Senter for framifrå utdanning

bioCEED
Centre for Excellence in Biology Education

Annual report 2018

Front page photos: Winners of the Learning biology photo contest.

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ABSTRACT

In 2018, bioCEED continued to develop relevant biology educations to fill future needs in science and society, and we continued to facilitate the scholarship of teaching and learning across higher education in Norway and beyond more generally. These activities were guided by our four focus areas – teacher culture, innovative teaching, practical training, and outreach.

A major priority in 2018 was to host the ISSOTL conference. The international Society Of Teaching and Learning is one of the major international SOTL societies, and hosting the society's 2018 annual conference brought 680 SOTL researchers and students from around the world to Bergen, including a record 160 Norwegian participants for any HigherED teaching and learning conference in Norway. ISSOTL2018 was themed "A Learning Culture"; very suitable in the bioCEED and Norwegian HigherEd context. It was opened by the Minister of Higher Education Iselin Nybø, and received much attention and acclaim both nationally and internationally. Other important bioCEED contributions on the national level include participation in the debate and development of reward systems for Excellent Teaching Practitioners, and in discussions and initiatives to ensure that the ongoing revision of the Norwegian Higher Education Law will support (and not hinder) educational quality.

Locally, we have focussed on researching the impacts of various bioCEED projects and innovations, mainstreaming successful innovations into institutional structures and processes, and on constructively aligning different initiatives across courses and programs. These efforts are crucial for achieving broad, lasting and sustainable impact on educational quality locally, and are at the same time freeing up centre resources for new initiatives. We continued to develop, test, and research innovations such as digital learning tools, educational platforms, and various forms of practice to support student learning. Two PhD students graduated in 2018, and two more are now starting up their research on teaching and learning in biology.

bioCEED has a broad portfolio of outreach activities, each targeted at a specific outcome (either raise awareness, to improve understanding, and/or to foster action in one or more of our focus areas or projects) and audience (from internal communication via institutions to national and international audiences).

Specific planned actions for 2018 are described in the Action plan[1] and a detailed overview over activities and outputs regarding each of them can be found in this report and the Appendix.

[1] https://bioceed.uib.no/dropfolder/bioCEED/15_%20Final_Action_plan_bioCEED_Phase_2.pdf

Pride in broad involvement - and reflection on what's in a name...

bioCEEDs greatest pride, and arguably also our greatest achievement, is the strong and productive collegial culture that has grown amongst our staff and students during our time as a centre. Far from an isolated 'island', bioCEED is embedded in, supported by, and in increasingly strongly in demand from the staff and students at our host institutions and beyond. A majority of the scientific, technical and administrative staff at our host departments are now involved in bioCEED activities and projects. Many of our research and development projects originate from staff or student initiatives, and are also co-created, managed and led by staff and students beyond the bioCEED core group.

The potential and impact of this broad bottom-up involvement was fully demonstrated in 2018, when our students won the University of Bergen Teaching and Learning Environment Prize for the fully student-initiated and student-run project biORAKEL (see Focus area 2). This was the first time that students, not staff or departments, won this prestigious prize. The idea behind biORAKEL is that older students act as 'oracles' to help and mentor younger students with any kinds of problems they might encounter during their course work or studies more generally. Through a student-led forum with friendly oracles, waffles, and humour they create a low-stakes atmosphere where students can come to ask, learn, hang out and discuss biology or studying more generally. The learning outcomes are considerable, for oracles and participating students alike.

And there is more: at Svalbard, the student-driven and NOKUT-funded project bioBREAKFAST (see Focus area 2) has developed successfully through 2018, now also including non-biology students from the other departments. The bioCEED student representatives have also arranged student seminars on topics from statistics to dissemination and oral presentation techniques, and invited relevant workplaces to give career and employment advice. Our students themselves write about and present these and other projects at conferences such as ISSOTL18 Toward a Learning Culture and Learning Forum (see Appendix).

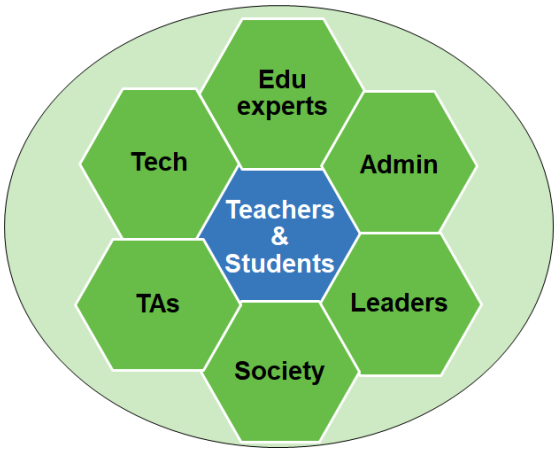

Fig 1 . To achieve excellence in education we must include, involve and inform students and teachers, but also other educational staff, the pedagogical experts, leaders and even society

This broad involvement in general, and the student initiatives in particular, have led us to question the very name of Focus Area 1, *Teacher culture,* which seemed so appropriate only a couple of years back. Now it feels oddly outdated and narrow, and we ask:

Is 2019 the year when bioCEED renames this focus area A Learning Culture, to reflect that the learning partnership involve the full breadth of students and educational staff within and beyond higher education programmes and institutions?

