

March 2023

Information for applicants to positions at the Department of Data Science, REALTEK, NMBU

History and organization — NMBU

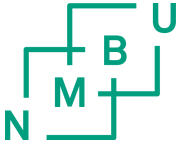
[NMBU](#)'s history began with the establishment of an agricultural college at Ås in 1859. The college was promoted to a research college with the right to confer doctoral degrees in 1897. In 2005, we attained full university status, becoming the *Norwegian University of Life Sciences*, and merged with the Norwegian School of Veterinary Science in 2014, adopting our current Norwegian name and acronym NMBU, *Norges miljø- og biovitenskapelige universitet*. The veterinary school recently moved from Oslo to new facilities on our beautiful campus at Ås.

NMBU has about 6400 students (including over 500 PhD students), 1900 employees (of which 800 in academic positions) and offers 64 study programs. The university is organised into seven faculties:

- [Biosciences](#)
- [Chemistry, Biotechnology and Food Science](#)
- [Environmental Sciences and Natural Resource Management](#)
- [Landscape and Society](#)
- [School of Economics and Business](#)
- [Science and Technology \(REALTEK\)](#)
- [Veterinary Medicine](#)

History and organization — Faculty of Science and Technology (REALTEK)

[The faculty](#) was formed in 2005 by merging several institutes and adopted its current name and status in 2017. REALTEK currently has about 150 employees, including 70 PhD students and postdocs and 1400 students. Student numbers have grown markedly in recent years and the faculty now offers study programs across a broad range of engineering disciplines including Data Science, Industrial Economics, Physics and Robotics (five-year integrated master programs,



sivilingernør), and high-school science teacher degrees. We offer both a five-year and a two-year master program in Data Science. REALTEK's main office building was completely renovated in 2018 and further improvements of our facilities are under way. The faculty is organised in seven departments:

- Data Science
- Mathematics
- Physics
- Geomatics
- Building and Environmental Technology
- Mechanical Engineering and Technology Management
- Educational Science

An overview over [research groups at REALTEK is available on our website](#).

REALTEKs strategic goals are:

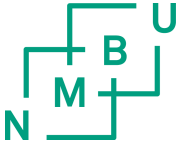
1. REALTEK is a faculty for employees and students with openness and mutual respect, great ambitions, academic freedom, collaboration, and community.
2. We educate graduates who are particularly attractive in the job market as they are competent in innovation and the interplay between people, nature, and technology.
3. We contribute primarily to solving selected United National Sustainable Development Goals. **We have strengthened research and innovation in applied data science**, education and human-centred technology.
4. An effective organisation adapted to our strategy.

[The complete strategy document is available on our website](#).



History and organization — Data Science at NMBU

NMBU and related institutions at Ås, such as NOFIMA, have a long tradition in statistics and data analysis, driven by research within animal breeding, design of experiments, multivariate analysis, chemometrics, and increasingly over the past two decades in image analysis including hyperspectral imaging. These activities are today mainly located in the *Breeding and Quantitative Genetics* and *Genome Biology* groups at the Faculty for Bioscience, the *Biostatistics* group at the faculty for Chemistry, Biotechnology, and Food Science, and at REALTEK in the Departments of Data Science, Physics, and Mathematics.



Building on these traditions, REALTEK has been offering a two-year English-language master program in Data Science since the academic year 2017/18, making NMBU the first Norwegian university to offer a Data Science program. From 2018/19, we also offer a five-year integrated Master of Technology in data science (sivilingeniør).

Data science is highly relevant for most other study programs at REALTEK, including the five-year integrated Master of Technology programs (siv.ing) in

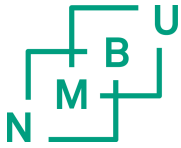
- Industrial economics and technology management
- Geomatics
- Robotics
- Environmental physics and renewable energy
- Structural engineering and architecture
- Water and environmental technology

About the Data Science department at REALTEK

Data science at REALTEK is focused on applications, and our research is inspired by the UN Sustainable Development Goals. Our faculty combines a wide range of engineering fields in a single building, facilitating frequent interdisciplinary interactions and joint strategic efforts between data scientists and fields of application. NMBU's compact and beautiful campus offers many further opportunities to apply data science, especially in biosciences and economics. At REALTEK and NMBU, you will never have to walk far to meet colleagues eager to engage in data science research.

Since the spring of 2019, Data Science is established as a department at REALTEK with responsibility for the Data science study programs and informatics courses, especially programming training. The department currently has seven faculty members, of which one is in a joint appointment with Industrial economics and technology management. A further associate professor will join us in June 2022. The department currently hosts six PhD students, one postdoc, and a few staff members working on externally funded projects. REALTEK has recently hired a head engineer in scientific data processing who will support data science.

With the current advertisement, we intend to strengthen and broaden the department in machine learning or data management or the intersection of both.



