



KNOWLEDGE THAT SHAPES SOCIETY

A NATURAL SCIENCE POWERHOUSE

STRATEGY 2023 - 2030 // UNIVERSITY OF BERGEN

FACULTY OF MATHEMATICS AND NATURAL SCIENCES



1825 Wilhelm Frimann Koren Christie established the Bergen Museum. In 1865, the museum moved into a new building at Nygårdshøyden, where Fridtjof Nansen took his doctorate in 1888.



1905 The Bergen Museum established an earthquake station and the first earthquake monitor, *Strassburger schwerpendel*, was acquired.



1928 The citizens of Bergen erected a new building in the Florida area of Bergen for the geophysical academic communities, the Bergen School of Meteorology (founded by Vilhelm Bjerknes) and the Forecasting Division of Western Norway.



1946 The Storting adopted a resolution on 9 April 1946 to establish the University of Bergen. The foundation stone was laid and the University was formally opened on 10 October.



1958 EMMA (Electronic Mathematical Machine) was the first IBM 650 computer to be purchased in Norway. EMMA was installed on 7 May 1958.



1977 The 47,000 m² Natural Science Building was completed. This building is one of the largest single buildings in Norway, with modern and flexible laboratory facilities.



1989 Norway's first science park, the High Technology Centre, opened. The science park currently houses over 1,000 employees, and 150 companies are now located in the Marineholmen area of Bergen.



2003 The Bjerknes Centre for Climate Research and the Centre for Integrated Petroleum Research became the first centres of Excellence in Research at the faculty. Since then, the Centre for Geobiology and the Birkeland Centre for Space Science have been granted the same status.



2013 BioCEED became the first Centre of Excellence in Education at the faculty. iEarth was awarded the same status in 2019, and the faculty has now two centres of Excellence in Education.



2016 UiB established its first engineering programme for aquaculture and seafood. Since then, engineering programmes have been established for Energy, Ocean Technology, Medical Technology, Information Technology and Economics and Data Science.



2023 Our talented researchers do very well when competing for national and international starting grants (TMS, NFR, ERC, etc.).



2026 Allégaten 64, the first phase of the Nygårdshøyden South project, will be completed. UiB will share the premises with external partner companies in an ICT and innovation hub.

The world is facing major challenges relating to energy needs, climate change and biodiversity. Our research and our students will be key knowledge providers during society's transition to the sustainable use of resources. We will lead the way in knowledge, social and business developments for our region, Norway and the world.