Focus area 1: Teacher culture and educational leadership

The development and promotion of a **collegial teaching culture**, based on SoTL and inspired by the research culture, is a major success and impact of bioCEED. In 2018 we have been putting in place mechanisms to broaden and deepen, assess, document and disseminate, and institutionalize activities and processes towards strengthening the collegial SoTL teacher culture within our host institutions[2]. Nationally and internationally, we have moved from case-based sharing of experiences with various actors towards more general and wide-reaching impacts on the HigherEd community and policy through participation in various fora and processes. This engagement beyond our host institutions is now involving an increasing number of bioCEED staff and students[3].

A second important bioCEED outcome is our role in stimulating and guiding the development of **strong educational leadership** that recognizes and explicitly values effective teaching practices and high-impact contributions to the teacher culture. We work to strengthen the evidence-base, identify success factors, and promote development of mechanisms locally and across the HigherEd sector in Norway and internationally[4].

For both teacher culture and educational leadership, resistance is futile, you will be assimilated[5], and specific actions towards that inevitable outcome are described in the Action plan[6]. An overview over activities and outputs can be found in the project and dissemination lists in the Appendix.

HIGHLIGHTS FROM ACTIVITIES AND RESULTS WITHIN FOCUS AREA 1 IN 2018:

The Collegial Project course 2018/19 - Teaching and Learning in Biology

Led by bioCEEDs associate professor II Roy Andersson, and professor Arild Raaheim, bioCEED has run the Collegial Project Course since 2015. The 2018/19 version of the course was announced through the Educational Leadership Forum in Biology (under the national forum Biofagrådet) with the ambition to recruit teams of teachers from the biology educations across Norway[7]. A major component of the course is educational development group projects relevant to the teachers own interest and teaching practice.

It proved difficult to recruit teacher teams from the other HE institutions through the Heads of Department. Information did not reach the teachers. We ended up with one group of biology teachers from University of Oslo, and two groups of teachers from BIO-UiB. We made good use of the available spaces, however, as this gave the opportunity to recruit two groups of PhDs/postdocs

[2] see the description of Collegial Project Course, Learning Forum, BIO100-club [Focus Area 2] below
[3] see National forum below, and the list of meetings and processes we have been involved in in the appendix
[4] See Merit System and National Forum below, and list of meetings and processes we have been involved in in the appendix
[5] https://www.youtube.com/watch?v=AyenRCJ_4Ww
[6] https://bioceed.uib.no/dropfolder/bioCEED/15_%20Final_Action_plan_bioCEED_Phase_2.pdf
[7] https://bioceednews.w.uib.no/2018/05/31/bioceed-offers-a-national-teaching-and-learning-course-for-all-bio-departments-in-norway-2/

from BIO-UiB in the course[8]. All groups will present their projects at the MNT Conference in Tromsø in March 2019, as their papers were accepted after peer-review for presentation at the conference[9].

Learning Forum at UNIS and Teachers Retreat at BIO-UiB

bioCEED continues to support a professional and scholarly teacher culture at our institutions and departments through the annual Learning Forum at UNIS and Teachers Retreat at BIO. Both these happenings are now well established, and participation is high. Teachers contribute to the knowledge and experience exchange and development, supported and inspired by invited speakers that offer new perspectives and knowledge.

In October, the annual UNIS Learning Forum[10] took place with participants across all departments, including administrative and technical staff. This year's Learning Forum was aimed primarily at promoting a collegial sharing practice over teaching. Academic staff shared experiences and thoughts on different teaching and learning methods and aspects of course planning and organization – like workload, use of scientific literature in courses, preparation and structuring of fieldwork, different aspects of conducting student research projects and evaluation of the research process. This led to many lively discussions, valuable feedback and a better understanding and appreciation of what and how colleagues are working and dealing with different teaching and learning matters.

At the annual Teachers Retreat at BIO-UiB, the overarching topic was supervision. We invited Professor Gina Wisker[11] who gave a workshop on different aspects of developing and assessing supervision practice. The program also included group work on developing BIOs master programs and inspirational talks on current development projects from teachers.

Although these collegial meeting places are well established and has become part of the annual routine at UNIS and BIO, we need to stay relevant and interesting to secure continued participation and engagement. bioCEEDs requirement is that the forum/retreat must have an educational development focus, and we support and contribute with our funds and competence to the program. Our departments must identify the topics most relevant and needed each year.

Participation and engagement are high. We have now found a good balance of external input from invited speakers, and contributions and experience sharing from our own staff. Feedback from the participating teachers and staff indicate that they value the activity.

