shortlisted applicants will be invited to interviews. Each shortlisted applicant will be interviewed by one member of the Selection Committee (chair of the interview), supervisor(s), Programme Coordinator and HR specialist. The supervisors can state after the interview if the applicant is not fitting to their research group's profile. If this happens, the application will be redirected to another UTU-GreDiT research group if the research background of the applicant is suitable and the applicant is interested in another group. The applicant will get an interview score between 1 and 10. The score is decided together with the interviewers excluding supervisors. The final score of an applicant is 80% weighted evaluation score plus 20% weighted interview score. The minimal acceptable final score is 7 points. The Selection Committee will make a selection proposal to the Programme Board. The Programme Board will make the final decision according to the proposal. The decision includes 25 selected applicants and an ordered waiting list of those applicants who were among the best selected



applicants. All the applicants will be informed of the final decisions. Those applicants not selected to the positions have seven days in which to send a written request for redress on procedural grounds. The selected applicants are asked to confirm if they accept the offered position within 14 days. If the accepted applicant declines or ignores the offer, then the first applicant in the waiting list will be offered a position. If an applicant in the waiting list is offered a position, an applicant has seven days to give the answer. After the accepted applicant has confirmed the offer, the UTUGS doctoral programmes and faculties will consider the acceptance of the study right using the application documents already delivered. Moreover, the selected doctoral researchers are required to deliver their original degree certificate, study transcript and other relevant documents to the University of Turku. Selected doctoral researchers are expected to arrive to Finland and start their PhD projects 1 June 2024 at the earliest and 1 August 2024 at the latest.

4.4. Conflict of interest

All those involved in the selection process will be required to declare any conflict(s) of interest with regard to particular applications. In accordance with UTU policy, these are defined as follows:

- 1) Close collaboration with the applicant (e.g. co-authorship and/or publishing of an article with the applicant over the past 3 years; involvement in the preparation of the application and/or in the exploitation of research results).
- 2) Occupies or has occupied a position of a superior, subordinate or instructor to the applicant.
- 3) Concurrent application for the same post as the applicant.
- 4) Close association with the applicant (e.g. spouse, child, sibling, de facto or otherwise, or close friend).

External evaluators will sign statement in which confidentiality and impartiality is confirmed.



5. Appointment conditions for selected doctoral researchers

The four-year (48 months) fixed-term full time employment contract by UTU is provided to UTU-GreDiT doctoral researchers. The position of UTU-GreDiT doctoral researcher is set to begin from 1 June to 1 August 2024. Please note that you cannot start an employment before the employment contract has been signed and you have arrived in Finland. The doctoral researcher position requires living in Finland for the duration of the employment contract. The Doctoral Researcher works either at the Biodiversity Unit, Department of Biology, Department of Computing, Department of Geography and Geology, Department of Life Technologies, Department of Mechanical and Materials Engineering.

The salary is based on the salary system of the University's teaching and research staff. It consists of a task-specific salary component and a personal performance salary component. The task-specific salary component of a doctoral researcher is at level 2–4. The component based on personal performance is 6–50% of the task-specific salary. The gross salary of an entry-level doctoral researcher is around 2900 € per month. When the doctoral dissertation work is nearly completed the gross salary is typically around 3500 € per month. A probationary period of six months applies. A family allowance (100 € per month) will be paid to the researcher if eligibility according to the MSCA actions is fulfilled. UTU-GreDiT doctoral researchers benefit from the same extensive statutory rights (e.g. to equality, holiday, trade union membership, unemployment, and social security benefits) and obligations as all other employees in Finland.

The employment contract is based on the total working time of 1612 h per year, which gives the doctoral researchers freedom to plan their working hours. Duties other than those related to doctoral dissertation research, such as teaching duties, must be proportioned so as not to compromise the completion of the doctoral dissertation within the planned schedule. As a rule, up to 5% (a maximum of about 80 hrs per academic year) of the annual working time of the doctoral researcher can consist of departmental duties including teaching.

