With the power of knowledge – for the world

Faculty of Science

2021-2030 toimeenpanosuunnitelma 2021-2024

for the year 2024

Target program

1 Strategic frame

1.1 Changing environment

The Kumpula science campus is one of the largest and most versatile clusters of science expertise in the Nordic countries.The units of the faculty are at the cutting edge of their disciplines in the Nordic countries. The main trends within each discipline have a strong representation, and the wide range of courses is both attractive to students and fruitful for multidisciplinary collaboration. The modern, compact campus design supports the interaction between disciplines and students.

One of the basic prerequisites for scientific research, and a measure of its quality, is external funding. The research groups of the faculty have fared well in the most competitive applications (Academy of Finland centres of excellence, academy professorships, and ERC funding). While the strong increase in external funding has enabled the extending and deepening of research, we need more basic funding for infrastructure and organisational support (facilities, equipment, technical support for research and teaching). The greatest challenges of the strategy period are keeping up a controlled growth and managing the fluctuations in external funding.

Though Finnish universities are competing fiercely for students with a good starting level in mathematics, the faculty has managed to attract a large part of the most gifted undergraduates. They are motivated to complete their degrees swiftly and with excellent marks. The new students admitted to the faculty are even more motivated, since those who primarily want admission somewhere else refuse their slot in order to be considered first-timers. We can offer undergraduates in Kumpula efficient tutorials, individual instruction, and support for their learning skills. Most of the students try to complete their degrees in the stipulated time.

The Kumpula campus is well equipped for putting the university’s digital vision into practice. The compact campus area and social atmosphere promote the creation of a new kind of learning culture. Students geared for the study of mathematics and science are usually skilled and interested in using digital teaching and learning environments. The laptop computer that the faculty gives the new undergraduates in its Bachelor’s programmes enables them to utilise online teaching material more extensively, while they are brought closer to the reformed basic systems and service concepts of the teaching administration. The faculty will study the experiences from the Covid-19 circumstances and utilise them in further developing instruction, as well as digital teaching and learning environments. The teachers on campus have the skills and motivation to implement the experimental culture of their predecessors.

The campus environment will change and develop significantly in the coming years. The arrival of the Natural Science High School on campus, additional construction and growing innovation activities open up groundbreaking cooperation opportunities at different levels and sectors of operations.

1.2 Unit's purpose

Faculty's mission

“The faculty builds a sustainable future and fulfills scientific curiosity with research and education utilizing theory, data and computation.”

“Tiedekunta rakentaa kestävää tulevaisuutta ja vastaa tieteelliseen uteliaisuuteen luonnontieteellisellä tutkimuksella ja opetuksella hyödyntäen teoriaa, dataa ja laskentaa.”

“Fakulteten bygger en hållbar framtid och besvarar vetenskaplig nyfikenhet med naturvetenskaplig forskning och undervisning som utnyttjar teori, data och beräkning.”

1.3 University's vision and development areas

Knowledge and learning are for everyone

- An internationally esteemed partner in multidisciplinary and interdisciplinary scientific research
- Research-based knowledge in support of societal decision-making
- High-quality, up-to-date research infrastructures
- Open science – openly available research infrastructures and materials
- Competence in the analysis and management of open datasets
- Facilities fit for their purpose
- A strong connection between teaching and research
- An attractive provider of master’s and doctoral education
- Smooth student progress
- An important science educator and communicator
- An acknowledged, attractive and accessible environment of continuous learning

Openness enhances scientific research and collaboration

- A strong global influence
- Active and full community participation regardless of language or cultural background
- Virtual and physical international mobility
- An influential social force
- Business collaboration and innovation
- Academic freedom and inclusivity

The best place to study and work

- A thriving work and study community
- An attractive employer

Our University is a leader in responsibility and sustainability

- Responsibility and sustainability integrated into operations culture
- An international hub of sustainability science and teaching
- Increased financial leeway

1.4 Profile and focus areas

The faculty is invested in carrying out long-range basic research following a high standard internationally, along with researcher education based on it, within the disciplines it represents. The faculty houses the Institute of Physics (HIP) that coordinates the collaboration between Finnish CERN and FAIR (The Facility for Antiproton and Ion Research). The centre for atmospheric sciences (INAR) is an international leader in developing and building networks for observing climate change, such as the European research infrastructures ICOS (Integrated Carbon Observation System) and ACTRIS (Aerosols, Clouds and Trace gases Research Infrastructure).

Research and the education of researchers within large international science projects and research infrastructures are at the core of our operations. The faculty will continue its close collaboration with strategical partners, such as the Finnish Meteorological Institute and CERN.

The faculty has excellent contacts and collaborations with CSC. The new CSC supercomputer, Lumi, will raise performance to the next level of challenging and data-intensive AI computing, significantly supporting the research at the faculty.

1.4.1 Focus areas of research at the faculty in 2021-2030

The faculty has selected the following focus areas of research for the years 2021-2030.

Global change: from observations to understanding and action

- Climate and earth observations
- The Earth: past, present and future
- Urbanization
- Carbon sequestration: new materials, land use and natural solutions
- Interpretation of observations, models and predictions

Solutions for sustainable development

- Chemical recycling solutions for plastics, metals, and organic material
- Recyclable materials for the circular economy
- Efficient use of materials: more with less, designs and solutions for extended lifetime and recycling
- Materials for sustainable energy technologies
- Sustainable raw materials and geothermal energy
- Sustainable utilisation of space
- Smart city solutions for megacities
- Effective public engagement

From complex data to insight

- Acquisition, processing, analysis, application and understanding of complex data
- Machine learning, data science
- Quantum information and technologies
- Ubiquitous computing, 6G networks
- Open data, open science
- Wide application of artificial intelligence

Matter and radiation in the universe

- Beyond ordinary matter: antimatter, dark matter, dark energy
- Observing the universe via electromagnetic and gravitational waves
- Interactions of matter in the solar system with the earth: from plasma to asteroids
- Radiation-matter interactions
- Leading roles in international Big Science infrastructures
- Sharing economy of research infrastructures

1.4.2 Profiling and flagships

The Faculty of Science participates in ten different projects in five Academy of Finland university profiling actions - in three of which SA's profiling funding extends to 2023. The Faculty of Science coordinates two flagship programmes and four Centers of Excellences funded by the Academy of Finland.

1.4.2.1 Profiling projects

PROFI 1 (5 posts in the tenure-track process)

Physics and computer science focus on particle physics and machine learning, data science and computing networks. Statistics is developing statistical methods for utilising large data sets in e.g. medical research and technology. The faculty is also active within HiLiFE (Helsinki Institute of Life Science).

PROFI 2 (0.5 tenure-track posts) – *Profile funding ended 31.8.2020*

The faculty is a member in HELDIG (Helsinki Centre for Digital Humanities) that uses machine learning, computational modelling, and data analysis methods to solve research questions within the humanities.

PROFI 3 (13.5 posts in the tenure-track process) - *Profile funding ended 31.8.2021*

The centre for atmospheric sciences (INAR) carries out multidisciplinary and inter-disciplinary research into global climate change, air quality, bio-geo-chemical cycles, and ecosystem processes. The atmospheric research related to global climate change is the internationally most visible area of research at the faculty.

HiDATA (Helsinki Centre for DATA Science), established by the faculty, is a joint venture with Aalto University. HiDATA is developing data science methods for solving the social and industrial challenges posed by digitalisation.

HELSUS (Helsinki Institute of Sustainability Science) includes sustainability researchers from 7 faculties. Subjects for study include consumption and manufacturing, the global south, and the Arctic. The faculty is also a participant in Urbaria (urban research institute) operating under HELSUS, focusing on the challenges of urban development.

PROFI 4 (2 tenure-track posts, 3 university researchers)

Matter and Materials is a collaborative project between the faculty and the Faculty of Pharmacy, which studies everything from the overall structure of the universe to nano-structures. The faculty is participating in the project within several sub-areas of material research, such as matter in the universe and our solar system, radiation-matter interaction, and materials used in fusion reactors and thin films.

The INEQ (The Inequality, Wellbeing and Security) project studies how differences related to finances, ethnic background, health, and environment affect people's wellbeing and social security.

PROFI 5 (1 tenure-track posts) *Profile funding ended 31.8.2023*

Mind and Matter combines the humanities and natural sciences to study biological and artificial intelligence, as well as awareness and knowledge.

PROFI 6 (1 university researcher) 1.1.2021 -31.12.2026

The faculty has one post-doc post in the UHBRAIN project that studies the molecular understanding of neuron function.

PROFI 7: 1.1.2023 – 31.12.2028

InterEarth (Interactions of Earth Components) was selected as one of the two areas in the PROFI 7 application of the UH. InterEarth aims to form a word-leading hub for integrative environmental research. InterEarth focuses on the interactions and feedbacks between the bio-, hydro-, geo- and atmosphere of the Earth by utilizing AI analysis of comprehensive data from UH's 8 research stations.

1.4.2.2 Flagships

INAR coordinates the ACCC Flagship initiative selected in the third flagship call of the Academy of Finland. ACCC produces information on climate change and air quality degradation together with the Finnish Meteorological Institute, University of Eastern Finland and University of Tampere for the use of research projects, social actors and companies.

The role of Helsinki Institute for Information Technology (HIIT) as a shared research environment for the faculty and Aalto University is significant. HIIT coordinates the activities of 'Helsinki ICT' within the two universities. The Finnish Center for Artificial Intelligence (FCAI), a joint Flagship with Aalto University and the Technical Research Center of Finland (VTT), operates at the faculty. The HIIT board also acts as the board of FCAI. FCAI connects experts from universities, industries, and the public sector, and strives to solve the real problems of a complex world with the help of AI.