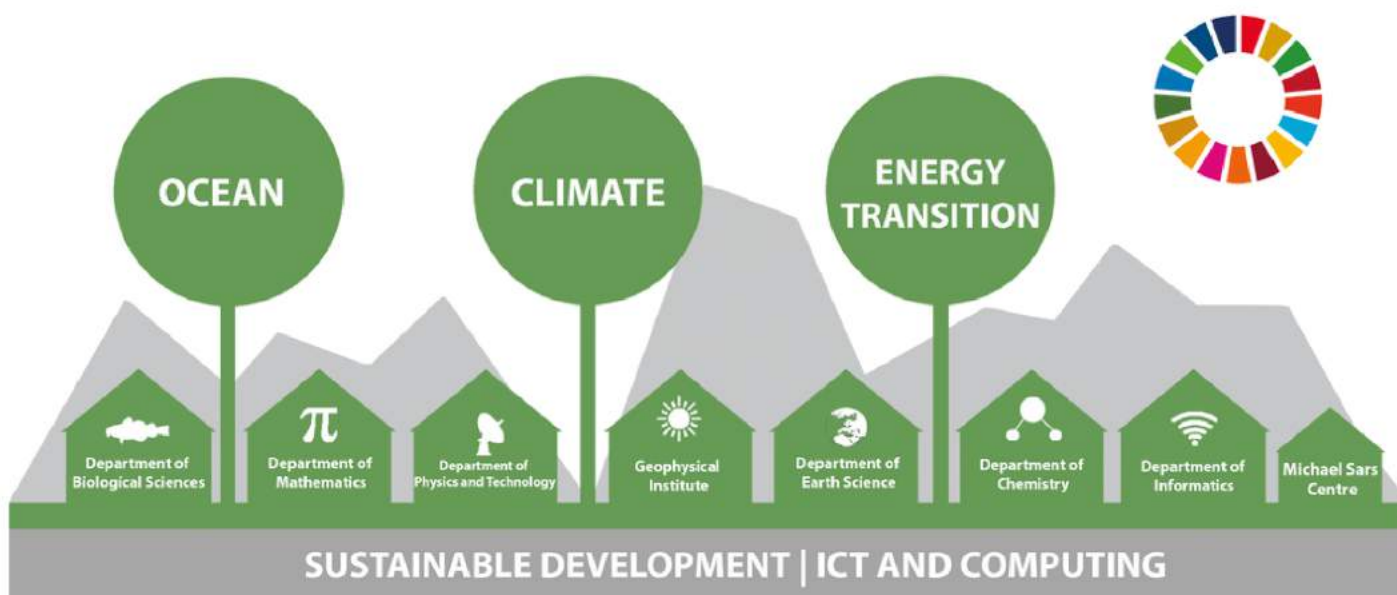
A natural science powerhouse

Strategic Perspectives 2023-2030

Our most important resources are our students and our employees. Today's students will be part of the knowledge-based workforce until 2075. Our employees – researchers, teachers, technical staff and administration personnel – are continuously laying the foundations for new insights and learning. The Faculty of Mathematics and Natural Sciences creates new knowledge, solves social challenges and addresses the need for adaptation by providing research and research-based education. We want to be a driving force behind the essential transition towards a responsible use of resources and a more sustainable society.

We collaborate across all subjects and disciplines with Norwegian industry, business and international research partners. Our knowledge will be openly available, actively disseminated and debated. By gaining a deeper insight and engaging in joint efforts, #RealfagUiB will strengthen our influence and importance in society. In particular, we will play a prominent role in basic research, education and innovations relating to the oceans, the climate, energy, ICT and sustainability.

The faculty's strategy is aimed at realising UiB's 2023-2030 Strategy entitled Knowledge That Shapes Society. This strategy contains our overall perspectives and goals, and it will be followed up in the individual strategies of our departments and centres. Furthermore, we will be drawing up joint action plans, policy documents and selected indicators, and our strategy will provide guidelines for our internal control work and budget priorities.



RESEARCH



1. Laboratories with living organisms

Zebrafish have a long history with respect to molecular life science research. Access to different model organisms is important for academic communities in several of our departments and the Michael Sars Centre.

2. On the trail of Arctic climate change

Preparation of glider – an underwater drone – for investigations in the Icelandic Sea. UiB operates an entire fleet of such drones under the auspices of The Norwegian National Facility for Ocean Gliders, NorGliders.

3. In space

The Birkeland Centre for Space Science (Centre of Excellence) played a key role in the development of the ASIM instrument connected to the International Space Station (ISS).



We contribute to a sustainable development by top-quality scientific research

The faculty will continue to develop strong academic communities that will drive science forwards and pave the way for solving society's challenges by pursuing curiosity-driven ground-breaking research. At Nygårdshøyden South, this will take place in world-class facilities, with modern laboratories suitable for a wide range of theoretical and experimental research.

The natural sciences discover and explore fundamental laws of nature and complex interrelationships. The development of new theories and algorithms is a prerequisite for supporting our increasingly digitalised society. Similarly, technological innovations relating to scientific instrumentation are a very important driver of knowledge development in the natural sciences.

At the Faculty, we are developing new insights in and across all disciplines. Our knowledge is a driving force behind policies for the management of nature,

the polar regions and the green shift. The oceans, climate and energy transition are therefore the main pillars of the Faculty's research initiatives, while ICT, computing and sustainability are common themes for all our departments and centres. Our researchers combine laboratory experiments and observations of natural systems with mathematical modelling and data analysis. Our strong fundamental research communities contribute towards finding solutions to regional, national and global challenges.

Together, our researchers and students are creating new insights that are facilitating needed changes. Many of society's challenges require close collaboration across all disciplines, with other research institutions and with society and the business sector. By achieving a good balance between academic breadth and targeted initiatives, our disciplines contribute to solutions for the future.