Faculty members in the Department of Data science are shown in the table below

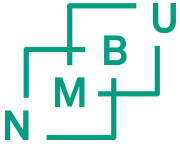
Name	Title	Profile
Hans Ekkehard Plesser	Professor	Brain Simulation Technology; department head
Kristin Tøndel	Professor	Multivariate data analysis, metamodelling, cardiac modelling
Oliver Tomic	Assoc prof	Multivariate data analysis, machine learning
Fadi Al Machot	Assoc prof	Machine learning
Habib Ullah	Assoc prof	Value-oriented deployment of data science
Martin Horsch	Assoc prof	Data management
Eirik Valseth	Assoc prof	Scientific computing
Jonas Kusch (from 1 June)	Assoc prof	Computing and machine learning
This call	Assoc prof	Machine learning or data management

We participate in [NMBU's Green Data Lab](#) project and a range of externally funded research projects, including

- Human Brain Project: Building a European infrastructure for brain science (Plesser)
- FutureFarm: Tomorrow's digital farming solutions (Tomic)
- PROVIZ: Prostate cancer visualization by MRI—Improved diagnostics using artificial intelligence (Tøndel)
- New Hydrate Management: New understanding of hydrate phenomena in oil systems to enable safe operation within the hydrate zone (Tøndel)
- DeepHyperSpec: Combining spectral and image information in the analysis of hyperspectral imaging data (Liland, Tøndel)
- DigiFoods: Digital transformation in the food industry with online sensors, data storage and advanced analytics (Liland).

Other colleagues involved in Data Science or closely related topics at REALTEK include

Name	Title	Profile
Ulf Indahl	Professor	Multivariate analysis, machine learning
Kristian Hovde Liland	Assoc. prof.	Multivariate processing and analysis, spectroscopy, machine learning
Ole Elvetun	Assoc. prof.	Optimisation
Cecilia Futsæther	Professor	Medical image analysis
Ingunn Burud	Professor	Hyperspectral imaging
Achim Kohler	Professor	Biospectroscopy
Pål From	Professor	Robotics
Kristian Berland	Assoc. prof.	Material theory and informatics
Leonardo Rydin	Assoc. prof.	Power systems
Mareile Wolff	Assoc. prof.	Meteorology



A characteristic feature of REALTEK and the Data Science department is a focus on collaboration and mutual assistance, fostered by a high degree of presence in the office.

Study programs at the Department of Data Science

The department is responsible for two study programs

- five-year integrated Master in Technology/Data Science (300 ECTS)
- two-year English-language Master in Data Science (120 ECTS)

with 25 student places per class in the five-year and 20 places in the two-year program. Recruitment to both programs is satisfactory, although we aim to improve the gender balance among incoming students. The first students to complete the two-year program easily found relevant positions upon completion of their studies.

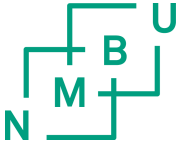
The department currently offers the following courses

Code	Title	ECTS	Lang.
DAT110	Introduction to data analysis and visualisation	10	N
DAT121	Introduction to two-year master program	5	E
DAT200	Applied machine learning	10	E
DAT300	Applied machine learning II	10	E
DAT320	Sequential and time series data analysis	10	E
DAT350	Applied healthcare data science and medical physics (from fall 2023)	10	E
DAT390	Data science seminar	10	E
IMRT100	Introduction to five-year master program	5	N
INF120	Programming and data processing	10	N
INF200	Advanced programming	10	E
INF221	Computer science for data scientists	10	E
INF230	Data processing and analysis	10	E

Other courses at the faculty especially relevant for data science include

Code	Title	ECTS	Lang.
IND320	From data to decision (from fall 2023)	10	E
INF250	Image analysis	10	E
MATH280	Applied linear algebra	10	E
MATH285	Optimization	10	E
MLA210	Machine-learning applications in finance and technology	10	E
MLA310	Matrix methods for data analysis and machine learning	10	E

We are planning to adjust our course offerings in coming years.



General information about the full-time positions

Research expectations

You are expected to develop your own research programme, build collaborations across and beyond NMBU and to attract research funding from national and international sources. REALTEK prioritises new faculty members for one doctoral student position early in their career, but most of our doctoral students and almost all post-docs are externally funded.

Teaching requirements

You will contribute to the development of and teaching in our two- and five-year master programs in Data Science. We also expect you to teach introductory courses for a broad audience as well as courses for non-specialists as part of a course rotation scheme in the department.

Normal course load is 20 ECTS credits per academic year, plus supervision of master and doctoral students. Most introductory courses are taught in Norwegian, while some graduate-level courses are offered in English. Student numbers range from around 400 for large undergraduate courses to 30 for advanced courses. As all colleagues in the department are expected to teach courses at all levels, the ability to teach in a Scandinavian language is required (at the latest two years, preferably one year, after starting in the position). The ability to teach in a Scandinavian language from day one will be considered a significant advantage.

