



# PhD Research Fellowship in statistics and machine learning

## Job description

A PhD research fellowship in statistics and machine learning is available at the Department of Mathematics of the University of Oslo (UiO), Norway. The fellowship is for a period of 3 years. The position is available from September 2019 with a flexible start between September and December 2019.

The position will be located at the Section for Statistics and Data Science at the Department of Mathematics and at the Research Group for Biomedical Informatics. The announced position is part of the [UiO Convergence Environment ImmunoLingo](#).

The aim of the ImmunoLingo project is to reveal fundamentally new principles of immune receptor biology, which will pave the way for rule-driven and fast digital design and selection of tailored immunotherapeutics and diagnostics. The ability to speak, manipulate and evolve the molecular language of immunity, denoted ImmunoLingo in the project, would allow for the first time to conceive superhuman immune systems and create groundbreaking new research and innovations. The fundamental hypothesis of ImmunoLingo is that there exists a meaningful structure in the amino acid sequence that defines what the receptor of an adaptive immune cell will recognize. This Ph.D. position will employ statistical dependence modeling to capture this underlying structure, among others using copula modeling. More specifically, the candidate will collaborate with computer scientists, linguists and immunologists in the ImmunoLingo environment to delineate regions of receptor sequence space that is associated with the recognition of the same antigen, employing dependency modeling and hierarchical models to characterize such regions of sequence space. The candidate will further collaborate with machine learning researchers in the group of Dr. Sandve using these dependency models to guide the development of machine learning methods for classifying antigen recognition of individual immune cells and for recognizing developing disease in patients based on blood samples.

This is an opportunity to join one of Europe's most active statistics and data science communities. The Section for Statistics and Data Science at the Department of Mathematics, to which Dr. Hobæk Haff belongs, currently includes 9 full time academic positions in statistics, 6 adjunct positions and several PhD students and post doc's, making up a group of about 30. Statistics at UiO is internationally recognized, with interests spanning a broad range of areas (including high-dimensional and big data, nonparametric inference, algorithmic methods, Bayesian inference, statistical computing, model selection, time-to-event models, space-time models and copula models) and applications (e.g. genomics, sensor data, anomaly and fault detection, text processing). In total, the statistics research community in Oslo includes more than 100 researchers. Dependence modelling, and in particular copulas, has been one of Dr. Hobæk Haff's major research fields over the past years. Dr. Hobæk Haff will be the main supervisor and Dr. Sandve will be co-supervisor for the successful candidate.

The Ph.D. studies at the University of Oslo are characterized by a very strong research component: the Ph.D. thesis usually includes several papers which are published in leading scientific journals, while the candidates are required to take a small number of advanced courses as part of the training component of their degree.

The Ph.D. candidate will be employed by the University of Oslo, thus enjoying all legal benefits in such a position, including health insurance, pension contributions and family welfare benefits.

## Qualification requirements

The Faculty of Mathematics and Natural Sciences has a strategic ambition of being a leading research university. Candidates for these fellowships will be selected accordingly, and expected to be among the best students of their class with respect to academic credentials.

- applicants must hold a Master's degree or equivalent in statistics, data science, statistical or machine learning, mathematics or a related quantitative subject, with proven competence in statistics. Excellent results in the MSc studies are required.
- foreign completed degree (M.Sc.-level) corresponding to a minimum of four years in the Norwegian educational system
- fluent oral and written communication skills in English <http://www.mn.uio.no/english/research/phd/application/application.html>

### Grade requirements:

The norm is as follows:

- the average grade point for courses included in the Bachelor's degree must be C or better in the Norwegian educational system
- the average grade point for courses included in the Master's degree must be B or better in the Norwegian educational system
- the Master's thesis must have the grade B or better in the Norwegian educational system

The ideal candidates have some experience in methodological statistics, and an outstanding potential and genuine interest to develop statistical methodology that solves key problems within the ImmunoLingo project. Good programming skills are required. The candidate should be motivated to learn about immune receptors and antigen recognition during the project, but no previous knowledge of biology or immunology is expected. We seek highly motivated and skilled persons, able to work effectively as part of a team, who are eager to both gain and share insight while being focused on publishing papers in leading international journals.

The purpose of the fellowships is research training leading to the successful completion of a Ph.D. degree. The fellowships require admission to the Ph.D. programme at the Faculty of Mathematics and Natural Sciences. The applications to the Ph.D. programme must be submitted to the

department no later than two months after taking up the positions. For more information see:

<http://www.uio.no/english/research/phd/>

<http://www.mn.uio.no/english/research/phd/>

## We offer

- salary NOK 479 600 - 523 200 per annum depending on qualifications in a position as PhD Research fellow, (position code 1017)
- attractive [welfare benefits](#) and a generous pension agreement, in addition to Oslo's family-friendly environment with its rich opportunities for culture and outdoor activities

## How to apply

The application must include

- cover letter, explaining why you are interested in this particular position (max 1 page)
- CV (summarizing education, positions and academic work)
- copies of educational certificates, transcript of records from both the bachelor and the master degree
- [documentation of english proficiency](#)
- list of own publications and academic work that the applicant wishes to be considered by the evaluation committee, including a copy of the master thesis, or a link to it, if available
- list of reference persons: 2-3 references (name, relation to candidate, e-mail and phone number)

The application with attachments must be delivered in our electronic recruiting system, please follow the link "apply for this job". Foreign applicants are advised to attach an explanation of their University's grading system. Please note that **all** documents should be in English (or a Scandinavian language).

## Formal regulations

Please see the [guidelines and regulations](#) for appointments to Research Fellowships at the University of Oslo.

No one can be appointed for more than one PhD Research Fellowship period at the University of Oslo.

According to the Norwegian Freedom and Information Act (Offentleglova) information about the applicant may be included in the public applicant list, also in cases where the applicant has requested non-disclosure.

The University of Oslo has an [agreement](#) for all employees, aiming to secure rights to research results etc.

## Contact information

For further information regarding the positions, please contact:

Associate Professor Ingrid Hobæk Haff, [ingrihaf@math.uio.no](mailto:ingrihaf@math.uio.no), or Associate Professor Geir K. Sandve, [geirksa@ifi.uio.no](mailto:geirksa@ifi.uio.no) .

For questions regarding the recruitment system, contact HR Officer Nina Holtan, [nina.holtan@mn.uio.no](mailto:nina.holtan@mn.uio.no) .

## About the University of Oslo

**The University of Oslo** is Norway's oldest and highest rated institution of research and education with 28 000 students and 7000 employees. Its broad range of academic disciplines and internationally esteemed research communities make UiO an important contributor to society.

**Department of Mathematics** is part of the Faculty of Mathematics and Natural Sciences. The Department is engaged in research covering a wide spectrum of subjects within mathematics, mechanics and statistics.

Jobbnorge-ID: 172305, Søknadsfrist: Avsluttet