DURING THE STRATEGY PERIOD, WE WILL:

- Support and develop our international top-level research communities
- Strengthen and highlight cooperation across all disciplines, and with national and international research partners
- Secure our research communities future-oriented research infrastructure and digital resources
- Increase our national and international influence in relation to oceans, climate, energy transition, ICT and sustainability
- Offer research training and serve as an attractive employer for young researchers

EDUCATION AND LEARNING ENVIRONMENT



1. Active learning methods

Our students experience active forms of learning where they collaborate in order to solve current problems.

3. Around the world with Statsraad Lehmkuhl

The goal of One Ocean Expedition is to create awareness and share knowledge about how important oceans are for a sustainable future. 90 students, including 56 UiB students, attended our interdisciplinary SDG200 sustainability course

2. Undertaking expeditions in polar regions

Students on the ice in the Arctic Ocean taking part in the preparation of advanced equipment for measurements and sampling.

4. Research-based study programmes

Our study programmes are research-based and the theoretical knowledge is challenged in the laboratory with observations and experiments.



We educate candidates to take on the challenges of a changing world

The faculty educates highly qualified students who have the knowledge and skills required for meeting tomorrow's challenges. Research-based study programmes in fields such as oceans, climate, biodiversity, energy transition and ICT provide students with the insight and tools necessary for contributing towards sustainable development.

Our students experience research-based teaching and learn to explore and challenge theory by conducting scientific experiments and using scientific methods. Students at Bachelor's, Master's and PhD level actively participate in the research process and use modern scientific equipment in laboratories and in the field. Our study programmes are strongly grounded in individual disciplines, our students are challenged with interdisciplinary perspectives and learn to cooperate and engage in entrepreneurship. Programming, visualisation, and data analysis are important skills in all our study programmes.

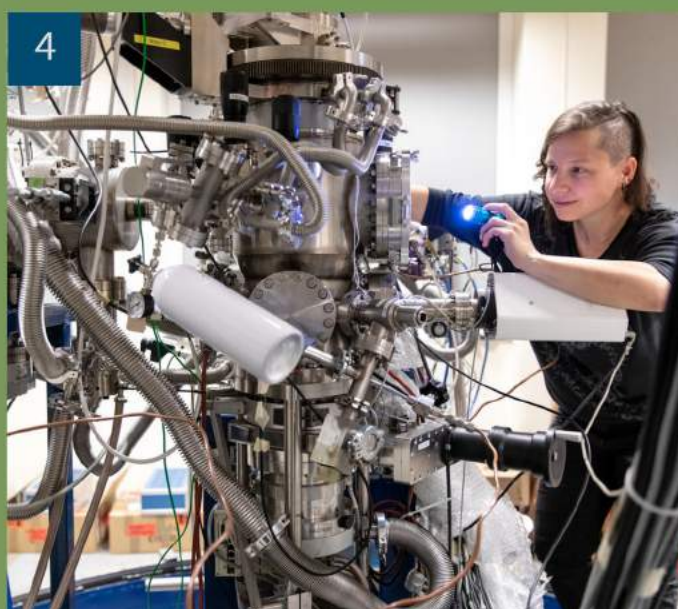
Our teachers use research-based teaching methods and share their experiences of digital tools and work methods. Knowledge from our centres of excellence in education, bioCEED and iEarth, helps to promote the quality of education provided throughout the faculty.

Nygårdshøyden South is a natural science hub where students can learn together and by meeting dedicated researchers, teachers and professionals from society and the business sector. The campus will invite exploration and collaboration on current, interdisciplinary, and global challenges, and provide students with a solid foundation for interesting and meaningful careers in a dynamic and international job market.

DURING THE STRATEGY PERIOD, WE WILL:

- Be an attractive place of study that offers future-oriented and research-active education
- Develop student-active learning methods and make use of new ways of assessing knowledge and skills
- Offer learning spaces and digital tools that promote student activity, involvement and interaction
- Encourage student volunteerism, active participation and an inclusive learning environment
- Lay the foundations for lifelong learning by providing students with sound basic academic competence and skills relevant to working life
- Be a key actor when offering research-based lifelong learning in our focus areas

INNOVATION AND REGIONAL DEVELOPMENT



1. Career weeks - #Realisér

Our students are very sought-after on the labour market: more than 90% of them are offered relevant positions within six months of completing their studies.