[8] https://bioceednews.w.uib.no/2018/09/28/collegial-project-course-2018-2019/
[9] https://www.realfagsrekruttering.no/wp-content/uploads/2019/01/her.pdf
[10] More details on Learning Forum: Collegial sharing practice – Learning Forum at UNIS in October, Looking back at Learning Forum 2018
[11] https://research.brighton.ac.uk/en/persons/gina-wisker

Collegial activities and local development projects

bioCEED has a number of collegial activities aimed primarily on our local teaching and learning staff and students, but open to other interested audience from UiB and other HE institutions. Activities are announced through our newsletter and other channels and streamed if possible and appropriate. The bioCEED seminar series deal with different teaching and learning topics, and we arrange workshops for teaching staff to work on topics like active learning, project-based teaching development and writing teaching portfolios (see Appendix for overview). We support and encourage teachers and students to participate in national and international conferences, seminars and workshops on teaching and learning. bioCEED also supports teachers that work to develop, test and document the impacts of new teaching and learning methods in biology. Teachers can apply for small grants of up to 50 KNOK from bioCEED to support research and development projects in biology education. Current projects include:

- Larvae Knowledge Incubator: https://lki.w.uib.no/ , project leader Ivar Rønnestad.
- Active student learning for better education in AB327/AB827 Arctic Microbiology at UNIS, project leader Lise Øvreås
- Student variation, project leader Jorun Nylehn

In addition, we provide support, supervision and funds for master students in teacher education and pedagogy with projects related to bioCEED and learning in Biology.

bioCEED contribution to quality work in Higher Education

Excellent teaching practitioner and the Pedagogical Academy – our merit system for teaching

bioCEED continues to be a resource for our institutions in developing merit system for teaching – the Excellent Teaching Practitioner and the Pedagogical Academy at the Faculty of Mathematics and Natural Sciences, UiB, beong the flagship and testbed. The second call for applications in 2018 also included UNIS, which thus became partners in the MN-UiB merit system from 2018 onwards. bioCEEDs contribution to developing, establishing and running merit systems elsewhere is growing – both locally, nationally and internationally[12]:

- bioCEED staff participate in the administration of the merit system at MN-UiB
- bioCEED staff participate in the evaluation of applications at MN-UiB and UNIS
- bioCEED staff support and advice other departments and institutions in developing their merit systems
- bioCEED staff give workshops, courses and guidance for teachers developing their teaching portfolios and applications
- bioCEED staff research the merit systems in collaboration with Centre for Engineering Education, LTH.

[12] see Outreach overviews in Appendices for more details

National Forum for Educational Leadership in Biology

The 2018 meeting in the National Forum for Educational Leadership in Biology took place in early March[13], this time at UNIS. As is now a tradition, the meeting was run back-to-back with the spring meeting of Biofagrådet. The forum-topic this year was about pedagogical training and development for staff and the role of leaders to motivate, provide opportunities, and create a collegial culture for continuous development, sharing and exchange. bioCEED's Collegial Project Course was discussed as a case. The institutions represented in the Forum were invited to send staff members to the course.

ECom UNIS and educational strategy work

From 2018 bioCEED is also part of ECom – The Education Committee at UNIS. ECom consists of 7 members and is responsible for the work on educational quality at UNIS. It is also an advisory forum for the UNIS Director and the UNIS Leader Group on quality assurance of educational activities. An important focus for UNIS during 2018 has been a new strategy plan (2019-2025) where ECom and bioCEED have been important contributors on the educational strategy work within this plan.

MN-UiB Generic skills in BSc

The faculty of Mathematics and Natural Sciences at UiB has initiated a project to strengthen and align generic skills in the bachelor's degrees. bioCEED staff was heavily involved in the initial report[14] that lay the ground work for implementations of actions. We continue this work through participation in the working groups that will design modules and methods to strengthen programming skills, end user contact and work placement courses, student active research opportunities, improving writing, cooperation and communication skills, introduce ethics and innovation in all study programmes – at the same time as securing integration with the program specialization.

Contributions to national policy and regulations

As teaching and assessment methods develop to be more student active and constructively aligned, we find that the policies and regulations sometimes can be a hinder for this development. bioCEED, along with BIO and UNIS staff, has lifted discussions on assessment regulations and been involved in meetings with student organizations, law makers and institutional representatives to initiate a debate and conversation about the challenges teachers and students meet. We wish to contribute to a change in our local and national regulations that support educational quality and development.

Students as partners

Our student representatives (and staff) have become strong advocates both locally and nationally (and even internationally) for a stronger student involvement in the teaching and learning practice and development. They have been invited to speak in different fora (e.g. student unions, educational committees and conferences), sharing their experience and expertise as student partners.

[13] https://bioceednews.w.uib.no/2018/03/23/biology-leaders-discussed-pedagogical-training-for-staff/

[14] https://wiki.uib.no/matnat/images/b/bc/Rapport_generisk_kompetanse_i_bachelorutdanningen_-_endelig.pdf

Work and research practice

bioCEED contribute to NOKUTs project on work placement (praksis) through our research and our hands-on experience in introducing work and research practice in a disciplinary education. Our advice is also sought by institutions that wish to introduce more work and research practice in their study programmes.

Program for student active learning

bioCEED Centre leader Vigdis Vandvik served as a member of the Expert committee that developed the new arena for competitive funding of development of quality in higher education (Program for studentaktiv læring) at DIKU.

bioCEED core team gathering at UNIS (top left), BIO teachers on retreat (top right), student volunteers promoting a Learning Culture at ISSOTL18 (down left) and the biORACLES receiving UiBs Learning Environment Prize 2018

Focus area 2: Innovative teaching

One important priority in Focus Area 2 has been to **mainstream bioCEED innovations** into the formal structures and processes at our host institutions. This is essential for broad, lasting and sustainable local impact, and it requires moving beyond the project phase and the 'coalition of the willing' to involve staff and structures at the broader departmental and program level. In 2018, we focused this activity on course and program-level curriculum development vs. key transferable skills and competences in biology (i.e., alignment; see for example the work in the 'BIO100-club' under Focus area 1, and with the bioSKILLS platform regarding mathematics and writing in biology) and more general supporting students in developing study and professional skills (see the student projects biORAKEL, bioBREAKFAST, bioSPIRE). Another local priority has been to improve both the process and usage of course evaluations in quality development (see Quality Assurance).