UTU will ensure that throughout doctoral researchers' projects, it provides the means including the infrastructure, equipment, and products to implement the projects in the scientific fields and





makes these available to doctoral researcher if necessary. Travel costs up to 8000 €/doctoral researcher can be applied from the programme to support research and mobility according to the research and dissemination plans of the doctoral researcher. Travel costs may vary between doctoral researchers depending on the secondment position, research topic and research field. UTU-GreDiT and related research groups and faculties are responsible for the costs of the research ensuring a research environment, equipment and other facilities at UTU. Research costs linked to secondment positions are covered by the Partner Organisations.

6. Residence permits

If you are a citizen of EU/EEA, you do not need a residence permit to Finland. However, you need to proceed with a registration of the right of residence of a citizen of the European Union, but you are allowed start working as soon as you have arrived in Finland. Please make sure your passport is valid.

If you come to Finland from outside the EU, you must apply for a residence permit. The permit type is called a residence permit for scientific research. You will receive a Hosting Agreement from UTU which is needed as a proof of employment when applying for residence permit. Please make sure your passport is valid. Accompanying family members can apply residence permits on the basis of family ties. Please notice that accompanying family members are advised to apply for a residence permit at the same time, even if they arrive in Finland later. A residence permit must be obtained prior to arrival in Finland.

7. Responsibilities of the UTU-GreDiT doctoral researcher

The employment contract and a supervision plan that is signed between the doctoral researcher and UTU representatives will define the rights and obligations of each party. Doctoral researchers are committed to make the research and doctoral postgraduate studies according to rules of their doctoral programme and to complete the degree within a time equivalent to four



years of full-time study. The UTU-GreDiT doctoral researcher together with their supervisors must sign the supervision plan and make the research plan prior to the admission to UTU. Each doctoral researcher together with their supervisors will prepare following documents upon recruitment: a (1) Personal Study Plan (PSP), (2) Career Development Plan (CDP), and (3) Personal Dissemination and Communication Plan (PDCP). These documents together with the research plan will be updated annually. The CDP includes e.g. training on transferable skills, teaching, planning for publications, participation in events, and career needs. The PDCP contains a scheduled plan including scientific and professional dissemination and general communication actions with easily monitored dissemination objectives. It is expected that each doctoral researcher will participate in at least two national or international conferences during their studies. In addition, each doctoral researcher will undertake at least two public outreach activities per year. Active participation in UTU-GreDiT events such as the monthly webinar and social events is expected. Doctoral researchers will undertake a secondment(s) (4-6 months) with the Associated Partner(s).

8. What UTU and UTU-GreDiT will offer the doctoral researcher

UTU-GreDiT provides systematic and high-quality doctoral training. The right to study a doctoral degree at UTU will be granted to selected applicants. Furthermore, University of Lund, Sweden will provide a double degree (COTUTELLE) for a doctoral researcher who is selected to the one indicated UTU-GreDiT research project. [Read more about COTUTELLE](#). Each doctoral researcher has supervisors, and the progress of the doctoral dissertation is followed regularly. The aim of doctoral training is to train highly qualified experts with the skills required for both professional career in research and other positions of expertise. The follow-up group nominated to each doctoral researcher supports the doctoral researcher in discussing their future career plans. UTU mentoring programme supports doctoral researchers in their career development and in recognising one's professional skills and expertise.

Human Resources (HR) carry out UTU's duties as an employer and coordinates issues related to accidents and work-related sickness. HR manage, plan, and develop legal matters regarding





the employment and salary calculation. HR also facilitate international researcher mobility, including international recruitment support, residence permit and insurance matters, as well as working abroad and emigration matters. UTU Study and Work Well-being Services Unit supports researchers with working life occupational health and welfare matters. Research Career Services provide administration and coordination for doctoral training. Innovations and Entrepreneurship, with a Technical Transfer Office, assists in commercialisation and patenting, and Legal Affairs provide professional legal advice on research-related matters. University Communications support UTU personnel with media relations and other communications with the public, including training and expert services.