3. Marine cluster

Marineholmen, with its 150 companies and research institutions, develops knowledge about ocean areas, resources and aquaculture. SFI Smart Ocean and the Salmon Lice Centre are also important contributors to sustainable management of the oceans and marine resources.

2. #RealUtfordring

Our students challenge themselves and the world around them. In collaboration with major actors such as Vipps, Ikea and Tise, they solve problems using sustainable solutions.

4. Nanotechnology and diamonds

Advanced instrumentation provides new insights within the field of nanotechnology, from basic research to new products. New solutions for applying diamond coating to three-dimensional objects is one of the innovative ideas that has earned both ERC and TMS Starting Grants.



Our natural science powerhouse creates future-oriented solutions

The Faculty furthers our fundamental knowledge to create new insights into sustainable, smart, safe solutions for society's needs. In a dedicated new building, UiB invites strong research communities, international partners, local communities and the business sector to interact, exchange knowledge and engage in entrepreneurship. We facilitate student-driven innovation through access to research infrastructure, workshops, knowledge clusters and innovation arenas.

Academic curiosity, research and research-based education are the foundations we provide for boosting external cooperation. We will strengthen our partnership with society and the business sector in order to enhance innovation and provide work-relevant professional training for our students. We will be strong supporters of regional development and serve as a driving force behind cooperation within our primary pillars: ocean, climate and the energy transition. We will also use our academic strengths to contribute towards new solutions within the fields of ICT, molecular life science and health.

Our natural science powerhouse allows for interdisciplinary perspectives and facilitates research-driven innovation collaboration. The Faculty will support innovation and entrepreneurship among its employees and contribute towards the development of good organisational frameworks for our activities.

In their capacity as employees, our students will contribute towards innovation, business and social development in a 50-year perspective. The foundations they create through academic specialisation and developing their abilities to engage in innovation and interdisciplinary interaction are a key part of our innovation contribution.

DURING THE STRATEGY PERIOD, WE WILL:

- Expand our regional cooperation with society and the business sector in order to solve major societal challenges and meet the needs of the green transition
- Strengthen and highlight our contributions towards innovation
- Provide students with sound innovation skills that make them particularly attractive on the labour market
- Strengthen work-relevant practices in our study programmes
- Build new spaces for ICT and innovation in Allégaten 64

DISSEMINATION AND COMMUNICATION



1. CO₂ capture and storage.

Interdisciplinary museum exhibition that explores what porous media is, and how CO₂ storage can take place in efficient and safe manner.

3. Plastic in the ocean.

UiB has taken special responsibility for SDG no. 14 – Life Below Water, an initiative that goes hand-in-hand with the goals of Ocean City Bergen. Plastic in the ocean was an important topic at the festival held at Marineholmen.

2. Archimedes' labyrinth.

Norway's first full-scale botanical labyrinth consists of 1,330 yew trees and has been designed using spirals and symmetries based on basic mathematical rules.

4. Interaction.

Concert series in connection with the fiftieth anniversary of the moon landing that dealt with space, our oceans, our climate and our own development from a climate perspective.



We share knowledge for a sustainable society

The faculty is the community's knowledge bank within the fields of science and technology. We consider it our responsibility to share our research with the wider community in engaging and inspiring way. We aim to be a source of knowledge in the public debate.

Providing insight through the dissemination of knowledge is important, but also demanding. By being confident, accessible and clear in our communications, we will present knowledge – including knowledge that could be perceived as being controversial or conflictive. As an institution, we have a special responsibility to create safe guidelines so that our researchers and students can act freely as knowledge ambassadors.

As the region's natural science powerhouse, we shall also promote City of Knowledge Bergen and Ocean City Bergen by engaging in cooperation that enhances our common interests. Our main pillars, i.e. oceans, the climate and energy transition, as well as general topics such as ICT, computing and sustainability, will be prominent

in the profile of our Knowledge and Ocean City. We will contribute towards increased recruitment, business development and more highly skilled jobs in the region.

Motivated, creative and knowledgeable students who want to help solve today's and future challenges are important for us as an institution and for all future employers. By engaging in long-term reputation building, #RealfagUiB will increase awareness of our academic communities, study programmes, career paths and all the great things that Bergen has to offer as an educational city.