1.4.2.3 Centres of Excellence

Two Centres of Excellence elected by the Academy of Finland for the period 2018 – 2025 are coordinated at the faculty: The Centre of Excellence of Inverse Modelling and Imaging, and the Centre of Excellence in Research of Sustainable Space. The Centre of Excellence on Inverse Modelling and Imaging applies mathematical theory and interpretations of the practices of indirect measuring on e.g., medical imaging and environment monitoring. The Centre of Excellence in Research of Sustainable Space is developing nanosatellites and technology for sustainable and safe utilisation of space.

In addition, during this period, the Faculty is a partner in the Centre of Excellence in Quantum Technology, coordinated by the Aalto University.

Two new Centres of Excellence are coordinated at the faculty in the period 2022-2029: The Centre of Excellence in Randomness and Structures and the Virtual Laboratory for Molecular-Level Atmospheric Transformations. The faculty is also involved in the Multidisciplinary Centre of Excellence in Antimicrobial Resistance Research coordinated by the Faculty of Agriculture and Forestry and the Centre of Excellence in Biological Barrier Mechanics and Disease: From molecular-scale to tissue-level understanding of signal integration and forces coordinated by the University of Turku. In addition, the Centre of Excellence in Tree Biology, coordinated by Faculty of Biological and Environmental Sciences, is closely associated with INAR's atmospheric science research.

1.4.3 The focus areas of teaching and education at the faculty

The education at the faculty is focused on international research-based Master's programmes and extensive national Bachelor's programmes.

- The faculty's research profile is mirrored by 12 international Master's programmes; data science, geology and geophysics, atmosphere sciences, chemistry and molecule sciences, urban research and design, geography, mathematics and statistics, material research, theoretical and computational methods, computer science, particle physics and astrophysics, and Life Science Informatics.
- The 6 national Bachelor's programmes provide basic education for the wider disciplines: physics, geosciences, chemistry, geography, mathematical sciences, and computer science.

The faculty also provides teacher education at the Bachelor and Master level, as well as international education at the Bachelor level.

- The faculty houses education programmes both at Bachelor and Master level for teachers in mathematics, physics, chemistry, and geography.

- The faculty also houses the university's first international Bachelor-level education programme, the Bachelor's programme in Science, which offers an international route into Master's programmes and subsequent postgraduate studies.

In addition to degree tuition, the faculty plays a significant role both nationally and internationally in open-access teaching and continuous learning, especially through our MOOCs (Massive Open Online Courses). The faculty is also invested in science education in cooperation with schools at all levels.

1.4.4 Focus areas of the faculty's doctoral education

Seven doctoral programmes in science are operating at Kumpula Campus. The faculty holds the administrative responsibility for these doctoral programmes and most of the operations of the doctoral programmes are located at Kumpula Campus. Many of the doctoral programmes are multidisciplinary and welcome both students and instructors from several collaborative faculties and institutes.

Equality amongst doctoral researchers and within the science community is vital for efficiently starting and progressing in postgraduate studies. The wellbeing and commitment of individuals are the key to improve the quality and efficiency of doctoral education. The doctoral education at the faculty holds a high standard, but we are trying to improve the integration of new doctoral researchers into the science community from their first days of studying. This is why shared procedures are being developed for research groups and doctoral programmes (e.g. PI education, mentoring groups). For doctoral researchers, their role at the university is determined by their financing source and type; doctoral researchers working as grant researchers, for example, are not entitled to the healthcare and social security belonging to the staff in general. In order to minimise the risks associated with this we are actively trying to find good practices and approaches both within the faculty and the university.

The doctoral researcher posts the university finances are highly in demand, and the university has already started taking steps to improve the situation. The research school should react to this positive development by improving the efficiency of its doctoral education. Though the scientific standard of the faculty's doctoral education is high, the time doctoral researchers take to complete their degrees does not currently meet the university objectives. The above-mentioned measures, such as the creation of good shared practices among research groups and firmly integrating doctoral researchers into the science community, will improve the situation. We are trying to further improve the doctoral researchers' motivation with the help of career planning, which is set to become a part of postgraduate studies.

Doctoral researchers are encouraged to be open and bring scientific thinking closer to everyday life and society. Scientific communications and neutral sharing of information will be an essential part of our doctoral education.

1.4.5 Focus areas for the faculty's interaction with society

The faculty is a lively partner in its interaction with society, bringing its expertise, social contacts, and fruitful cooperation with the corporate world to the table. The sharing of expertise within the faculty is supported. The faculty is starting a new 'Bridge to Society Club' network for all members of the campus community who are interested in networking and further developing their communication skills. In their regular meetings, societal interaction influencers with contacts to society's policy makers, industry, schools or media share their experiences and tips for interaction with the world outside academia. Visiting speakers, especially alumni, will bring new aspects to the meetings. "The Club" will engender discussion and support the exchange of ideas.

The faculty will continue and intensify the systematic education of employees and students in popular scientific communication.A science video course is organised annually for the students, and an annual science video workshop for the staff. There is also training in other forms of media, such as writing, presenting, publishing on social media, and podcasting. The products of the training and courses (including the MOOCs on popularisation) will be published in the faculty's channels. Researchers are encouraged to give expert statements in various media and receive training for this.

The faculty has strong cooperative ties with industry and the corporate world, and several start-ups have emerged at the faculty. We are organising support for corporate cooperation and developing models, instructions, and materials to support new proposals. Further, we are developing courses for continuous learning and material for corporations via HY+ and the MOOC centre. The 'Bridge to Society Club' also works to enable cooperation in this area.

The LUMA operations will continue and strengthen. It is extremely important for Finnish society that natural sciences are made accessible to children and youth at an early stage. The faculty holds a central role and strong status in the development of LUMA centre Finland. Especially through LUMA, the faculty is also a strong and active agent in the university's science education centre, where children, young people, and families are encouraged to study different disciplines with the help of supportive, multidisciplinary science instruction. The science education centre studies and develops new pedagogical solutions, while training new and current teachers to utilise them.

Equality and diversity are central themes in the operations of the faculty, both for the wellbeing of the community and our public image. Statistics on e.g. the staff's distribution by gender are published annually, which we believe will promote the development towards gender equality. Our goal is to decrease and eventually eradicate discrimination based on ethnic background and origins.

1.5 National special duties, international and academic special responsibilities, coordination of networks

Helsinki Institute of Physics – national duty

- Starting date: 1997
- Resourcing: Funding for national duty from the Ministry of Education and Culture (MinEdu), basic funding from member universities, and external funding
- Description: The Helsinki Institute of Physics is a joint research institute with national duties, including the University of Helsinki, Aalto University, the University of Jyväskylä, the Lappeenranta University of Technology, and the Tampere University of Technology. The Radiation and Nuclear Safety Authority is a temporary associate member of HIP. The mission of HIP is to carry out and promote basic and applied research within physics, develop technological applications for particle accelerator centres, and to participate in doctoral education. The institute is in charge of Finland's cooperation with CERN and FAIR.

The Institute for Atmospheric and Earth System Research (INAR) – project aiming at national duty

- Starting date: 1 Jan 2018
- Resourcing: Basic funding and MinEdu funding for national duties 2021-2024
- Description: INAR is a joint unit of the Faculty of Science and Faculty of Agriculture and Forestry, established on 1 January 2018. Partners from outside the university are the Institute of Meteorology, the University of Eastern Finland, and the University of Tampere. Other organisations will also be invited to participate.

LUMA Centre Finland

- Starting date: 1 January 2017 (starting date of nation-wide funding)
- Resourcing: Basic funding and the national funding from MinEdu to LUMA Centre Finland (2017-2020 and 2021-2024).

The Finnish Institute for Verification of the Chemical Weapons Convention (Verifin) –official duty

- Resourcing: External funding/Basic funding

Institute of Seismology – official duty

- Resourcing: Basic and external funding
- Description: The Institute of Seismology (ISUH) maintains and develops the national network of seismic stations and local monitoring networks, as well as pool of national mobile instruments. The FINES station in Sysmä is one of the main stations of CTBTO (Comprehensive Nuclear-Test-Ban Treaty Organization). ISUH coordinates our national participation in the EPOS-ERIC e-infrastructure.

The Taita research station

- Starting date: 22 Sept 2009
- Resourcing: basic funding (Faculties of Science, Medicine, Agriculture and Forestry, Social Sciences, Biological and Environmental Sciences, and the Museum of Natural History)
- Description: The multidisciplinary Taita research station in Wundanyi, southeast Kenya, enables and supports international research and teaching of a high standard, which will enforce the status of the University of Helsinki in the areas of global responsibility and sustainable development.

Laboratory of radiochemistry – national education duty

- Resourcing: Basic funding

Education in meteorology – national education duty

- Resourcing: Basic funding

Geography education in Swedish – national education duty

- Resourcing: Basic funding

2 University actions 2024

Knowledge and learning are for everyone

1. An internationally esteemed partner in multidisciplinary and interdisciplinary scientific research

We will utilise synergies and formulate international research programmes – research as a bridge between three science campuses

Description:

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  - We will create clear outlines / strategies to establish new inter- and multidisciplinary research and to participate in international strategy fora.
  - We will strengthen our long-term international cross-disciplinary partnerships.
  - We will map any possible new synergy science fields.
  - We will create new methods of multidisciplinary research.
  - We will compile incentives and rewarding mechanisms for inter- and multidisciplinary actions.
  - We will organise (encourage) cooperation between science campuses / faculties: collaboration, inter- / multidisciplinary aspects, mobility, education, PI duties. Urbaria, for example, promotes cooperation within multidisciplinary projects and funding applications.
  - We will organise science innovation events.

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Vice-Dean (research)

Person in charge: Vice-dean for research, TUTTO

Action follow-up: 85%

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- Priority: 2021-2022 (continuing until 2024) 2021: HELSUS and Urbaria visited the Faculty's steering group, multidisciplinary science event Science Smoothie started, cooperation agreements for joint professorships have been specified and forms of cooperation clarified. New interdisciplinary forms of cooperation are being planned at Profi7. Cooperation with Tvärminne's biological status deepened. 2022: Cooperation day with Viikki, research roadmap work started 2023: research roadmap work complited 2024: We implement the research roadmap.