9. Open science

UTU-GreDiT will fully embrace the Open Research Policy of UTU as well as Horizon Europe's Open Science mandate. The UTU-GreDiT doctoral researcher is required to publish all scientific outputs, either in scientific journals or conference proceedings, under Open access conditions. UTU-GreDiT research groups consider open science widely and as a mindset that not only consists of (1) effective sharing and storing of research data and (2) making research results available openly and quickly but also (3) increasing the transparency and impact of research, and (4) promotion of open and responsible science culture in education and teaching.

10. Research projects & Associated Partners of the UTU-GreDiT

The UTU-GreDiT provides 30 PhD projects related to the EU's framework of the Green and Digital Transition. Each PhD project is associated with experienced research group(s) and secondment position(s). Research groups of the UTU-GreDiT include expertise from biodiversity research, biochemistry, biology, geography, human geography, geology, computer science, information and communication technology, management and organisation, materials engineering, molecular plant biology, sustainable biotechnological processes.





You can find the description of each of the UTU-GreDiT research project, specific requirements, secondment position(s) and contact information of the principal supervisor from the UTU-GreDiT website: <https://sites.utu.fi/utugredit/research-projects/>. Please apply only to the research project that interests you the most: an applicant can only apply to one UTU-GreDiT research project. It is also possible for you to instead apply with your own research project. In this case, please familiarise yourself with the research done by the UTU-GreDiT supervisors, and contact the UTU-GreDiT supervisor that matches your research interests well in advance to discuss the potential project and the possible secondment position(s). If you include a new partner beyond the current list of associated partners on the website, a letter of commitment from the new partner is needed. Information related to the PhD project, e. g. secondment positions might be changed or completed in the future.

UTU-GreDiT is comprised of 14 UTU research groups, which are listed below.

Abbreviations:

BD = biodiversity

BIO = biology

COMP=computer science

GEOG = geography

GEOL = geology

LIFE = life sciences

TSE = economics

MTEK = materials technology

Fluvial and Coastal Environments / GEOG / Group size: 24

Prof. Petteri Alho, Dr. Elina Kasvi

Fluvial and coastal processes, flood risks and hazards, Nature-based solutions (NBS) in stormwater management, computational fluid dynamics, river systems and connectivity, field measurements, laser scanning, remote sensing and geospatial modelling.

Geological resources / GEOL / Group size: 20

Prof. Antti Ojala, Prof. Esa Heilimo



Geological resources for the green energy transition; acquisition, analysis and interpretation of subsurface 3D data associated with battery minerals, low-enthalpy geo-energy reservoirs and nuclear waste disposal; glacial hydrology.

Landscape Sustainability / GEOG / Group size: 8

Assoc. Prof. Nora Fagerholm, Prof. Niina Käyhkö

Human-nature interactions in multifunctional landscapes, resilience, and sustainable spatial planning practices utilizing participatory mapping, geospatial approaches, 3D virtual landscapes, and local knowledge.

Digital Data Innovation Hub / GEOG + COMP / Group size: 15

Prof. Niina Käyhkö, Prof. Jussi Jauhiainen, Prof. Ville Leppänen, Prof. Erkki Sutinen, Assoc. Prof. Nora Fagerholm, Prof. Jukka Heikkonen, Prof. Tomi Westerlund

Community platform for geospatial data and digital technology for global south climate and sustainability challenges. FAIR data, EO, open-source technologies, digital skills development, citizen science, machine learning & AI, climate resilience, disaster management, nature-based solutions.

Eco-physiological responses of organisms to environmental stressors / BIO / Group size: 31

Assoc. Prof. Katja Anttila, Dr. Marjo Helander, Dr. Tapio Eeva, Dr. Céline Arzel, Dr. Amélie Crespel, Dr. Silke Van den Wyngaert

Effects of environmental stressors (i.e. global change and pollution) on different organisms from cells to community level, study of the eco-physiological responses of organisms to anthropogenic stressors allows the development of predictive tools for biodiversity management and conservation.