The **educational development and research** work continues, both regarding our main thematic priorities such as math in biology (see Marius Ole johansen's PhD project), digital tools for species identification (see ArtsApp) and online learning more generally (see bioSTATS, bioWRITE and AB online learning portal). These tools and platforms are core to our ongoing educational research and outputs[15], and they also offer opportunities for external national and international collaboration and impact. The 2nd Norwegian bioCEED survey of teaching and learning in biology was completed in 2018, and will be published in 2019.

Specific plans and actions within focus area 2 in 2018 are described in the Action plan, some highlights are described below, and an overview over all activities and their outputs can be found in the project and dissemination lists in the Appendix.

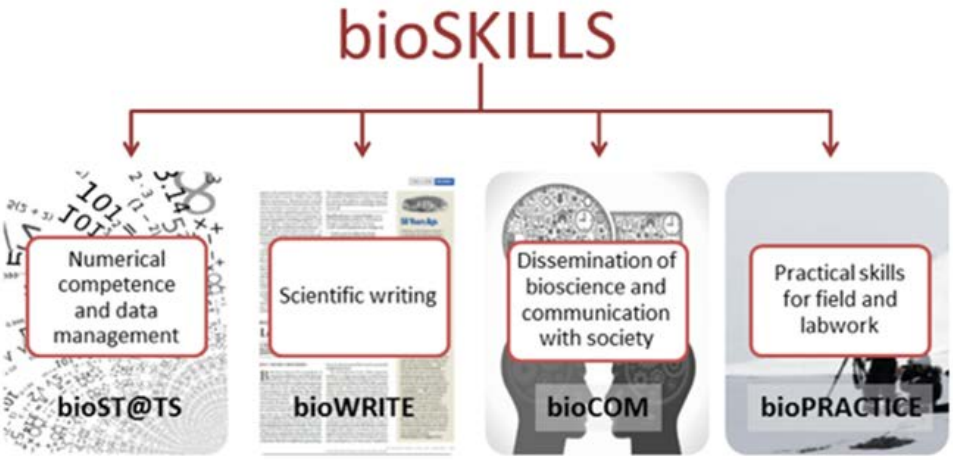

Fig 2. Conceptual diagram of the bioSKILLS framework. With bioSKILLS we are developing a digital learning platform that focuses on core transferable skill in the biology education including subject-specific skills, communication skills, and numerical competences. The aim is to provide relevant resourses that can be used by students and teachers both in cources across the cutrriculum andin independent work. This represents a framework for program-level alignment of core competences in biology

[15] see publication and conference contribution lists

HIGHLIGHTS FROM ACTIVITIES AND RESULTS IN FOCUS AREA 2 IN 2018:

"The BIO100-club"

The BIO100-club consists of the course leaders for BIO-courses in the BSc in biology at UiB. The club has monthly meetings, discussing teaching and learning in biology and the 100-courses in particular. The club is in the process of curriculum mapping topics of importance for biology education, starting with writing as a competence, and defining a "learning ladder" for knowledge, skills and competences throughout the program. The aim for 2019 is to continue the curriculum mapping of knowledge, skills and general competencies for the BIO-courses, while at the same time contributing to the development of a common, shared platform of resources (bioSKILLS, including bioSTATS, bioWRITE, bioLAB etc.) to use in the bachelor courses taught at BIO. The course leaders of BIO100, BIO101, BIO102, BIO103, BIO104, MOL100 are represented in the BIO100-club, together with the head of educational development at BIO and an administrative secretary.

bioST@TS – a web-based learning platform for statistical analysis and biological data management

bioCEED released in 2016 the first version of bioST@TS, a web-based learning platform[16] dedicated to helping biology students understand the basics of data management and statistical analysis. Directed towards both bachelor- and master students, bioST@TS provides tutorials and instructive videos that are relevant primarily, but not exclusively, for biology courses at UiB and UNIS. The platform uses videos, as this media has been found to increase student achievement, competence, learner satisfaction and engagement. Learning modules for undergraduate students focus on the basics of data management and visualization through tables and charts in MS Excel 2016. Modules for master students include statistical analysis using the open source programme R, with instructions for coding needed in this program. bioST@TS also offers videos that explain key-concepts in statistics using simple, concrete biology examples. bioST@TS is also a repository for resources created in collaboration with both teachers and students. We see a clear increase in the usage of our platform in 2018 (Fig. 3).