3. High-quality, up-to-date research infrastructures

A leading role in international and national infrastructures

Description:

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  - We will strengthen our leadership and internal contacts in international infrastructures.
  - We will encourage and strengthen national cooperation and division of labour.
  - We are coordinating infrastructures.
  - We will accept the FIRI roadmap.
  - We will organise open seminars on infrastructures (for marketing purposes).
  - We will ensure the sufficient funding of infrastructures.
  - We will use the constantly operating measuring stations as unique platforms for creating new measuring techniques and research questions.
  - We will find solutions for integrating and co-locating different infrastructures.

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Vice-Dean (research)

Person in charge: Vice-dean for research, the MATIAS group, TUTTO

Action follow-up: 98%

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- 2021: Encouraged by the faculty, active participation in the Academy of Finland's FIRI funding application. FIRI funding makes it possible to renew infras and increase interdisciplinarity. The presentation of the infrastructures of the PI seminars encourages national and interdisciplinary cooperation. On the national infrastructures road map 2021-2024, four research infrastructures led by the faculty, in addition, the faculty is involved in two other national road map and 16 international research infrastructures. 2022, 2023 & 2024: The Matias group guides and supports the preparation of funding applications, the IT steering group promotes the development of a common computing infrastructure.

Robust local infrastructures 1/2

Description:

- We will enforce the multi-disciplinary collaboration on Kumpula campus, with other faculties, and internationally.
    - We will make long-term plans for acquisitions – we will coordinate instrument acquisitions nationally and at the faculty / university level.
    - New consortia (the qCSI FIRI project 2020-2022).
    - In further developing infrastructures, we will consider the broad multi-disciplinary collaboration and application both within the faculty and outside it.

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Vice-Dean (research)

Person in charge: Vice-dean for research, the MATIAS group, TUTTO, the heads of departments

Action follow-up: 100%

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- 2021: Annual update of the faculty's infrastructure plans, in the acquisition/update of local infrastructures their utilization is also mapped in the interdisciplinary, interdisciplinary science event series Science Smoothie started. 2022-2024: Viikki-Kumpula day, road map, the Matias group annually processes the departments' investment plans. The Faculty's infrastructure needs (especially IT infrastructure) are mapped and efforts are made to find a long-term, sustainable financing solution and an operating model that can better meet the needs.

Robust local infrastructures 2/2

Description:

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    - The **Department of GEO** develops mobile instrument pool, analytical, imaging and IT laboratories, and database infrastructure. Extending the usage of European, national and local analytical infrastructures and databases to the faculty and university level are central goals.
    - The Detector Laboratory of the **HIP and the Department of PHYS** supports Finland's participation in the infrastructures of the ESFRI roadmap, CERN HL-LHC and FAIR**.** There will be investments to the CERN CMS- and ALICE-experiment upgrades as well as to the FAIR NuSTAR experiment Optical and electronic measuring instruments will be developed for research, teaching and innovation needs.
    - The **Department of PHYS** has a strong presence at international facilities. We also develop cluster computing, data management, and accelerator mass spectrometry. In the long term, we plan to build the first MeV nano-cluster accelerator, a compact synchrotron and a linear-accelerator based positron source.
    - **INAR** is developing integrated observation of the different environment components and their interactions. The SMEAR stations are producing data for European research infrastructures like ICOS, ACTRIS and eLTER RI. INAR will extend its concept from forest environments to sea, agricultural and urban environments.
    - The **Department of CHEM** will update the instruments of its extensive infrastructure as needed. ALD center Finland was selected for the international roadmap and the department will complement its ALD-UHV cluster with a LEIS spectrometer. In the FIRI2022 application, the department has applied to update SEM/EDX with EBSD and with continuous reactors.
    - The **Department of MATHSTAT** will further develop the Summamutikka science education centre and the laboratory of industrial mathematics. A 3D printer will be purchased to support demonstrating mathematics and public communications, the imaging equipment will be improve, and at least one seminar classroom will be fitted with streaming equipment tailored for mathematics requirements.
    - The **Department of CS** will develop its research infrastructures for ubiquitous computing, 6G networks, fog and edge computing, and positioning by extending its current Kumpula 5G test network. The network belongs to the national 5G Test Network Finland (5GTNF).

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Vice-Dean (research)

Person in charge: Vice-dean for research, the MATIAS group, TUTTO, the heads of departments

Action follow-up: 96%

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- 2021: Agri-SMEAR started operations, the national FLEX-EPOS pool has been established and equipment has been acquired, Megasense operations expanded, vacuum ALD equipment acquired.

5. Competence in the analysis and management of open datasets

Computing of the future - A pioneer in quantum data science

Description:

- **A pioneer in quantum data science**

- The faculty creates future computational methods and new artificial intelligence solutions for society and the university.
- The faculty is developing programming solutions for the transformation of quantum technologies.
- The faculty develops the university as a centre of excellence in quantum technologies and creates new opportunities for the development of research and innovation.

Results:

- Competitive EU funding is growing thanks to a leadering position
- New technologies build bridges between science, medicine, life sciences and the humanities.
- Data processing and understanding of the interaction between mind and materia are changing.
- University gains leadership in InstituteQ, use of CSC quantum simulators and EU networks.

New science based on open data and computing (Science on a computer) - this measure covers both teaching and research extensively in different disciplines:

- Efficient use of computers
- High-speed computing (material sciences, life sciences, space sciences)
- Complex data and its analysis
- Visualisation
- The goal is to educate top specialists extensively in different sectors. The role of computational science in Kumpula research and researcher education is significant.

We are using CSC and European computing systems actively, and we are developing open computing with pivotal organisations in Finland and globally.

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Dean, Vice-Dean (research)

Person in charge: The deans, TUTTO

Action follow-up: 97%

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- 2021: Eurofusion advanced computing hub in Kumpula started operations, FCAI brought multidisciplinary projects, InstituteQ founded with Aalto 6/2022: Cross-study agreement concluded with Aalto in the field of quantum teaching 2024: The faculty completes the research data policy implementation program.

Data science and artificial intelligence centre

Description:

- We will establish the university’s internal centre for data science and artificial intelligence.
  - We have a meta-platform and the latest methods, as well as support for developing the methods further and utilise information.
  - HiDATA and FCAI form a methodological basis and ThinkOpen, HELDIG, and CSDS offer the building components.
  - We will use the Big Data infrastructure, FGCI, and CSC (Lumi).
  - We will further develop the data and methods of the research infrastructures.

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Dean, Vice-Dean (research)

Person in charge: The Dean, TUTTO

Action follow-up: 100%

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- 2022: Funding for FCAI's second season secured. Two EDIHs to Kumpula (2/4 of those granted in Finland). Great interdisciplinary impact in the areas of AI and data science. 2024: The faculty completes the research data policy implementation program.

7. A strong connection between teaching and research

Participation in the research community will be part of the teaching plan (integrating research into teaching plans)

Description:

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  - The education programmes plan and decide on the forms, in which students can participate in research. These forms may include e.g., project courses, practical training, Master’s theses created within research groups, researchers acting as teacher tutors, informal coffees with the students, etc.
  - We will use research infrastructures as a tool for research-based teaching and the advancement of science.

Start date: 1.1.2022, end date: 31.12.2024

Person in charge roles: Vice-Dean (Academic Affairs), Director of the Bachelor's Programme , Director of the Master's Programme

Person in charge: Vice-dean for teaching, the leaders of the education programmes, the teaching services

Action follow-up: 75%

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- 2022: In progress in connection with the preparation of the new curriculum period. Growing business cooperation with the master's program in data science.

8. An attractive provider of master’s and doctoral education

Developing the websites for degree programmes and the faculty

Description:

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  - We will work with each degree programme to create their own website with an extensive and clear idea of how to study in the programme and apply to it.
  - The degree programmes can produce their own contents for the site and use it in marketing.
  - We will enhance the visibility of the teaching and the degree programmes on the faculty website.
  - We strive to increase the number of gifted applicants through marketing and in social media.

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Vice-Dean (Academic Affairs), Director of the Bachelor's Programme , Director of the Master's Programme

Person in charge: Vice-dean for teaching, leaders of the degree programmes, teaching services

Action follow-up: 90%

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- 2021: The faculty's new website published, degree programs given the rights to update their own pages. 6/2022: The faculty allocates resources for additional marketing of all bachelor's programs annually. Additional marketing is implemented both with advertising videos and by increasing visibility on social media channels.

9. Smooth student progress

Improving the well-being of the students

Description:

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  - We will strengthen the cooperation between degree programmes, student organisations, and education psychologists.
  - We will check education factors affecting the wellbeing of students through e.g. polls.
  - The degree programmes will plan and implement development measures for the instruction in order to process and solve issues with wellbeing.
  - We will continue supplementing the resources for education psychologist services.

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Vice-Dean (Academic Affairs), Director of the Bachelor's Programme , Director of the Master's Programme

Person in charge: Vice-dean for teaching, leaders of the degree programmes, the teaching services

Action follow-up: 90%

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- 2021: As part of the orientation program, a separate event related to student well-being was organized for new program leaders. Study psychologists and pedagogical lecturers actively participate in the meetings of the program leaders and map out the support needs of each program and organize events related to different themes based on this, e.g. Learning cafe events: "Concern about the student", "Student excitement in distance education". As part of the HowULearn survey, questions related to students' well-being https://blogs.helsinki.fi/scienced/howulearn/ Bachelor's degree programs' measures to improve students' well-being https://www.helsinki.fi/fi/matemaatis-luonnontieteellinn-tiedekunta/ahkanohaista/matemaattis-luonnontieteellinen -faculty-candidate-programs-develop-students-well-being-together-with student organizations In autumn 2021, peer tutoring was organized for freshmen from the previous year in cooperation with subject organizations. 6/2022: In the spring of 2022, special efforts have been made to support the return to campus. Learning cafe events continued: "Returning to campus - How to support students' sense of community?" The faculty participates in the university's guidance and well-being project by preparing the faculty's joint instructions to support HOPS guidance and academic mentoring.