Microbial biodiversity and evolution / BIO / Group size: 22

Prof. Teppo Hiltunen/ Dr. Manu Tamminen, Dr. Silke Van den Wyngaert, Dr. Marjo Helander, Prof. Kari Saikkonen



Processes structuring microbial biodiversity and functions in human and nature contexts under anthropogenic stress such as climate change, pesticides and antibiotics.

Social-ecological systems / BIO / Group size: 31

Prof. Jon Brommer, Prof. Veijo Jormalainen, Prof. Toni Laaksonen, Dr. Satu Ramula, Dr. Jukka Suhonen, Dr. Timo Vuorisalo

Interactions and adaptations of ecological and social systems, natural resources, biodiversity, and urban ecology threatened by global change with multidisciplinary approaches.

Human evolutionary health / BIO / Group size: 26

Prof. Virpi Lummaa, Prof. Päivi Onkamo, Dr Milla Salonen, adj. Prof. Mirikka Lahdenperä, Dr Aida Nitsch, Dr Kerttu Majander, Dr Elina Salmela, Dr Ulla Moilanen.

Integrates landscape ecology, human evolutionary ecology, archaeology, ancient DNA, pathogen genomics, historical demography and contemporary health; register data to examine how environmental and genetic factors drive past and present disease spread, epidemic severity and future evolution of our health and disease.

Algorithms and Computational Intelligence / COMP / Group size: 18

Prof. Jukka Heikkonen, Prof. Tapio Pahikkala, Prof. Timo Knuutila

Theory and applications of machine learning, data analytics, algorithm design, discrete optimization and differential privacy, research related to natural resource inventory and water quality evaluation, cost-effective feature selection for machine learning.

Turku Intelligent Embedded and Robotic Systems / COMP / Group size: 25

Assoc. Prof. Tomi Westerlund, Assoc. prof Wallace Moreira Bessa

Multi-robot autonomous systems for harsh and unstructured environments, edge artificial intelligence for embedded and distributed intelligence.

Maximal efficiency photo bio production / LIFE + COMP / Group size: 5

Asst. Prof. Mikko Tikkanen, Asst. Prof. Pauli Kallio, Prof. Jukka Heikkonen





Photosynthesis research, IoT, and AI combining solutions for improving indoor farming technologies via optimizing the conditions for maximal light/electricity to photosynthesis efficiency, commercialize photosynthesis knowledge in the development of energy efficient photobiological production technologies.

Biodiversity and regenerative business / BD + TSE / Group size: 12

Prof. Ilari Sääksjärvi, Asst. Prof. Anne Quarshie

Interconnections of biodiversity, biodiversity loss, society, economy, leadership and business, multidisciplinary research team seeks and uses new systemic approaches to study the theme beyond the traditional nature-culture divide, strong background in both biodiversity (BD) and business research (TSE) and development of multidisciplinary biodiversity research.

Photosynthetic Microbes / LIFE / Group size: 17

Prof. Yagut Allahverdiyeva, Dr. Lauri Nikkanen

Utilization of natural photosynthesis for sustainable biomanufacturing of solar chemicals, fuels, green energy, development of integrated smart-approach for algae-based wastewater treatment and greenhouse bioproduction. Rational optimisation of photosynthesis of crop plants for Nordic conditions.

Battery Materials and Technologies / MTEK / Group size: 14

Assoc. Prof. Pekka Peljo

One of the largest research groups in Europe focusing on electrochemistry of flow batteries and flexible production of hydrogen, applies novel materials and technologies for stationary energy storage based on flow batteries and hydrogen production, development of measurement techniques for electrochemistry, high-throughput electrochemistry to enable faster materials development.



