The Department
of Biosciences

Highlights 2019

UiO : University of Oslo

Address from Head of Department

With new Bachelor and Master's programs launched in 2017 and 2018, respectively, the Department continues to implement and develop our education in many different ways. This year, we are pleased to see a significant increase in the number of students who choose to use their "development semester" to study abroad. Science and higher education are indeed international enterprises and both researchers and students benefit a lot from developing their international experience and networks.

To improve our skills as educators, a new initiative was launched this year offering a forum for exchanging experience and knowledge about educational topics such as efficient teaching methods, student-active learning, and much more. *Underverk* (eng.: *Wonders*) has been very well received and attracts a growing number of both senior and junior teachers. Good teaching and learning also requires good text books. We are therefore very pleased that a new textbook in *Evolutionary genetics* by Sæthre & Ravinet; Oxford University Press, was published and very well received this year.

IBV operates a number of research infrastructures and several of our researchers and engineers devote a lot of time and efforts to maintain and develop these. We were very pleased to see that the Research Council granted funds for NAPI: *National network of Advanced Proteomics Infrastructure*. IBV's proteomics facility is one of two UiO nodes which coordinate and lead this consortium, and we can soon expect to see new instruments and new proteomics services. UiO also launched its first round of accreditation of research infrastructure core facilities. Several IBV facilities obtained such status and some of them receive funds for facilitating availability of services or new functionalities.

In preparation for the new UiO Life Science Building, the Faculty of Mathematics and Natural Sciences decided to identify and map out its life science activities in all its departments. Naturally, IBV was deeply involved and we are pleased to see that we are prominently featured in the fourteen topic areas within life science at the Faculty.

In UiO:Life Science's second round of calls for convergence environment projects, IBV researchers are partners in two of the eight new projects. This adds to the two ongoing projects already funded in 2017.

Read more about these and other activities and events that have engaged our Department this year.