Effectiveness of the annual follow-up of the degree programmes and student feedback

Description:

-
    - We develop ways to discuss and utilize the results of the annual follow-up of the degree programmes. We discuss these results both at department and at faculty level. By doing so, we will increase the effectiveness of the annual follow-up and the sharing of good practices among degree programmes.
    - Feedback collected by students' organisations will be linked to the quality system of the degree programmes.

Start date: 1.9.2022, end date: 31.12.2024

Person in charge roles: Vice-Dean (Academic Affairs), Director of the Bachelor's Programme , Director of the Master's Programme

Person in charge: Vice-dean for teaching, leaders of the degree programmes, the teaching services

Action follow-up: 90%

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- The results of the annual monitoring of the degree programs are reviewed annually together with the directors of the degree programs, management teams and heads of departments.

Academic mentoring and study guidance

Description:

-
    - We update practices and models for guidance of studies.
    - We provide training for academic mentors at the beginning of the academic year, as well as various information and discussion sessions to support the guidance work.
    - We reserve time for guidance in teachers' work plans.

Start date: 1.1.2022, end date: 31.12.2024

Person in charge roles: Vice-Dean (Academic Affairs), Director of the Bachelor's Programme , Director of the Master's Programme

Person in charge: Vice-dean for teaching, leaders of the degree programmes, the teaching services

Action follow-up: 90%

:

- The faculty has participated in the university's guidance and well-being project by preparing the common guidelines and general goals for the guidance of studies for the faculty's bachelor's and master's programs. The aim of the guidelines is to support the faculty's bachelor's and master's programs in the supervision of studies, and to clarify and develop the entirety of supervision by describing the supervision model and supervision responsibilities. The practices specific to the degree program are described in the student instructions and teaching work instructions. The guidance model aims to ensure that every student receives guidance and knows who to contact for various questions related to their studies.

Efficient support, counselling and processes in the masters' pro-grammes

Description:

-
    - The education programmes will develop clear procedures for creating master's theses.
    - We will draw up guidelines for the workload of supervisors and planning of the work.
    - We will organise workshops on the topics related to thesis work and invite specialists (e.g. alumni, education psychologists).

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Vice-Dean (Academic Affairs), Director of the Master's Programme

Person in charge: Vice-dean for teaching, leaders of the masters' programmes, the teaching services

Action follow-up: 65%

:

- 2021: In the faculty's teaching development morning a workshop on the topic in the fall of 2021, a workspace opened on campus for doing master's theses 6/2022: Facilitating master's thesis work has been taken into account in the curriculum work. The faculty is preparing to implement the university's theses guidance and thesis agreement recommendations.

10. An important science educator and communicator

Interaction between art and science in popularising science

Description:

-
  - We will advance the interaction between art and science in popularising and relaying science to the public and in education.
  - We will cooperate with art curators and international artists representing conceptual, contemporary, and modern art. We will organise an art residence programme or similar.

Start date: 1.1.2022, end date: 31.12.2024

Person in charge roles: Vice-Dean (Public Engagement)

Person in charge: Vice-dean for public relations, INAR, VYS

Action follow-up: 100%

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- 2021: Collaboration with contemporary artists in Hyytiälä, poem machine to Heureka, Maija Aksela's 60 years old art exhibition. 2022: An artist residency will operate in Hyytiälä. Kumpula's science and art walking map, which is updated and advertised. MegaSense art installation in Tripla and Kumpula. Hannu Toivonen's art collaboration (creative computing). For photographic artist Sanna Kannisto technical help with bird photography. 2023: Visual art and natural science cooperation in science videos, e.g. in collaboration with Tuomo Rainio of the University of the Arts, Markus Juvonen's video https://youtu.be/iu2HVdAQlh8?si=8WN9ShlwymN8oCja

Mastering and appreciating scientific communication

Description:

-
  - We will develop and consolidate a scientific dictionary in the national languages, and we hold a leading and established role in this work.
  - We will educate experts able to communicate efficiently. We will offer staff and students regular training in science communication and popularisation.

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Vice-Dean (Public Engagement)

Person in charge: Vice-dean for public relations, VYS

Action follow-up: 100%

:

- 2021: Science communication courses are organized regularly. Several faculty professors are visible in public. 2022: At the beginning of November 2022, the university will organize a science popularization week, in which Kumpula will play a significant role as the creator and implementer of the initiative. 2023: Science video workshop in Tvärminne. Faculty professors in public, e.g. Hannu Toivonen, Teemu Roos, Minna Palmroth, Samuli Siltanen, Markku Kulmala.

11. An acknowledged, attractive and accessible environment of continuous learning

Internationally leading and nationally influential provider and developer of continuous learning (2/2) - A new platform for open online learning

Description:

-
  - We create a new continuous learning platform that will be available to the whole university after the pilot phase. The new MOOC course editor supports teachers in setting up and developing online courses. We will take into account the goals of the national Digivisio 2030 project in the development of the platform.
  - We strengthen the MOOC centre – our goal is to provide extensive pedagogical and technical support for the development of MOOC courses throughout the university.
  - We set up new scalable MOOC courses to develop scientific expertise in the sustainability transition, e.g. on the following themes:
    circular chemistry, data science for sustainability transition, climate change, urbanisation, energy solutions, opportunities for game-based learning
  - We draw up plans for continuous learning and open online teaching for each degree programme
  - We take into account the development of new courses in teachers’ work plans

  Results:

- The faculty will increase its nationally relevant share of open and collaborative teaching (now about 30000 op/year: 4-5 MEUR (IMM)/year) and will support similar developments in the university as a whole.
- The high-quality, international MOOCs offered by the faculty increase the global visibility and impact of UH, eg. Elements of AI, Climate University.
- The faculty strongly increases the international attractiveness of the university and the number of international Bachelor and Master students and degrees.

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Vice-Dean (Academic Affairs)

Person in charge: Vice-dean for teaching, leaders of the degree programmes, the teaching services, MOOC center

Action follow-up: 90%

:

- 2021: In June 2021, the event "Development of open teaching and Lifelong learning in degree programs in Kumpula" was organized between the degree programs and pedagogical teachers, the MOOC center and DOJO. At the event, a "call for collaboration" was launched, where degree programs can propose courses to be converted to online teaching and get pedagogical, administrative and technical support for opening the courses easily and at the same time. In the fall of 2021, each degree program prepared a continuous learning plan, which includes the introductory courses offered by the program and other open courses. These will be updated during 2022 for the OPS season 2023-2026.

Openness enhances scientific research and collaboration

12. A strong global influence

Global education partnerships

Description:

- We participate in the UNAEuropa network collaboration and investigate opportunities for shared UNA degree programmes, MOOCs, and certificates. We will cooperate with the UNA universities to construct new MOOCs. We will promote the use of our MOOC platform within UNAEuropa.
- We investigate opportunities for global education with HY+, and support education exportation.
- Via our new MOOC centre, we are forerunners in developing a MOOC platform and are striving to scale up the university’s MOOC activities significantly to a global environment. We offer MOOCs in several languages. The course Elements of AI, for example, is given in 28 different languages in 2020-2021 and the application design course Full Stack is also given in Chinese.
- We are investigating the possibility of having shared degrees with the Nanjing university.
- We take part in the Global Campus project. We will explore opportunities to offer full online qualifications in suitable areas.
- We are preparing to take responsibility over one of the study tracks of the UNA Europa Joint Bachelor in Sustainability programme.

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Vice-Dean (Academic Affairs), Director of the Bachelor's Programme , Director of the Master's Programme

Person in charge: Vice-dean for teaching, leaders of the degree programmes, the teaching services

Action follow-up: 90%

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- 2021: The University of Helsinki and the University of Nanjing have signed an agreement to establish a joint atmospheric science institute and start educational cooperation. In the institute to be established, teaching related to atmospheric sciences would be given in joint bachelor's, master's and doctoral programs offered to Chinese students. The Master's program in Atmospheric Sciences, under the faculty's responsibility, acts as the responsible entity in the Una Europa collaboration for the compilation and piloting of the micro-qualification in sustainability (Micro-Qualification in Sustainability, MQ-S). MQ-S consists of four 4-6 ECTS MOOC-based courses (16-20 ECTS in total). The faculty coordinates the Una Europa Sustainability bachelor's program at HY. 6/2022: Una Europa cooperation made concrete: AI in Society-MOOC and atmospheric sciences micro-competence set confirmed. 8/2023 The Bachelor's and Master's programs in atmospheric sciences implemented as a commissioned education (Nanjing) and the study direction of the doctoral program established.

13. Active and full community participation regardless of language or cultural background

We will increase upper-secondary-school and campus collaboration for instruction in Swedish

Description:

- We will add to the interaction within instruction in Swedish – an active team of Swedish-speaking teachers.

- We will offer good tools for course streaming.
- We will increase the resources for computer science instruction in Swedish.
- We will expand instruction in Swedish to act as language immersion for Finnish-speakers and non-Finnish-speakers. Further, a larger target audience will encourage the expansion of instruction in Swedish and thereby benefit Swedish-speaking students.

Start date: 1.1.2022, end date: 31.12.2024

Person in charge roles: Vice-Dean

Person in charge: Vice-dean for bilingualism, the teaching services

Action follow-up: 70%

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- 2021: "Naturvetenskaper nu" for all upper secondary schools in Finland, 8/2023 Swedish-language professorship of computer science, tvex program started in mathematics, physics and chemistry teacher's bachelor's degree program, introductory courses in some disciplines in Swedish

14. Virtual and physical international mobility

Border-crossing access to laboratories (infrastructures)

Description:

-
  - We will participate in the European Trans-National Access (TNA) programmes for sharing laboratories across borders.
  - Our staff and students may visit laboratories abroad with the help of the TNA programmes.
  - We will develop the documentation of our laboratories and enable laboratory visits at Kumpula with the help of TNA grants.
  - We will continue developing the Ubiquitous Campus (ubicampus) concept and adapt our facilities to a post-Covid19 world.