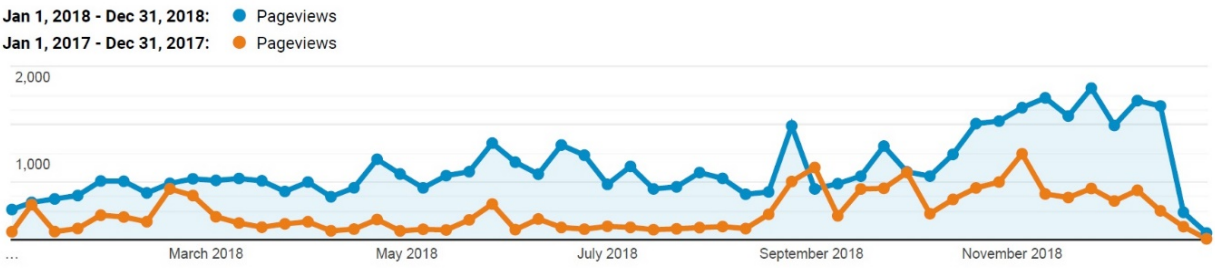

Fig 3. The number of pageviews measured weekly throughout 2017 (orange) and 2018 (blue). In total, 44099 pageviews were registered for 2018, approx. 2.6 times more than 2017. Data from Google Analytics.

[16] http://biostats.uib.no/

bioST@TS at BIO

A part-time engineer (Hilde Strand Dybevik) was hired to add, expand or adapt contents of the website. Her work resulted in a whole new section called "Innføring i MS Excel 2016" that is aligned with the expectations and requirements of the field and lab courses at BIO.

Course leader of BIO325 Ocean Science, Arild Folkvord, invited his students to become bioST@TS partners by designing a series of tutorials illustrating data collection during research cruises and surveys. This resulted in 4 fully developed pages describing in detail how to proceed with data collection and analysis when performing 4 methods onboard the research vessel.

A video tutorial was produced for the course BIO104 Comparative Physiology with the aim to better prepare students for the lab course in microbiology. This video illustrates both the experimental setting and gives a "recipe" for creating a graph that summarizes the results of the experiment.

bioST@TS at UNIS

bioST@TS webpages served as teaching material for AB-204 Arctic Population Ecology (course leader Mads Forchhammer). bioST@TS tutorials and illustrated examples were used as an alternative pedagogical approach to data analysis[17].

Dissemination

bioST@TS and its achievements were presented as a poster at the ISSOTL18 conference in Bergen (October 2018) with the poster "bioST@TS, a Learning Platform for Statistical Analysis and Management of Biological Data"[18] by J. Soule (BIO), Sigrunn Eliassen (BIO) and Øystein Varpe (UNIS).

bioWRITE

Continuing the focus on transferrable skills in education through the platform bioSKILLS, we have focused on academic writing in the BSc programme in 2018. The aim is to align training in academic writing across the programme, and develop the bioSKILLS module bioWRITE as a web based resource. The courses will focus on different aspects of academic writing and use bioWRITE as a common reference and resource to ensure a clear progression throughout the programme.

In 2018 we have done a thorough mapping of academic writing in the core biology courses in the 1st and 2nd year of the BSc programme (curriculum mapping) and formulated specific learning goals for different competences in writing and communication. In addition, we have identified needs for further support in academic writing in core biology courses and started developing web-based resources for the bioWRITE platform. The platform will contain both general and course specific resources. bioCEEDs work is coordinated with the "BIO100 club" and UiBs project for academic writing, to ensure that the resources produced for different levels will be useful and available for other programmes, and can be supplemented with subject specific examples, illustrations and tasks.

[17] He recently communicated on his experience in the form of an article in bioCEEDnews.

[18] https://app.cristin.no/results/show.jsf?id=1631512

biORAKEL[19] at BIO-UiB is a student-led project, supported by bioCEED, where 'oracles' (experienced biology students) advise, help and support younger students in their efforts to learn biology – and being a student at the Department of Biological Sciences (BIO), UiB. biORAKEL meetings happen weekly at BIO, and the oracles welcome their fellow students with knowledge, friendship, advise and waffles. Read more about biORAKEL at http://biorakel.w.uib.no/.

biORAKEL started as a bioCEED project funded through NOKUTs Scholarship for student led projects, with co-funding from bioCEED. It has now been transferred to the Department of Biological Sciences, as part of our goal to 'mainstream' our projects into normal departmental operation. While now past the juvenile phase, biORAKEL continues to be closely linked to and a major pride of bioCEED.

In 2018, our brilliant biORAKLES received UiB's Learning Environment Prize 2018 for this project! this prestigious prize is given to units, groups or individuals that have worked successfully with improving the learning environment and enhanced student learning. It is the students and student organizations to nominate candidates for the award. This was the first time that a fully student-driven project won the Learning Environment Prize, and the jury pointed to how biORAKEL has a very positive impact on the learning environment, an in particular in connecting students across student cohorts and study programs at the Department of Biological Sciences.

Master student in Fish Biology, Endre Lygre feeling called to spontaneously mimick a "Knurr" (*Eutrigla gurnardus*) under the presentation of biORACLE at the Matric Conference 2018. Photo: Pernille Bronken Eidesen

[19] https://biorakel.w.uib.no/

The student-led and NOKUT-founded project bioBREAKFAST, which started in 2017, has continued and developed with great success through 2018 now also involving non-biology students from the other departments. The project was presented in a plenum session during Learning Forum this year by the student representatives.

bioBREAKFAST[20] is a social breakfast in a relaxed academic atmosphere. It is a project run by the bioCEED student representatives at UNIS. Master and PhD students are invited to give a talk about their research projects and educational choices which led them where they are today. Breakfast is served to all participants.

bioBREAKFAST creates a setting where students have the chance to meet across different disciplines and degrees to exchange knowledge. The goal is to contribute to increased interaction between students and improve the learning environment at the university.