Rein Aasland

Rein Aasland

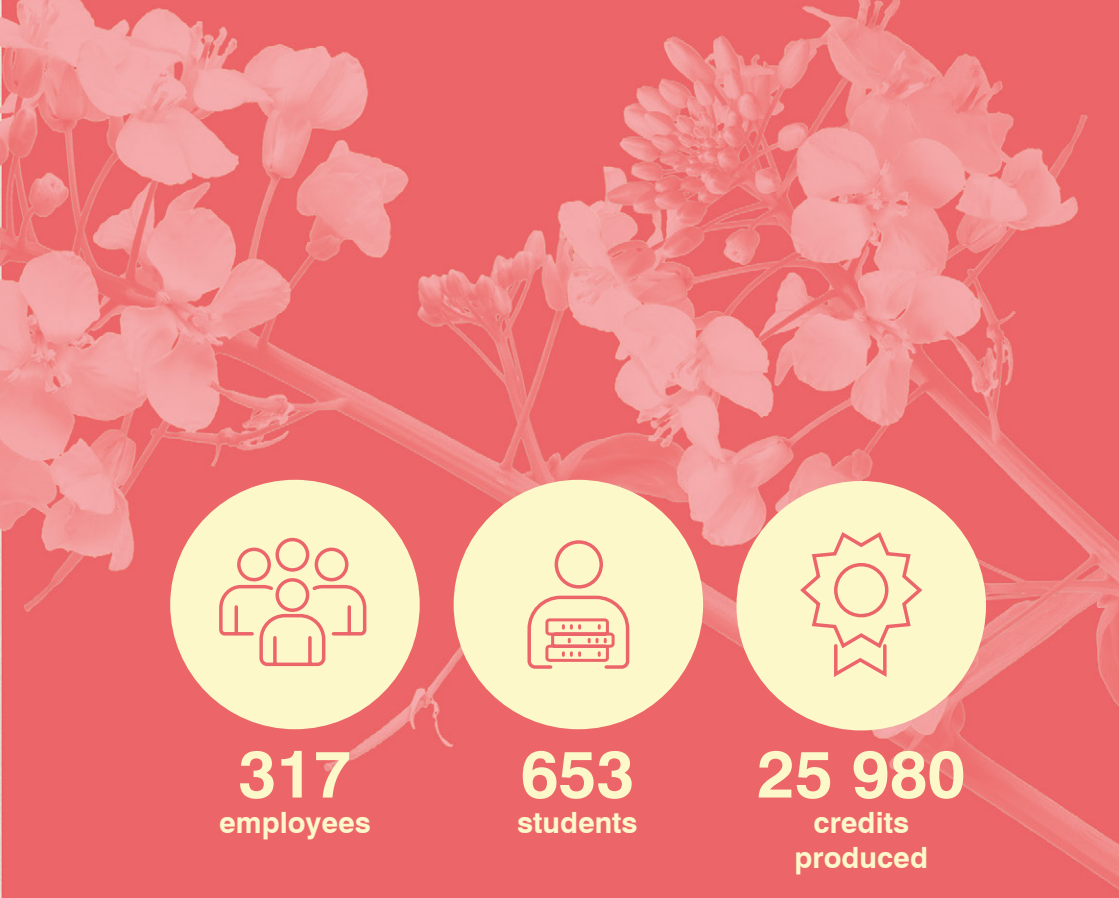
Head of Department
May, 2018

In brief

The Department of Biosciences (IBV) was established January 1, 2013, following the merge of the Departments of Molecular Biosciences and Biology.

The Department has five research sections: Aquatic Biology and Toxicology, Biochemistry and Molecular Biology, Physiology and Cell Biology, Genetics and Evolutionary Biology and Centre for Ecological and Evolutionary Synthesis.

The Department's research focuses on understanding the fundamental biological processes from molecular and cellular level to population and ecosystem level.



317
employees

653
students

25 980
credits produced

329
papers

Income:

283
mill NOK

221
projects

New pilot project: work practice in biosciences

To the great delight of the students in the bachelor's program in biosciences, a new course started in the autumn of 2019; BIOS3050 – Work practice in biosciences. Students will gain both work experience and training in communication and writing.

With work practice, students are able to link theory and practice, while at the same time gaining useful skills and building networks. This is something our students have called for, and something we believe is important for the students' motivation and future.

During the semester, students will write blog posts, a reflection note and give an oral presentation at the end of the semester. The reason why students should write a blog is so that more students can take part in it and get to know working life.

Education

406

is the total number of bachelor students

108

students started at the new bachelor-program in august 2018

121

is the total number of master students

92

master candidates graduated during 2018

126

is the total number of PhD candidates

23

PhD candidates defended their thesis

Scientific paper of the year

Every year at the Department Christmas Party there is a reward given to the best paper of the year. The winning paper this year was chosen for its impact in the field of immune-system based diseases. The work sheds light on the processes behind chronic inflammation in the gut in patients with celiac disease.

The committee was in agreement that the data will inspire future work that might lead to novel therapies. It is a great example of interdisciplinary work at the borders between applied medicine and basic biosciences, published in a flagship journal of the field

The award for the best scientific paper went to Geir Åge Løseth, Inger Sandlie and coworkers for the paper "Plasma Cells Are the Most Abundant Gluten Peptide MHC-expressing Cells in Inflamed Intestinal Tissues From Patients With Celiac Disease", published in Gastroenterology.

Popular science goes viral

The article “Powerful Icelandic Vikings were buried with stallions” did very well internationally. Albina Hulda Pálsdottir and Sanne Boessenkool removed all doubt: Horses buried with Icelandic Vikings were male.

Archaeologists in Iceland have for decades examined the remains of more than 350 graves from the Viking Age. In approximately 150 of these, teeth or bones of horses were found. Geneticists and archaeologists have now examined ancient DNA from 19 horses in such graves, and it turned out that all horses – except one – were male.

In Norway the article “Nature is a free, valuable and side-effect-free happiness pill” was a great hit. Outdoor life and nature experiences contribute to personal well-being and better public health, among other things by giving us healthier blood pressure and lower levels of stress hormones.

– This is not just about emotions, as some believe. The health-promoting effects of nature are very real, says Professor Dag O. Hessen in the article.

New convergence environments

Two of the eight new convergence environments in UiO:Life Science have research partners from the Department of Biosciences.

Debating the dead donor rule (DDR)
Availability and function of donor organs: Debating the dead donor rule (DDR) wants to increase availability and function of donor organs for transplantation and to create societal awareness and debate on ethical issues using Donation after Circulatory Death (DCD).

Department of Biosciences research partners:
Sjanne Lefevre and Göran Nilsson.

MultiModal Mental Models (4MENT)
MultiModal Mental Models: converging approaches from genomes to mental illness and interplay with psychosocial stressors (4MENT) wants to better understand the etiology and disease mechanisms of severe mental disorders, focusing on schizophrenia, bipolar disorder and related mental phenotypes.

Department of Biosciences research partner:
Marianne Fyhn.

Selected awards and prizes

International ecology prize
Professor Nils Chr. Stenseth is the first Norwegian researcher to be honored with a prize from the International Ecology Institute (ECI) in Oldendorf in Germany, for his outstanding research in marine biology.