You will also supervise master students. Our master students write a 30 ECTS thesis, usually from January to May of their final year. From 2023, we expect to have about 45 students writing a master thesis in Data Science per year.

Career development

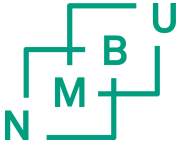
Sabbaticals are usually available after six years with a full teaching load and after four years for women in associate professor positions.

Given sufficient research production and teaching experience, associate professors can apply for promotion to professor in accordance with [NMBU's guidelines for appointment and promotion](#), Ch. 12.

Information specific to the position

We are looking for a colleague with research interests in machine learning or data management, ideally integrating the two fields via semantic technology, although this is not a requirement. We expect that you have contributed to the development or evolution of data science methods and not solely focused on applying existing methods. Your research should connect to ongoing research efforts at REALTEK and NMBU.

Teaching duties in the position will be mainly in machine learning or data management but may over time also include other courses offered by the department.



Evaluation process and comments on requirements

A scientific evaluation committee including external experts will be appointed to evaluate applicants on academic merit. The committee will provide shortlists for the position and evaluations will be shared with applicants according to rules and regulations for appointments to Norwegian academic positions.

On the basis of the shortlists provided by the scientific evaluation committee, the hiring committee for the position will invite candidates for trial lectures and interviews.

Applicants shall include a description of their teaching experience and ambitions [according to NMBU's guidelines](#) and a research plan indicating which of our focus areas they want to work in.

Comments on requirements for the position

Doctoral degree

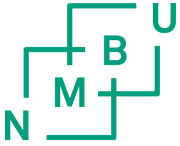
If you obtained your doctoral degree outside Norway, it has to be equivalent to a Norwegian doctoral degree. This is generally the case for doctoral degrees in sciences obtained in one of the 48 member countries of the European Higher Education Area following the "Bologna" qualification framework (EHEA-QF). For more information, please see section 2.4 of [NOKUT's Criteria for general recognition of foreign higher education](#).

Scientific achievements

Your scientific achievements will be evaluated based on your publications in international peer-reviewed journals, in rigorously peer-reviewed conference proceedings, or monographs. Please accompany your bibliography with information about your contributions to multi-author publications, at least for those publications included with your application. To be considered for a position, you must have a record of **peer-reviewed publications in the field of the position**. Mere practical experience within the field does not qualify for the positions.

Teaching experience

NMBU follows national guidelines for the educational competence of professors/associate professors, designed to further improve university education in Norway. As part of your application, you must provide an overview of your teaching experience and goals following NMBU's guidelines for documentation of teaching competence for [associate professor](#) positions, respectively.



University pedagogics training

Completed training is an asset. If you have not completed sufficient university pedagogics training, you will be required to do so within two years of starting in a full-time position, in addition to your normal teaching duties.

Experience in international and interdisciplinary projects

Data science crosses disciplinary boundaries in an international world of research. We expect that you have worked across both scientific and national boundaries.

Experience in supervision

Mentoring master and doctoral students is a demanding part of faculty duties; therefore, any documented experience in this is an asset.

Competence relevant to NMBU's focus on sustainability

Sustainability is central to [NMBU's strategy towards 2030](#). It would be ideal if you could contribute to making data science more sustainable through more energy efficient, less data hungry methods or applications of data science to achieve UN sustainability goals.

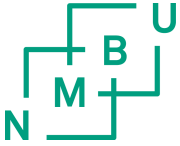
Experience with external project funding

As a faculty member, you are expected to create your own research area and team in collaboration with others. Experience either as a PI or as a junior project member assisting a PI in crucial parts of project acquisition or management is therefore considered useful. In the latter case, a statement of pertaining PIs about your role in projects would be valued.

Fluency in Norwegian, Danish, or Swedish

The main working language at NMBU is Norwegian and fluency in Norwegian, Danish or Swedish is therefore a significant advantage. **We expect that applicants who have lived in Norway, Denmark, or Sweden for more than two years will be able to hold their trial lecture in Norwegian, Danish, or Swedish.**

If you are not yet fluent in a Scandinavian language, we require that you become sufficiently fluent in Norwegian to teach Norwegian-language courses with in one, at the latest two years (minimum proficiency level B2; Danish and Swedish are fine provided the Norwegian students understand you well enough). We will support you in learning Norwegian if necessary. However, you should reflect carefully about whether you will have the motivation, determination, and talent to learn Norwegian well within a year.



Excellent spoken and written English

You will be teaching in English; therefore, we expect you to speak English at least as well as your (non-native-English speaking) students.

Further information

For more information, please contact

Prof Hans Ekkehard Plesser
Department Head Data Science
hans.ekkehard.plesser@nmbu.no
+47 6723 1560

For information about moving to and working in Norway, please see

<https://www.imdi.no/nyinorge> .