Nygårdshøyden South is the faculty's most important strategic development project during the period. The project is also one of the keys to realising our "University Without Walls" concept, i.e. a university that is more open and closer to society, the business and innovation sectors.

DURING THE STRATEGY PERIOD, WE WILL:

- Engage in a dialogue with society, the business and innovation sectors
- Have a clear voice in the public debate and contribute towards knowledge-based decisions
- Be an active contributor to City of Knowledge Bergen and Ocean City Bergen
- Develop the #RealfagUiB brand, placing particular emphasis on student recruitment
- Create internal and public ownership of the Nygårdshøyden South development project

THE WORKPLACE



1. Doctoral promotion

Every year, new PhD candidates graduate from within all of our academic fields and a high percentage of these have an international background.

3. Health and Safety in research and teaching

Our technical staff and safety representatives are important contributors and ensure that all employees and students have good procedures in place for all work processes.

2. Administrative services

Our administration are committed and professional. They provide administrative service for studies, HR, finances, research administration and general operations.

4. Digital everyday life

Our everyday digital work life requires that continuous competence development is available for all employee groups and that everyone follows good routines for data security.



We have an attractive and diverse working environment

Our most important resources are our students and our employees. Our working environment and development are based on common goals, energy, team spirit and participation. We have high standards in relation to health and safety HSE, information security and research ethics. Employees and students at the faculty should have a sense of belong and pride in their community. Together, we will create a safe, stimulating working and learning environment, academic freedom, skills and career development and ambitious academic results.

Recruitment and individual opportunities for further developing expertise are crucial for maintaining and strengthening competent employees in all job categories. Our organisation in general, and management in particular, will work continuously in order to obtain the best possible recruitment processes and the broadest possible recruitment base.

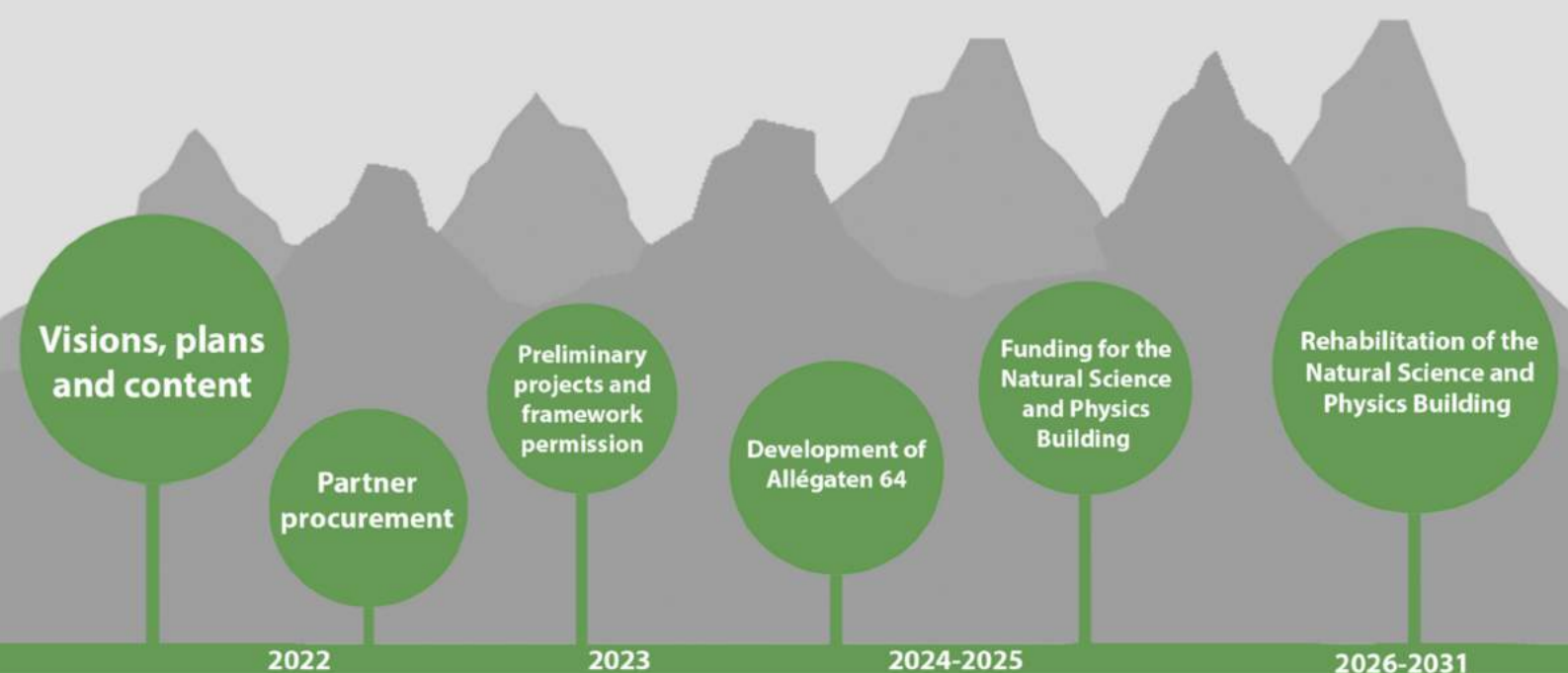
As a faculty, we need to be aware of the opportunities and challenges that are inherent in being a diverse workplace. We will raise awareness of the barriers to gender equality among our employees and students and continue our targeted work designed to break these down. We will work systematically and with a long-term perspective in order to improve gender equality and representative diversity.