Start date: 1.1.2023, end date: 31.12.2024

Person in charge roles: Vice-Dean (Public Engagement)

Person in charge: Vice-dean for research, TUTTO

Action follow-up: 34%

:

- Starts on 1 January 2023, 2023: Ubicampus concept ready and usable, promotion of shared use of laboratories / Profi7

16. Business collaboration and innovation

We will promote partnerships, corporate collaboration, and innovation work to become a natural part of our everyday operations.

Description:

- **Corporate collaboration – enforcing innovations and partnerships with companies**
  - We will create an environment for innovations and industrial collaboration.
  - We will organise innovation clinics (with companies).
  - We will launch / build our own partnership network in Kumpula.
  - We will create efficient and versatile processes, as well as a support system for corporate collaboration.
  - We will promote shared infrastructure funding and shared use of the infrastructures with our industrial partners.

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Dean

Person in charge: Vice-dean for research, vice-dean for societal interaction, TUTTO, VYS

Action follow-up: 80%

:

- 2021: Campus investigation underway, companies have shown interest in additional space in Kumpula. 2022: Campus innovation platform / Kumpula Innovation Platform underway. We are investigating the possibilities of building a new innovation house. Incubator operation started. 2023: The implementation of Kumpula's innovation platform has been launched through several projects, especially the Helsinki City Innovation Fund's major project together with FMI

and the Industrial Doctoral Program (DSII). Pre-incubator and incobator operation established. Several dozen incubator teams, of which the longest-running teams received over a million euros in support (exact information about the incubator). New laboratory building related to industry coming to campus.

17. Academic freedom and inclusivity

We promote the inclusivity of researchers at different career levels

Description:

-
  - We support the inclusivity, professional skills and career development of researchers at different career levels through the PI and Junior Faculty Club networks.
  - The faculty supports high-quality research projects applications.

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Dean

Person in charge: The deans, HR, TUTTO

Action follow-up: 80%

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- 2021: See also subject for development 18. "Wellness groups in departments (mainly OPT staff and supported by YPA)" The faculty grants incentive funding for the preparation of applications. 2022: Science smoothie scientific events promote networking and cooperation, mentoring, feedback from the Matias group on FIRI applications, the faculty financially supports the preparation of projects, the topic of academic career in the supervisors' network and the Junior Faculty Club 2023: Tenure track (Assistant/associate) professors' career path event at the end of September 2023. Event for early career researchers and laboratory staff. Annual community and well-being event.

The best place to study and work

18. A thriving work and study community

Increasing equality, diversity, and wellbeing in Kumpula

Description:

- **“Inclusive and diverse communities are resources for increasing courage, creativity, openness and trust in the workplace”**
  - We support an encouraging and engaging leadership culture.We support leaders and supervisors with the help of training and regular mail communications.
  - We will continue to build our diverse community by investing in e.g. the induction of international staff into the faculty. We also plans to support people who will start teaching in Finnish.
  - We will pay ever more attention to the eradication of inadvertent discrimination based on ethnic background or gender.
  - Faculty will collect data about international students and the development of their wellbeing.
  - We will offer motivating training with a low threshold for the staff and especially for the wellbeing teams. We will integrate wellbeing-related training into academic seminars and courses.

  Based on the 2023 occupational well-being survey, occupational well-being measures have been updated

  - Workload management: Employees are encouraged to discuss workload-related issues with their superiors. We support employees in prioritizing work tasks (we also know how to say no).
  - Supervisors' work: Ensuring and strengthening the role of supervisors.
  - New employees' orientation to department's/group's practices (peer-to-peer orientation, check list)

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Dean, Vice-Dean

Person in charge: The dean, vice-dean for societal interaction, HR

Action follow-up: 75%

:

- 2021: Network and letter of supervisors, personal support of supervisors from HR (autumn 2021), Finnish language courses for international staff, anti-racism event, training related to well-being at work, the Star of Africa crisis calmed down, 2022: Kumpula Campus Inclusivity event in May, in October "In Kumpula

we can manage… Or can we?" - event, well-being measures discussed in addition to wellbeing groups in the departments, management group and faculty council, 2023 Wellbeing event, Flamma's discoverability, the dean's support for equality and travel to conferences with equality and work well-being themes, unisex toilets, students' gender distributions can be found on our external websites, cooperation with student organizations' harassment contact persons. 2024: The faculty will attempt to collect data on especially international students and wellbeing in order to improve their wellbeing.

The departmental well-being teams (mainly teaching and research staff supported by YPA)

Description:

-
    - We will make processes more efficient and practices better – clarifying the role of the teams.
    - We will build low-threshold processes and a culture for investigating difficult situations, harassment, and bullying.
    - We will build models and cooperation networks for the management of the flow of information.

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Vice-Dean

Person in charge: Vice-dean for wellbeing, HR

Action follow-up: 80%

:

- 2021: role of well-being groups aligned (dean's decision), supervisor letter, well-being groups work actively 2022: roles clarified, training for low-threshold contact persons, Teams channel for well-being groups, 2023: systematically developed the role of work well-being groups in analyzing the results of the work well-being survey, development of Flamma's discoverability (links), training of contact persons for well-being groups

We strengthen the high quality and effective management of degree programmes

Description:

- We increase dialogue between education program leaders and department heads, supported by teaching resource groups

Start date: 9.1.2022, end date: 31.12.2024

Person in charge roles: Dean, Vice-Dean (Academic Affairs)

Person in charge: Dean, Vice Dean for teaching, leaders of departments

Action follow-up: 80%

19. An attractive employer

We will increase international awareness of our competitive and prosperous academic community

Description:

-
    - We will improve the visibility of research and teaching with up-to-date web sites and resources to marketing, etc.
    - We will make marketing campaigns for social media, drawing attention to our international and diverse staff.
    - We will create guidelines for filling vacancies to ensure that vacancy announcements are spread widely in the appropriate channels.
    - We will make our interdisciplinary collaborations visible.

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Dean

Person in charge: The dean, HR

Action follow-up: 70%

:

- 2021: activity on social media, "Dance your PhD", without exception high-level international applicants for professorships 2022: recruitment process updated (more comprehensive preparation of application notices), 2023: equality and welfare clauses added to job advertisements

A sustainable staff structure and plan

Description:

-
  - We will organise mentoring for our young researchers at the beginning of their career paths.
  - We will draw up a roadmap/ guideline for advancing in an academic career (e.g. clear criteria for the tenure track for young researchers).
  - We will make sure that the division of labour is fair, and the work follows the requirements – regular meetings with heads of departments and degree programmes to ensure a fair division of labour. We will also improve the work-plan process.
  - Our internal communication is sufficient as it stands, and appropriate communication channels are being used – active comms team.
  - We will develop the induction process for new employees and employees taking on new roles.
  - Sustainable HR planning

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Dean, Vice-Dean

Person in charge: The dean, HR, VYS

Action follow-up: 80%

:

- 2021: Mentoring in progress, career path-supporting trainings planned, JFC active. In the spring, an orientation process for new degree program leaders was implemented both at university level and in the faculty. In addition, a separate orientation package for the head of department. Orientation of new employees is systematic. The personnel plan is updated and used systematically. 2022: Events related to academic careers have been implemented, the personnel plans of the departments are constantly updated and reviewed as a whole by the faculty's steering group. 2023: Resource groups for all departments, career path event for assistant professors,

Our University is a leader in responsibility and sustainability

21. An international hub of sustainability science and teaching

Scientific solutions can enable sustainability – we are looking for solutions for a circular economy

Description:

-
  - We will create high-quality multidisciplinary understanding (between natural, life and social sciences, chemistry, physics, atmospheric science, geosciences, and method sciences) necessary for discovering new and more advanced solutions.
  - We will register inventions and patents relating to sustainability issues.
  - We will actively participate in HELSUS and other networks for sustainable development, the operations of the international space organisation, and creating a sustainable space policy.
  - We are cooperating with China, Africa, and other rapidly developing economies and contributing to development projects.

  Specialised fields and skills that we are strengthening and developing:

  - research into energy-efficient software solutions for data centres and mobile devices
  - methods and techniques to cut back on carbon dioxide emissions and other waste and to create a circular economy
  - atmospheric research – interaction and the carbon cycle in the biosphere
  - utilising space – we will participate in the work of the international space organisation and the formulation of a space policy
  - knowledge about sustainable development and pollution issues in developing countries and economies
  - knowledge about the chemistry of a circular economy for developing economies
  - research into the materials of sustainable development
  - focusing on safe and clean geothermal energy.

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Dean

Person in charge: The Dean, TUTTO

Action follow-up: 70%

:

- 2021: Nanjing cooperation, Africa cooperation (e.g. Taita 10 years, Nairobi as a strategic partner), faculty involved in the development of new geothermal energy solutions, corona situation utilized in urban air research, Una Europa Sustainability candidate program 2022: new circular economy chemistry professorship opened for applications, new sustainable geological natural resources tenure track professorship filled 2022, starts 1 January 2023, 2023: Nanjing cooperation progressed / education export starts, new building at Taita station, education of climate experts

International leadership in sustainability research on the interaction between earth, atmosphere, and space

Description:

- **International leadership in sustainability research on the interaction between earth, atmosphere, and space**
    - In its leading roles, the faculty will build and exploit the new global infrastructures required to understand and achieve sustainable development.
    - We develop new multidisciplinary methods and approaches to understand and address earth and climate interactions.
    - A leading role in the development of an international standard to prevent the build-up of space debris.