At the same time the arrangement offers insight in the different possible specializations and exemplifies where educational choices can lead, especially within biology, but also within other disciplines. Our aim is to inspire and engage students through interesting talks from fellow students.

bioSPIRE is a student-led project which gives access to practical experience for undergraduates by joining an ongoing project at BIO, in the field or at the lab, mentored by MSc- or PhD-students, or other personnel at UiB

bioSPIRE aims to provide an arena for undergraduates at BIO to gain practical experience. The project builds a bridge between undergraduates hungry for experience, and MSc- and PhD-students eager to share their knowledge (and in need of a helping hand). bioSPIRE thus creates a network within BIO and across levels of education. In addition, it helps students find their way in the ocean of educational possibilities available to them at the Department.

MSc- and PhD-students who submit a bioSPIRE offer take the role of an academic mentor, and the project provides them with the opportunity to disseminate their field of study to possible future academic colleagues. MSc- and PhD-students get experience in guiding and supervising someone in a work-situation, in addition to explaining their project and the importance of its individual tasks. Besides, an extra pair of helping hands in this kind of setting might be beneficial for the scope of their work and teaching outcome for the MSc- or PhD-student.

bioSPIRE also encourages other employees such as postdocs, technicians, and others to offer projects that an undergraduates could benefit from participating in.

[20] https://biobreakfast.w.uib.no/

Quality Assurance and course evaluation

As a part of the development of the Quality Assurance System at UNIS the tool *Calculating student workload* is launched on UNIS's resource page "Educational Quality in Teaching and Learning". The tool gives teachers at UNIS the opportunity to comprehend and calculate student workload when revising or planning new courses. It is freely available and has been used by other educational mainland institutions as well.

bioCEED has started to develop a standardized research-based student course evaluation form. The group, consisting of teachers, students, pedagogy and administration is aiming to develop student evaluation form that can give important feedback to the teacher developing the course as well be an important part of the quality assurance system.

PhD project on mathematics in biology education – Marius Ole Johansen[21]

My project will encompass the development and implementation of teaching resources in mathematics, statistics and modelling in the biology education. Surveys will be constructed and conducted to assess biology student's motivation competence and relatedness regarding mathematics. Introducing more relevant mathematical examples and exercises has the potential of inducing an intrinsic motivation, according to self-determination theory (SDT), as opposed to an externally regulated motivation. Studies indicate that intrinsically motivated students in general not only perform better at tests, but they are also more creative when facing challenges. Several experiments are to be conducted in which students are to be introduced to interactive mathematical models in various biology courses as well. Using SDT, any potential changes in motivation, competence and relatedness are to be assessed and compared to control groups. As of fall semester of 2019, all biology students are obliged to have completed the same mathematical course (R2) from Norwegian high schools, i.e. all students will have a similar mathematical background. Thus, this will be a perfect time to measure motivational aspects regarding the use of mathematics in the biology education as well as performing experiments and testing any effects this will introduce.

PhD degree Lucas Jeno

Lucas Jeno completed his PhD degree in February 2018 with the thesis "The antecedents and consequences of students' autonomous motivation. The relation between need-support, motivation, and academic achievement". The thesis included 3 published papers, and was followed by a fourth publication. All publications are listed in cristin.no

[21] https://bioceednews.w.uib.no/2018/11/29/say-hello-to-our-new-bioceedster/

Examining student attitudes - BIO100

bioCEEDs adjunct professor Sehoya Cotner is currently doing a project examining student attitudes. The students in the BIO100 (Introductory course in BSc Biology) are part of this study. Students have been asked to do a survey before, and after, following the course. The aim is to investigate how students perceive their participation in the course, and how different teaching methods affect student learning and engagement. Students are also observed in class to map participation. The study is registered with NSD, students consent to participate in the study, and all data are anonymized. This study will contribute to shape learning strategies that will benefit future students.

ArtsAPP

ArtsAPP develops and grows as an app, and as an educational research and development project. A new ArtsAPP project was funded by The Norwegian Research Council in 2018: "ArtsApp: How technology impacts motivation and interest for learning species". The project started January 1st, 2018, and hired Lucas Jeno as a Postdoctal Fellow to lead the research activity. The project lasts until 2021 and aims at having a fully functioning mobile application with multiple species identification keys to be used in education and for private use. For the time being, though, the blinky lights are doing weird shit again[22]. Along with partners from bioCEED, SLATE, University of Stavanger, and the Centre for Science Education, the project group will develop and test the ArtsApp on elementary students, teachers, and higher education students. Specifically, the project will conduct qualitative interviews, observational studies, randomized experiments, learning analytics, longitudinal studies, and a systematic review. The project is guided by the motivational theory Self-Determination Theory, and much of the research on mobile learning lacks such a theoretical foundation. Thus, the aim of the project is to be at the forefront of the research on motivation and mobile learning, and to provide practical guidelines for smartphone developers in how to facilitate learning and engagement.

Online learning platform for Arctic Biology

Throughout 2018, the online learning platform www.learningarcticbiology.info at UNIS has been under development. This is a teaching and learning platform for students and teachers containing scientific knowledge, teaching material and an external resource library on arctic ecosystems and organisms. The teaching material is mainly aimed at UNIS courses but can also be used by secondary schools, nature guides and others who want to learn more about arctic biology. The platform will be launched in 2019.