Strong strategic and academic leadership is important and must be implemented in communication with employees and students. Management, support functions and infrastructure must be developed in line with changing needs and conditions. We will create future-oriented work and learning areas in line with our ambitions to be an attractive and well-regarded place to work and study. Our campus area will be developed alongside the changing world around us; "The University Without Walls" represents the interplay between education, research, the business sector and the city.

DURING THE STRATEGY PERIOD, WE WILL:

- Strengthen and develop the Faculty and UiB's reputation as an attractive employer
- Develop effective, high-quality recruitment processes
- Raise awareness about diversity and gender equality among our employees and students and lower barriers to equal opportunities
- Work systematically and purposefully with management tools, data security, research ethics and HSE
- Develop future-oriented and climate-neutral working and learning spaces

NYGÅRD SHØYDEN SOUTH - A NATURAL SCIENCE POWERHOUSE



Natural science powerhouse on a modern campus

Innovation hub that connects the business and innovation sectors, the city, students and research

Norway's largest recycling project

«Geofysen» – Climate and energy

The Geophysical Institute, the Bjerknes Centre for Climate Research, the Nansen Centre and the Bergen Offshore Wind Centre (BOW) are important partners for the climate and energy transition.

Marineholmen – Marine cluster

The Department of Biosciences, the Michael Sars Centre and 150 companies and businesses make up the marine research cluster at Marineholmen.

The Physics Building - Technology Centre

The Department of Physics and Technology, the Birkeland Centre for Space Science, our nano laboratories and an advanced technical workshop conduct experimental and theoretical activity at a high international level.

Nygårdsparken

NORCE

Media City
Bergen

Bybanestopp

Allégaten 64 – ICT and innovation hub

The Department of Informatics will, together with companies and businesses, create important contributions for ICT competence, pioneering innovation and sustainable restructuring in a new building.

**Natural science building
– A modern laboratory building**

The Department of Chemistry, the Department of Geosciences, the Department of Mathematics, the University Museum and the University Library are located in the building for advanced instrumentation, laboratory activities and learning.

Til Muséiplassen

Photo : Eivind Senneset: s1, s4, s6, s8, s12, Emil W. Breistein: s2, Silje Katrine Robinson: s2, s10, Gry E Parker: s2, Marcus.no: s2, Wikimedia Commons: s2, Geofysisk institutt: s2, Kristine Flacké Haualand: s2, Melanie Burford: s2, Sindre Skrede: s4, European Space Agency: s4, Algot K. Peterson: s4, Maren Kateraas: s4, Jens Helleland Ådnanes: s8, Jin Sigve Mæland: s8, s12, Thor Brødreskift: s10, s12, Ole Marius Kvamme: s10, Maren Bjotveit: s12,



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