  Results:

    - High potential for increased international research funding
    - New multidisciplinary approaches are widely used in universities and society
    - Increase in the number of degrees in master's programs due to strong research status
    - The university is becoming more attractive to Bachelor students - making education more attractive
    - Nanjing Cooperation: first university export of full degree packages, approximately EUR 2 million per year
    - HY's first satellite launch in 2022

Start date: 1.1.2022, end date: 31.12.2024

Person in charge roles: Dean

Person in charge: The Dean, TUTTO

Action follow-up: 80%

:

- 2022: James Webb satellite launch,

22. Increased financial leeway

Selected UH actions: “We will strengthen our financial leadership.” “We will continue with our dedicated fundraising at home and abroad.”

Description:

-
    - We will continue with our active monthly financial follow-ups. The objective of our long-term planning is to gain a surplus as set by the rector (4% by year 2024).
    - We will enforce the link between financial and HR planning and create a long-term infrastructure plan.
    - We are trying to find new ways of saving and will not launch any new endeavours (unless we receive new funding).
    - The starting packages are important and will be increased when possible to battle international competition.
    - We will develop a system of incentive funding in collaboration with the research-funding services.
    - We will invest in fund-raising, e.g. Swedish data, sustainability research, insurance mathematics, MOOCs.
    - We will continue with such successful measures as application mentoring and events at the departments for embarking on funding applications. We will attempt to increase our funding from foreign foundations, the EU, and the Academy of Finland.
    - We will support contracts for corporate cooperation and the collaborations (model / guidelines).
    - Once our economy is balanced (surplus 4%), we will support new endeavours for implementing the university strategy.

Start date: 1.1.2021, end date: 31.12.2024

Person in charge roles: Dean, Vice-Dean (Public Engagement)

Person in charge: The dean, vice-dean for societal interaction (fundraising), FINANCE, VYS

Action follow-up: 70%

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- 2021: funding for three professorships received in fundraising (circular economy chemistry, actuarial mathematics, Swedish data), foreign funding increased, funding for equipment purchases for new chemistry professors (starter packages)

3 Resources

3.1 Faculty's short- and long-term economic outlook

As the implementation plan for year 2024 is being written, the University level core funding is unknown for year 2024. However, we are assuming that the faculty's core funding will not change significantly in relation to 2023. The core funding for the Faculty of Science was c. 39.2M€ for year 2023. The frame includes the stabilizing core funding, strategic funding, funding for the research schools, and the funding for the national units. The latter consist of funding the Helsinki Institute of Physics (HIP), LUMA Centre Finland, and the Institute for Atmospheric and Earth System Research (INAR). Furthermore, the total budget includes also; proceeds from investments, funding from increased student admission and other funding (which are not included in the financing model). The total core funding for year 2023 is approximately 40.5M€.

The faculty had accumulated surplus of 9.5M€ in the beginning of year 2018. The faculty made two clearly deficit years in 2018 and 2019. Surpluses were spent on maintaining the normal operations of the faculty and balancing our economy, since the frame for our core funding was cut considerably during 2018 and 2019. After year 2019, the faculty had only 1.1 M€ accumulated surplus. However, the faculty's result turned positive in 2020 and 2021. The faculty has made considerable savings and staff have been encouraged to apply external financing. Also, the COVID pandemic has led to savings and less spending on core funding. The result for year 2022 was more in deficit than expected. The result was weakened by a strong increase in expenses, due to e.g. the war in Ukraine. At the beginning of year 2023 the faculty had accumulated surplus of 2.3 M€. The result target (budget) for the current year was a deficit of 0.7 M€. At the time of the implementation plan, the faculty's economic performance is weaker than expected, with a deficit of 1.2 M€ at the end of July 2023. For the rest of the year, we predict an increase in expenses, but on the other hand, the faculty is trying to restrain the growth of the deficit with active financial means. The total result for 2023 is predicted to be around 1.0 M€ in deficit.

The challenge for years 2024-2027 is the increasing salaries in core funding, due to salary increases according to collective agreements and the ending of the Profi fundings from the Academy of Finland. After Profi fundings have ended, the salaries of staff on Profi funding will be paid from faculty's core funding. The faculty still wants to invest in the starting packages for new professors. We also support new openings when the economic situation allows, and we distribute moderate support funding and travel funding for PIs. The faculty's long-term goal is to collect about a 4-6% surplus compared to the total income, which is about 3.7 – 5.5 M€ calculated from the total income of 2022.

The faculty's dean prepares the budget based on the budget principles. Department-specific authorizations are defined in connection with budgeting. The realization of incomes and expenses are monitored on monthly basis and the annual forecast is updated based on the realization. The faculty's budget will be entered into the SAP financial system by 31 October 2023.

3.2 Focuses of staff structure development – The HR plan

The faculty's HR plan pays special attention to the work community's 1) wellbeing at work, 2) equality and parity, and 3) strengthening leadership work. Each department draws up their HR plans taking into consideration the focus areas and new endeavours in research, the needs of the degree programmes and other changes in operations, possible retirements, and the 3rd- and 4th-tier tenure-track posts that are funded in part or completely with external funding. The departments will present their annually updated recruitment plans to the faculty steering group, as a part of the faculty's annual resource planning. The deans will assess and authorise the prioritised plans of the departments, and vacancies can be announced within the framework of financial resources.

During the follow-up period 2020-2024, we can expect some 20 retirements on the faculty level; around half of them are professors and the rest are university lecturers, researchers, and lab and other staff. As a whole, the number of permanent teaching and research posts at the faculty is expected to remain at the current level; it is only at the Department of Computer Science that the number of permanent teaching and research posts is expected to increase somewhat due to extensive and long-term projects, the large need for education in the field, and the strategic focus on data. Most of the current tenure-track assistant professors – some 40 persons – will advance on their career path during the follow-up period, either to their second assistant professorship period or as tenured professors. A career model for university lecturers implemented at the faculty in late autumn 2020. We will discuss the creation of shared co-funded professorships with external partners. When filling a professorship, we always consider whether it could be funded through large projects, such as ERCs, flagships and profiling actions, or through university fund-raising.

Within doctoral education, the goal is to increase the number of doctoral students. This is also the goal of the doctoral programmes on the university level, which will be implemented e.g. through increased cooperation with foundations.

Wellbeing in the workplace

The significance of self-management has increased further during these exceptional times with Covid-19. The faculty will encourage the staff to attend training aiming at increasing their personal wellbeing at work and organise training as a part of other events. Inappropriate treatment will not be tolerated at the faculty and will be dealt with severely. The university's first Code of Conduct has been written for the campus. One of the follow-up period's goals is to make the CoC and the processes for handling difficult situations better known. The wellbeing teams in the departments are important agents for stepping up wellbeing in each department. A clarification of the role of the wellbeing teams, training directed at them, and support for their work are primary objectives. A sense of community will be promoted within the faculty and units in collaboration with the wellbeing teams by e.g. organising events and happenings.

The faculty will also be paying attention to the fair division of labour, especially when it comes to teaching duties. The resourcing of teaching and the working-plan process will especially be reviewed from this aspect. Further, management, as well as target-and-development talks hold a principal role in this. We have started to develop and clarify the induction process of new employees and employees transferring to new duties, in collaboration with supervisors and service providers. We are also planning an annual networking event for new 3rd- and 4th-tier researchers, organised by the dean. Career coaching is being planned for researchers in the early stages of their careers.

Equality and parity along with management work

The share of international employees among teaching and research employees at the faculty is nearly 38%, and it has been rising quickly in the last five years. The increase has been strongest on the 2nd tier of the career path, and at the moment, over 60% of the staff on this tier has an international background. This makes the integration of international staff into the working community one of the priorities both for the sake of equality and wellbeing at work. One of the tangible actions is

e.g. the use of English in meetings, events, and general communications, to ensure an equal chance for international employees to participate in the work and development of the working community. The faculty is also piloting an experiment with supporting Finnish lessons for employees. Further, we are planning various thematic events by the faculty, departments and wellbeing teams to e.g. increase cultural understanding, as well as eradicating unthinking discrimination based on ethnic background or gender.

Employee group	Employee sub-group	2017	2018	2019	2020	2021
		Share of international staff				
	4th tier	17.2 %	14.3 %	16.3 %	17.2 %	20.0 %
Teaching and research staff	3rd tier	18.9 %	22.3 %	26.4 %	26.5 %	23.7 %
	2nd tier	43.1 %	51.2 %	56.2 %	62.5 %	58.6 %
	1st tier	30.9 %	32.8 %	31.4 %	36.5 %	39.8 %
Teaching and research staff total		**29.1 %**	**32.8 %**	**34.0 %**	**37.8 %**	**37.8 %**

Source Rapo

Increasing the share of women among the teaching and research staff is still a primary goal, though their number has risen steadily. Supporting young female researchers and ensuring their equal career opportunities is one of the main objectives of the faculty. The wellbeing teams and various networks are important agents in promoting this.

We will also pay attention to unthinking prejudices within recruitment practices, and develop the knowledge of HR and recruitment committees to reach the most diversified and best applicants while increasing the attractiveness of the University of Helsinki and Faculty of Science.

Employee group	Employee sub-group	2017	2018	2019	2020	2021
Teaching and research staff	4th tier	12	11	14	15	16
	3rd tier	43	52	58	59	57
	2nd tier	54	50	55	66	66
	1st tier	98	93	92	96	115
	Other teaching and research staff	0	1	1	1	3
Teaching and research staff total		**207**	**207**	**220**	**223**	**257**

Source Rapo

Supporting management with the aid of stronger communication and training is one of the primary objectives of the follow-up period. Induction of new managers through personal meetings and directing them towards the management training organised by the university are some of the practical measures. The supervisors of doctoral students are also introduced to subjects like managers' responsibility for wellbeing at work.