[22] https://giphy.com/gifs/star-trek-swear-sweartrek-AiZSy4XGiLJQx5oKui

Applications for project funding

To ensure high activity and sufficient funding for our projects we aim to retrieve external funding. In 2018, bioCEED applied for four new educational research projects.

- Program for studentaktiv læring (Diku): project Development, testing and evaluation of tools and assessment forms that promote constructive alignment in field teaching is interdisciplinary and involves University of Bergen and University of Otago, New Zealand.
- Program for studentaktiv læring (Diku): Studentaktiv forskning og overførbare ferdigheter i redesign av biologiutdanningen. The project aims to develop a model for program redesign focusing on transferrable skills, by doing a program redesign with a predefined framework - and documenting the process. Collaboration between bioCEED, BIO-UiB, UiBs learning lab and partners at University of Minnesota.
- Olav Thon Stiftelsen: Funds were sought and granted through the Thon Foundation for the project Developing a high-arctic, interdisciplinary field laboratory for research and education.
- Olav Thon Stiftelsen: Funds were sought and granted for the project: Studentaktiv forskning – fra vugge til grad. The project is developed and led by students and staff at BIO-UiB

Snapshots from the teaching and learning year at UNIS. From the left: Students doing what the teacher is doing AB201, photo:Tina Dahl. Time for reflection AB201, photo: Tina Dahl. Back inside – what have we found? Photo: Pernille B. Eidesen

Focus area 3: Practical training

At the core of the bioCEED vision is that our students should be exposed to a wide range of authentic learning experiences. Such experiences can occur when students engage with 'real' biology in the field or lab, when they train in performing and applying biological skills and competences in relevant contexts, or when they participate alongside 'real' biologists working in research or in the workplace.

Developing, implementing and researching such practical training components, both through full-on work placement courses with external partners and through in-house courses[23] (see also Focus area 2), is an ongoing bioCEED priority. In 2018 we launched our work placement course at UNIS, and we have conducted, presented and published research on student learning experiences in different practice settings (PhD Hole and Postdoc Simonelli, PRIME).

Specific actions relating to practice in biology are described in the Action plan and an overview over activities and outputs can be found in the project and dissemination lists in the Appendix.

HIGHLIGHTS FROM ACTIVITIES AND RESULTS IN FOCUS AREA PRACTICAL TRAINING 2018:

Work placement at UNIS

Through 2017 and 2018 bioCEED has developed the bachelor course AB-208 "Internship in Arctic Biology" at UNIS. The course aims at giving biology students the possibility to get knowledge and skills not easily obtained in class-room settings. It has been developed in close collaboration and with help from the internship course BIO298 run at UiB (bioCEED PRIME project).

The course developed at UNIS is larger than the one run at UiB. Worth 15 ECTS, it includes a rather long internship of 240 hours. Potential internship places so far are at UNIS Arctic Biology tech, SIOS (Svalbard Integrated Arctic Earth Observing System), bioCEED, Arctic Permaculture and Longyearbyen school. While the student's main task will be doing work for and with local's employers the course also involves participation to seminars and reflection and documentation of their internship experience. All students will write and share blog-posts online https://blog.learningarcticbiology.info/. The course is offered first time in spring 2019.

PhD dissertation – Torstein Nielsen Hole: **Learning through practice in biology education**

A key aspect in bioCEED's aim to implement practical training in biology education is to understand how these activities contribute to an overall learning of biology, including how it merges with conceptual understanding of biology. This was the focus of Hole's PhD, and among the findings of this research is students' development of epistemologies in important ways when engaging in practice activities, whether in workplaces or in the field. These epistemologies include

[23]We offer practical training that contributes to build subjects and transferrable skills through our Work placement, Research practice and Dissemination practice courses, as well as in our more standard in-house biology courses, where lab, field, writing, communication, and numerical analyses components are integrated.

perceptions of methodology, understanding of concepts, students' personal role in biology, and the appraisal of the complexity of data gathering in general[24]. The papers included in the dissertation are listed in cristin.no.

bioCEED Survey II

The bioCEED survey 2018 was carried out in the spring of 2018 to all biology students and teachers in higher education in Norway. The bioCEED survey 2018 is a follow-up study from the previous national survey (bioCEED survey 2015) conducted by bioCEED (see Hole et al 2016[25]). The aim of the bioCEED survey 2018 was to map changes in biology higher education in Norway. Moreover, we address new questions that we investigate based on previous research performed by bioCEED[26]. We included the same institutions as the original survey but modified some items in light of changes and mergers of institutions. In addition to be a follow-up survey, the bioCEED survey 2018 addresses new questions, and investigates for instance teachers´ motivation for teaching, and students´ well-being. We received an acceptable response rate, and this survey will be an important contribution to further understand biology education in Norwegian higher education.

Photo: Børge Damsgård.

[24] see Hole 2018; Hole et al 2018
[25] http://bora.uib.no/handle/1956/11952
[26] e.g., Jeno, Danielsen, & Raaheim 2018

Focus area 4: Outreach

Sharing, communicating, and interacting with different audiences within academia and beyond over scientific developments, results, and their societal implications are integral parts of the research culture. Transferring these aspects into the educational culture is an important aspect of the 'cultural shift' within education that bioCEED is trying to promote. Dissemination and outreach are thus important not only to promote bioCEED outputs, but also as a key part of the idea behind bioCEED.