The Sustainability Award
Clare Andvik won the award for best master's thesis on the UN's sustainability goals. Clare has studied the relationship between diet and environmental toxins in killer whales. The purpose of the award is to inspire originality and quality in master's projects that contribute to knowledge and insight into sustainable development.

Biomakerspace and a silver medal

Innovation scholarship for students who make solar cells from bacteria.

Seven students from the department, who participated in the international competition in synthetic biology, have received support from UiO: Life Sciences through the newly established biomaker space scheme.

In the project they have called Biosol, the students make solar cells using genetically modified E. coli bacteria.

The student team also won a silver medal in the international biology competition International Genetically Engineered Machines (iGEM) in Boston.

Research infrastructure

The Department has 12 larger research infrastructures, including a marine field station at Drøbak and an alpine field station at Finse.

The department includes several units with heavy equipment and a highly competent technical staff that works closely with the scientists. Most of these facilities can be hired for research activities.

- Ancient DNA laboratory (aDNA)
- CLIPT Stable Isotope Laboratory
- Electron microscopy (EM-Lab)
- Finse Alpine Research Center
- InVivo facility
- Marine Research Station Drøbak
- NORCCA - Algae collection
- Norwegian Sequencing Centre (NSC)
- Oslo NorMIC Imaging Platform
- Proteomics service
- Research vessels
- The Plant laboratory - The Phytotron

Prizes and awards

The best lecturer	The prize was not awarded this year, due to the corona situation.
Science communication Prize	The winner of the Science communications Prize was Geir Åge Løseth, Inger Sandlie and coworkers.
Darwin Prize	This years Darwin Prize was given to Glenn-Peter Sætre and Mark Ravinet.
Health, Safety and Environment Prize	Inger Skrede won the HSE-Prize for her effort to make lab work and field work as secure as possible.
The employee of the year	This years employee of the year was Kristian Prydz.

Reported research results 2019

329
journal articles

12
books chapters

187
conference contribution

34
in the media

27
reports

62
popular science in Titan

221

active projects

Currently there are 221 active projects led by, or involving, our researchers.

14 projects

are funded by EU Horizon 2020

103 projects

are financed by The Research Council of Norway

In addition, the department got 1 New RCN Young Research Talent project

The department takes part in the large research project the Nansen Legacy

9 projects

are funded by The Norwegian Cancer Society

Funding

The total income during 2019 was 283 mill NOK

Basis income
186
mill NOK

Projects
97
mill NOK

Basis

	Basis	Basis
Salary	61%	139 041
Running expenses	33%	73 919
Equipment	6%	13 915
Overhead	0%	0
Total	**100%**	**226 875**

External projects

	External projects	EFV
Salary	56%	65 945
Running expenses	18%	20 706
Equipment	1%	789
Overhead	25%	29 712
Total	**100%**	**117 153**

An international working environment

317
employees

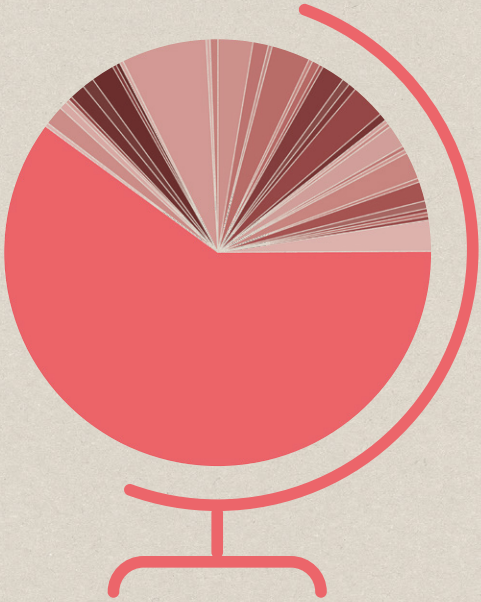
The Department has 317 employees.

34 **different countries**

51% **are women**

Overall 51% of our employees are women. Counting only scientific staff the number will be 50%. However, only 30% of our professors are women, whereas 64% of the PhD students are.

International staff



American	6	Danish	5	Icelandic	1	Polish	5
Australian	2	Dutch	9	Italian	7	Portuguese	3
Austrian	1	Estonian	2	Chinese	3	Russian	1
Brazilian	1	Ethiopian	1	Croatian	1	Spanish	9
British	9	French	8	Cypriot	1	Swiss	3
Bulgarian	1	German	20	Moroccan	1	Swedish	6
Canadian	5	Greek	2	Mauritian	1	Tyrkish	2
Czech	1	Indian	9	Norwegian	187		
Colombian	1	Iranian	2	Palestinian	1		

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