3.3 Facilities plan

The faculty has concentrated all its operations to four of the university's buildings. Several companies have rented space in Chemicum and Exactum. The faculty is committed to effective use of facilities, and the departments are also steered towards this by way of economic incentives. The faculty will continue to attempt cutting back the portion that facility costs take out of the basic funding. The faculty will continue to monitor the facility use and costs of its departments in relation to their strategic goals, staff numbers, and the extent of their operations.

In connection with the facility rearrangements, the sufficiency, co-use, and cost effectiveness of expensive lab facilities will especially be investigated. The push for more office space will be curbed by transforming dedicated workspaces into modern, dynamic work environments, taking staff needs and opinions into account.The faculty has run a pilot for a smart campus in connection with the university's digitalisation programme; new kinds of workspaces have been created in Kumpula as a result. In future, teaching spaces will also be converted into learning environments supporting interactive teaching.The digitalisation of teaching also calls for increased adaptability of the facilities.The use of exam aquariums will be supported and increased. Hallways, corridors, and library facilities will be developed to support interaction between teachers and students and improve the general atmosphere on campus.

The faculty is promoting the renting of facilities to businesses via the Kumpula Business Lab project and will promote and deepen the cooperation with science-orientated upper-secondary schools, as well as other bodies closely tied to the teaching and research on the science campus.

A new building has been built in Kumpula to house the Helsinki upper secondary school specialising in natural sciences (2023 -). Helsinki University Properties, University of Helsinki and the City of Helsinki have drawn up a leasing contracts about the construction project. Having the natural sciences school close to the faculty will support the faculty's objectives of improving the interest in science and enable the further development of cooperation with upper secondary schools. The science upper-secondary will use teaching spaces and auditoriums in the university buildings for teaching on a per-hour reservation basis (approx. 5,000 hours in total). This will raise the efficiency of teaching-space utilisation on campus to a good level. The gym centre will also be used for the school's physical education lessons.

3.4 Communications plan

The operative plan for communications and influencing at the faculty defines the objectives, focuses, themes, and target groups of communications. The plan is based on the strategy of the University of Helsinki, the 2021-2024 executive plan for the faculty, and the university's strategic plan for communications and influencing. The university's strategic plan for communications and influencing will be compiled in cooperation during autumn 2020.

With a shared plan for strategic communications and influencing that runs through the whole organisation we will strengthen the impact of communications and bring transparency and efficiency into the planning of communications. The goal is to make the University of Helsinki more impactful than ever during the next strategy period, and to strengthen its reputation, its image among its interest groups, and status in society.

The objective of the faculty's operative plan is to enforce its target image of being highly regarded around the world as a high-standard and versatile research and education unit, as well as support the basic mission of the faculty: to make our teaching and research known, promote the utilisation and impact of research, as well as enforce the faculty's interaction with society at large.

Plan for communications and influencing 2021 – 2024 Kumpula

3.5 MAXIMUM NUMBER OF STUDENTS AND DEGREE GOALS

Maximum number of new admissions and degree goals (per year):

Bachelor's programmes 814
Master's programmes 668
Doctoral programmes 100

Bachelor's programmes 514, Master's programmes 462, Doctoral programmes 76

Uusien opiskelijoiden enimmäismäärät ja tutkintotavoitteet

Koulutusohjelma	Tutkinto-taso	Aloituspaikat				Tutkintotavoitteet			
		2021	2022	2023	2024	2021	2022	2023	2024
Bachelor's programme in Science	Alempi	50	50	50	50	30	30	30	30
Fysikaalisten tieteiden kandiohjelma	Alempi	110	110	110	110	80	80	80	80
Geotieteiden kandiohjelma	Alempi	40	40	40	40	25	25	25	25
Kemian kandiohjelma	Alempi	110	110	110	110	55	55	55	55
Maantieteen kandiohjelma	Alempi	69	69	69	69	54	54	54	54
Matemaattisten tieteiden kandiohjelma	Alempi	155	155	155	155	90	90	90	90
Matematiikan, fysiikan ja kemian opettajan kandiohjelma	Alempi	60	60	60	60	50	50	50	50
Tietojenkäsittelytieteen kandiohjelma	Alempi	220	220	220	220	130	130	130	130
Alkeishiukkasfysiikan ja astrofysikaalisten tieteiden maisteriohjelma	Ylempi	30	30	30	30	15	15	15	15
Datatieteen maisteriohjelma	Ylempi	50	50	50	50	25	25	25	25
Geologian ja geofysiikan maisteriohjelma	Ylempi	40	40	40	40	30	30	30	30
Ilmakehätieteiden maisteriohjelma	Ylempi	40	40	40	40	35	35	35	35
Kaupunkitutkimuksen ja suunnittelun maisteriohjelma*	Ylempi	30	30	30	30	24	24	24	24
Kemian ja molekyylitieteiden maisteriohjelma	Ylempi	55	55	55	55	40	40	40	40
Life Science Informatics-maisteriohjelma	Ylempi	30	30	30	30	10	10	10	10
Maantieteen maisteriohjelma	Ylempi	60	60	60	60	48	48	48	48
Master's programme in Environmental Changes at Higher Latitudes**	Ylempi	13	13	13	13	5	5	5	5
Matematiikan ja tilastotieteen maisteriohjelma	Ylempi	70	70	70	70	55	55	55	55
Matematiikan, fysiikan ja kemian opettajan maisteriohjelma	Ylempi	60	60	60	60	50	50	50	50
Materiaalitutkimuksen maisteriohjelma	Ylempi	40	40	40	40	20	20	20	20
Teoreettisten ja laskennallisten menetelmien maisteriohjelma	Ylempi	40	40	40	40	20	20	20	20
Tietojenkäsittelytieteen maisteriohjelma	Ylempi	110	110	110	110	85	85	85	85

**Master's programme in Environmental Changes at Higher Latitudes –maisteriohjelma toteutetaan yhteistutkinto-ohjelmana Islannin maatalousyliopiston (Land-búnaðarháskóli Íslands), Helsingin yliopiston ja Lundin yliopiston (Lunds Universitet) kesken.

*Kaupunkitutkimuksen ja suunnittelun maisteriohjelma on yhteisohjelma Aalto-yliopiston kanssa. Aaltoon valitaan myös 30 opiskelijaa.

Alkeishiukkasfysiikan ja maailmankaikk. tutkimuksen tohtoriohjelma (Papu)	Tohtori	10	10	10	10	8	8	8	8
Geotieteiden tohtoriohjelma (GeoDoc)	Tohtori	10	10	10	10	8	8	8	8
Ilmakehätieteiden tohtoriohjelma (ATM-DP)	Tohtori	23	23	23	23	18	18	18	18
Kemian ja molekyylitieteiden tohtoriohjelma (Chems)	Tohtori	15	15	15	15	12	12	12	12
Matematiikan ja tilastotieteen tohtoriohjelma (Domast)	Tohtori	12	12	12	12	12	12	12	12
Materiaalitutkimuksen ja nanotieteiden tohtoriohjelma (Matrena)	Tohtori	15	15	15	15	10	10	10	10
Tietojenkäsittelytieteiden tohtoriohjelma (DoCS)	Tohtori	15	15	15	15	8	8	8	8

Koulutusohjelma	Tutkinto-taso	Lopulliset lisä-aloituspaikat 2022
Geotieteiden kandiohjelma	Alempi	4
Maantieteen kandiohjelma	Alempi	15
Matemaattisten tieteiden kandiohjelma	Alempi	12
Matematiikan, fysiikan ja kemian opettajan kandiohjelma	Alempi	10
Kemian kandiohjelma	Alempi	5
Fysikaalisten tieteiden kandiohjelma	Alempi	20

Tietojenkäsittelytieteen kandiohjelma	Alempi	65	
		131	

Education programme	**Degree level**	**Extra starting slots**	
		2021	2022
Bachelors programme in geosciences	Undergraduate	2	2
Bachelors programme in geography	Undergraduate	5	5
Bachelors programme in mathematical sciences	Undergraduate	7	7
Bachelors programme in computer science	Undergraduate	10	10

4 Indicators

International co-authored publications (share)

- Type: Follow-up indicators for the strategic plan 2021-2030
- Planning year: 2024
- Goal: 80 %

Indicator for wellbeing in the Finnish Bachelor’s Graduate Survey

- Type: Follow-up indicators for the strategic plan 2021-2030
- Planning year: 2024
- Goal: 82 %

Measure for job satisfaction

- Type: Follow-up indicators for the strategic plan 2021-2030
- Planning year: 2024
- Goal: 4.1

Continuous learning

- Type: Follow-up indicators for the strategic plan 2021-2030
- Planning year: 2024
- Goal: 26500

High-quality and international open-access publications

- Type: Follow-up indicators for the strategic plan 2021-2030
- Planning year: 2024
- Goal: 750

Employer recommendation index (NPS)

- Type: Follow-up indicators for the strategic plan 2021-2030
- Planning year: 2024
- Goal: 0

Share of student feedback respondents (Bachelor’s Graduate Survey) in the target group

- Type: Follow-up indicators for the strategic plan 2021-2030
- Planning year: 2024
- Goal: 90 %

Share of international students pursuing a second-cycle (master's) degree

- Type: Follow-up indicators for the strategic plan 2021-2030
- Planning year: 2024
- Goal: 20 %

Index of work ability

- Type: Follow-up indicators for the strategic plan 2021-2030
- Planning year: 2024
- Goal: 3.8

Supervisor index

- Type: Follow-up indicators for the strategic plan 2021-2030
- Planning year: 2024
- Goal: 4.2

5 Risk management

Risk name: The lack of students with a good basic proficiency in mathematics

Description:

- The competition for applicants who have taken mathematical subjects in upper secondary school is increasing. The faculty does not receive a sufficient number of good students and the starting slots are not reached. Maintaining students' initial levels is challenging, leading to delays in graduation and an increase in the workload of teachers and pressure to decrease the learning targets of courses and degrees. This, in turn, decreases our attraction in the eyes of the best students.