11. UTU-GreDiT research infrastructures and a Flagship

UTU-GreDiT research groups are supported by cutting-edge research infrastructures:

- GEOPORTTI infrastructure is an Open Geospatial Information Infrastructure for Research in Finland. It is an international pioneer as a distributed virtual research infrastructure, which enables easy access to massive geospatial data and geocomputing solutions for a wide range of disciplines. It serves the fundamental geospatial sciences, such as geoinformatics, remote sensing, geography, geology, geodesy. In addition, UTU-GreDiT researchers have access to the supercomputing facilities provided by the CSC IT Center for Science, Finland.
- UTU provides up-to-date laboratory facilities for molecular, genetic, physiological and ecological research and maintains the Centre for Evolutionary Applications. Infrastructure includes also unique data series such as the Long-term Bird Breeding Time-series acknowledged on the Roadmap of Research Infrastructures of UTU. The Biodiversity Unit coordinates the UTU actions of several research infrastructures (including the Finnish Biodiversity Information Facility (FinBIF) and the Finnish Marine Research Infrastructure (FINMARI)).
- PHOTOSYNTHESIS infrastructure is one of the few infrastructures in the world that has all state-of-the-art devices available in the market allowing thorough investigation of the photosynthetic machinery in using solar energy and CO₂ in sustainable farming and biomanufacturing of chemicals and fuels. The infrastructure serves the plant biology and biotech community in Finland and enables research collaboration with top international academic and industrial R&Ds.
- HYDRO-RI-Platform, funded with EC Recovery and Resilience Facility, provides state-of-the-art research research infrastructure for freshwater research and hosts three supersites of watersheds (very well instrumented research/test sites with long time series), funded with EC Recovery and Resilience Facility.





- FLEX-EPOS is a national pool of geophysical instruments and multi-disciplinary geophysical superstations to solve fundamental questions in seismology, geomagnetism and geodesy and provides massive new datasets, observations and results, and strengthens the role of Finland in the European Plate Observing System (EPOS).
- The largest indoor drone-testing arena in Finland providing ground truth for algorithm development in robotic systems, funded with EC Recovery and Resilience Facility.
- Digital Waters Flagship brings together a group of experts in the multidisciplinary water sector, spatial information and information technology. It forms, facilitates and fosters a new generation of the water sector (academia-business-public). It also enables a transition towards the digital representation of real-world water system (Digital Twin).

12. UTU-GreDiT associated partners

UTU-GreDiT has 33 associated partners providing secondment positions and other training activities:

University Partners	Country
CATRI, Palacky University Olomouc	Czech Republic
Hamburg University of Technology	Germany
Ivey Business School, Western University	Canada
Luleå University of Technology	Sweden
Lund University	Sweden
Max Planck Institute for Evolutionary Anthropology	Germany
Norwegian University of Science and Technology (NTNU)	Norway
PandemiX Centre, University of Roskilde	Denmark
Technical University of Munich	Germany
University of Gothenburg	Sweden
University of Helsinki	Finland





University of Jyväskylä	Finland
University of Manchester	UK
University of Nantes	France
University of Oulu	Finland
University of Parma	Italy
Åbo Akademi University	Finland

Other partners	Country
Boliden Ltd	Finland
City of Turku	Finland
Environmental college SYKLI	Finland
Eurecat, Technology Center of Catalonia	Spain
Finnish Environment Institute (SYKE)	Finland
Finnish Geospatial Research Institute (FGI)	Finland
Finnish wildlife agency	Finland
German Aerospace Center	Germany
Geological Survey Finland	Finland
IISD Experimental Lakes Area	Canada
iontau Ltd	Finland
Mapita Ltd	Finland
Natural Resources Institute Finland (LUKE)	Finland
Soil Scout Ltd	Finland
WhyCo Ltd	Finland
World Bank	



13. Contact information

Contact us: utu-gredit@utu.fi

UTU-GreDiT Director: Petteri Alho

UTU-GreDiT Coordinator Eevi Savola

List of UTU-GreDiT supervisors and their contact information:

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