Development area: An attractive provider of master's and doctoral education

Follow-up: 4 (Serious), **Probability:** 4 (Likely), **Level:** 16, **Trend:** –

Owner: Vice-Dean (Academic Affairs)

Treatment actions

1. Improving attraction

Treatment action description:

- The faculty's attractiveness among applicants will be improved through, among other things, the faculty's close cooperation with upper secondary schools and science education activities that extend to lower education levels and have a very long-term impact, involving children, young people and entire families. Strengthening Kumpula's brand. The faculty invests in student recruitment and marketing of application sites, as well as monitoring student choices. Foreign student recruitment will be strengthened.

Treatment option: Reduce

Person in charge: Vice-dean of education, degree program leaders

Treatment tracking date:

Treatment status: In process

Risk name: Increased facility costs (energy crisis)

Description:

- As a result of rising internal rents and cut-backs in basic funding, facility costs are becoming too large a factor in total costs, especially in departments with laboratory-intense work, which may direct the work in an undesirable direction with respect to the strategic objectives.

Development area: Increased financial leeway

Follow-up: 3 (Moderate), **Probability:** 5 (Very likely), **Level:** 15, **Trend:** ↑

Owner: Dean

Treatment actions

1. Facilities fit for their purpose

Treatment action description:

- Improving our own use of facilities and the multi-purpose use of the space. We monitor the development of facilities costs and the share of total funding. We influence the university's facilities cost structure. We will increase cooperation related to business premises with educational institutions and companies, which can pay part of the premises rent.

Treatment option: Reduce

Person in charge: Dean, Steering group of the faculty

Treatment tracking date:

Risk name: Uncompetitive research equipment

Description:

- Due to economical restraints, modern, new research equipment cannot be acquired, and old equipment cannot be renewed to keep it up to date. As a result, the international competitiveness of the research will deteriorate, it will be harder to recruit international researchers, and the research will focus too much on theoretical and computational methods.

Development area: High-quality, up-to-date research infrastructures

Follow-up: 4 (Serious), **Probability:** 3 (Possible), **Level:** 12, **Trend:** –

Owner: Dean, Vice-Dean (research)

Treatment actions

1. Investment/infrastructure plan

Treatment action description:

- In autumn 2016, the faculty made a long-term investment plan. However, the financial situation has prevented the faculty from acquiring all the equipment that top-level research would require. The faculty examines its research infrastructure as a whole. In this way, the conditions for long-term infrastructure planning can be improved and the shared use of infrastructure can be made more efficient. The investment plan is updated annually. We support the Academy's infrastructure searches.

Treatment option: Reduce

Person in charge: Vice-dean for research

Treatment tracking date:

Treatment status: In process

Risk name: The strong pull of working life

Description:

- The pull of working life is so strong that some undergraduates enter it very early, never finishing their degrees or finishing significantly delayed. This results in a weak performance in the core funding criteria. This risk is double-edged, though, since it is also an advantage that the employment market has such a strong pull on students.

Development area: Smooth student progress

Follow-up: 3 (Moderate), **Probability:** 4 (Likely), **Level:** 12, **Trend:** –

Owner: Vice-Dean (Academic Affairs)

Treatment actions

1.

Treatment tracking date:

Risk name: Cuts in basic funding

Description:

- As the basic funding is decreasing, the departments and degree programmes are narrowing their selection of courses; teaching and research posts cannot be filled any longer; experimental research is cut back because it demands expensive lab facilities and instruments; vital research equipment is not acquired, leading to a crumbling infrastructure; technical and administrative staff supporting research is cut back. This all leads to less productivity in the faculty and, thus, cuts down competitiveness in acquiring external funding.

Development area: Increased financial leeway

Follow-up: 4 (Serious), **Probability:** 3 (Possible), **Level:** 12, **Trend:** –

Owner: Dean

Treatment actions

1. Supporting growing and developing fields

Treatment action description:

- The faculty's negotiations with the rector. Strategic basic funding must be directed at the university to support growing and developing fields. The university should profile itself more boldly. Measures are being taken to increase/improve results in OKM's funding model.

Treatment option: Avoid

Person in charge: Dean, Vice-deans

Treatment tracking date:

Treatment status: In process

Risk name: Risks in the work environment

Description:

- - Development of the Kumpula area and preparedness for minor phenomena in the urban environment (e.g. vandalism, unauthorised movement on campus)
  - The impact of the social debate on racism and possible restrictions on the entry and residence of people of foreign origin, e.g. on welfare, recruitment of foreign students and staff.
  - Faculty-specific chemical handling and storage, equipment damage, valuable research infrastructure, radiation risks and fieldwork.

Development area: Responsibility and sustainability integrated into operations culture

Follow-up: 3 (Moderate), **Probability:** 3 (Possible), **Level:** 9, **Trend:** ↑

Owner: Dean

Treatment actions

1. Safety and security action plan (turvallisuussuunnitelma)

Treatment option: Reduce

Treatment tracking date:

Treatment status: Not started

2. Locking and access rights (preparing for changes in the urban environment)

Treatment action description:

- Locking policies and good management of access permits to ensure a secure environment. In cooperation with external experts, campus security managers (rakennusten suojelupäälliköt), facilities services and UH safety and security management (turvallisuusjohto)

Treatment option: Avoid

Person in charge: dekaani ja kampusarkkitehti

Treatment tracking date:

Treatment status: In process

3. Ensuring adequate induction and competence

Treatment action description:

- Building a safety test for students (and staff?) on campus. Sections e.g. lab safety, facilities safety, psychological safety.

Treatment option: Share

Person in charge: Varadekaani?

Treatment tracking date:

Treatment status: In process

4. Increasing safety culture and awareness (staff and students)

Treatment action description:

- Operating safety organisations and evacuation exercises in all buildings 2024.

  Safety walks for safety organisations (suojeluorganisaatiot) 2024.

  Campus Safety Day 2024, in cooperation with campus facilities and security (near miss incidents/läheltä piti -tilanteet, reporting problems detected, etc.).

  Encourage staff to use ID cards, campaign 2024?

Treatment option: Share

Treatment tracking date:

Risk name: The weakening brand of the Faculty of Science and Kumpula research community

Description:

- If the research community loses its power of attraction, neither staff nor student body will attract the best, but rather, we will lose the competition for the best teachers and students to other Finnish universities and other countries. Large and renowned research groups will leave the faculty because they do not feel at home here any longer. The motivation of teachers wanes as gifted students leave. It is a wicked circle.

Development area: A thriving work and study community

Follow-up: 4 (Serious), **Probability:** 2 (Unlikely), **Level:** 8, **Trend:** −

Owner: Dean

Treatment actions

1. Taking care of the operating conditions

Treatment action description:

- We support the operating conditions of research groups. We take care of the well-being of both staff and students. Work well-being and students' well-being must be monitored regularly and central problems must be actively addressed. Teachers' motivation must be taken care of.

Treatment option: Avoid

Person in charge: Dean, Faculty steering group, Wellbeing groups

Treatment tracking date:

Treatment status: In process

Risk name: A global catastrophe

Description:

- A wholly unexpected global catastrophe or occurrence, like a pandemic, large natural catastrophe, rapidly rising sea levels, or an armed conflict would have an immediate and significant effect on the world, including Finland.

Development area: A thriving work and study community

Follow-up: 4 (Serious), **Probability:** 2 (Unlikely), **Level:** 8, **Trend:** ↑

Owner: Dean

Treatment actions

1. A functioning organization for exceptional and emergency situations

Treatment action description:

- A functioning organization (situation center) for exceptional and emergency situations. Readiness for remote work, teaching and studying.

Treatment option: Reduce

Person in charge: Dean, Steering group of the Faculty

Treatment tracking date:

Risk name: Information security risks

Description:

- The University's IT Centre (TIKE) maintains data security, provides a secure environment and advises university staff on data security issues.

  The faculty ensures the proper storage of confidential material (for example, research projects), the proper storage, disk space, servers and network environment, and the functioning and security of the network. NDA contracts in business collaborative projects prevent the dissemination of confidential information.

  Locking and access policies help to ensure security on campus.

  The faculty is also paying particular attention to the risks associated with specific national and authority tasks (VERIFIN, SEISMO) and international cooperation (e.g. the opening of a new training programme in China).

Development area: Responsibility and sustainability integrated into operations culture

Follow-up: 3 (Moderate), **Probability:** 2 (Unlikely), **Level:** 6, **Trend:** ↑

Owner: Dean

Treatment actions

1.

Treatment tracking date:

Risk name: Data protection risks

Description:

- In general, research carried out in the Faculty does not process data relating to an individual person.

  Units whose tasks include, for example, national authority tasks or the arranging courses, comply with data protection regulations and legislation on authority activities.

Development area: Responsibility and sustainability integrated into operations culture

Follow-up: 2 (Minor), **Probability:** 2 (Unlikely), **Level:** 4, **Trend:** ↑

Owner: Dean

Comments: Risk will be updated.

Treatment actions

1.

Treatment tracking date:

6 Attachments

1. Budget

2. Human resources plan

Links

Henkilöstörakenteen kehitys (taulukko SAP):
https://sapwww.it.helsinki.fi:44306/irj/servlet/prt/portal/prtroot/pcd!3aportal_content!2fcom.sap.pct!2fplatform_add_ons!2fcom.sap.ip.bi!2fiViews!2fcom.sap.ip.bi.bex?TEMPLATE=ZSUUNTAHRRAPORTTI&LANGUAGE=FI

Budjetti (SAP):
https://sapwww.it.helsinki.fi:44306/irj/servlet/prt/portal/prtroot/pcd!3aportal_content!2fcom.sap.pct!2fplatform_add_ons!2fcom.sap.ip.bi!2fiViews!2fcom.sap.ip.bi.bex?TEMPLATE=ZSUUNTATULOS&LANGUAGE=FI