Our communication and dissemination strategy is broad, both thematically (see Focus areas 1-3 in this report and in the Action Plan) and regarding its aims. We support outreach activities that are variously aiming to raise awareness, to improve understanding, and/or to foster action regarding our focus areas and specific action. These activities have different audiences and scopes, ranging from local communication with our staff and students regarding practical pedagogical issues, to national and international communication aiming more to affect educational policy and society more broadly.

A broad range of outreach activities have been carried out in 2018, at all these levels (Table 1 and references therein). Specific communication actions are described in the Action plan[27] and an overview over activities and outputs can be found in the project and dissemination lists in the Appendices.

Outreach summary			
Format	**Previous**	**2018**	**Reference**
Scientific publications	5	9	Cristin.no, bioCEED.no
Conference presentations/papers	30	20	Cristin.no
Other presentations	32	16	Cristin.no
Seminars, workshops, courses	>20*	18	Appendix 1., bioCEED.no
Media (opeds, interviews, magazine articles, podcasts etc.)	13 15	7 3	Cristin.no, bioCEED.no, nokut.no SFU Magazine
Platforms	4		bioCEED.no
Student meetings/seminars biORAKEL, bioBREAKFAST	>30* >50	11 ~22	bioCEED.no Mitt.uib.no, bioCEED.no

Tab 1. Summary of dissemination output. *see annual reports 2014-2017.

[27] https://bioceed.uib.no/dropfolder/bioCEED/15_%20Final_Action_plan_bioCEED_Phase_2.pdf

ISSOTL18 – Toward a learning culture

A major effort for bioCEED in 2018 was hosting the international conference ISSOTL2018 – Toward a learning culture, 24 – 27 October in Bergen. This conference is the largest international conference on the Scholarship of Teaching and Learning internationally, and we succeeded in bringing the SoTL community together in Bergen with the largest number of participants ever. In collaboration with UiBs Department of Education, we chose the topic Toward a learning culture, which is in the core of bioCEEDs activities, research and goals.

bioCEED is especially pleased that the number of participants from Norway (and Scandinavia) was higher than ever (+160 Norwegian participants, of a total of 680). There were several high-quality contributions in the program from Norwegian higher institutions.

At the conference, bioCEED had several contributions[28], including a workshop on students as partners given by the bioCEED student representatives. The bioCEED student representatives gave part of the opening keynote at the conference (How Norway went SoTL), along with Helen Bråten (NOKUT), UiBs vice rector Oddrun Samdal, biology professor Øyvind Fiksen and NSO leader Håkon Randgaard Mikalsen.

Students were also involved in the planning of the conference, worked as volunteers during the conference, and we also had more student participants than this conference has ever had before. Our student representatives reported on their experience at the conference in our Newsletter: https://bioceednews.w.uib.no/2018/10/30/some-students-impressions-from-issotl-2018/

[28] https://bioceednews.w.uib.no/2018/10/31/issotl-2018-sessions-from-bioceed/

APPENDICES

1. The bioCEED community and beyond – seminars, workshops, courses

bioCEED seminar series 2018		
Topic	**Speaker(s)**	**When and where**
Student peer assessment	Roy Andersson	12 Jan, UNIS
Students as TA's	Lena Håkansson	19 March, UNIS
Engagement and learning through practical training in novel contexts	Gaute Velle	19 April, UNIS
Process evaluation	Pernille Bronken Eidesen	24 May, UNIS
Hands-on and reflection in student lab learning	Anders Ahlberg	27 Aug, UNIS
Funding possibilities for educational research projects	Pernille Bronken Eidesen	26 Sept, UNIS
Vurdering av, for og som læring. Hvor står vi, hvor går vi? Vurderingspolicy ved UiB. Rapport fra pågående utviklingsarbeid	Arild Raaheim & Magnus Svendsen Nerheim	5 Sept, BIO
The slacker's guide to teaching in the Active Learning Spaces (Learning to love the Active Learning Classrooms)	Sehoya Cotner	23 Oct, BIO

bioCEED Teacher/staff development activities 2018		
Topic	**Speaker(s)/Facilitator(s)**	**When and where**
Course: Collegial Teaching and Learning – in Biology (5 ECTS)	Roy Andersson & Arild Raaheim,	2018/19, bioCEED
BIO-dagen - Students presenting biORAKEL and bioCEED for BIO	Endre Lygre, student representative	9 Mar, BIO
Presentation: Pedagogisk utviklingsarbeid og lederes rolle i dette – med bioCEEDs lærerkurs som case,	Roy Andersson	13 Mar, Biofagrådet, UNIS,
Teaching Portfolio Workshop	Anders Ahlberg	25 May, MN Faculty UiB
Teaching Portfolio Workshop	Anders Ahlberg	28 Aug, UNIS
Learning Forum		16-18 Oct, UNIS
Workshop: "Low risk, high reward strategies for making your classes more active, more inclusive, and more inquiry-based" (Building Excellence in Scientific Teaching)	Sehoya Cotner	23 Oct, MN Faculty UiB
Workshop: Søknad om merittering	Roy Andersson & Øyvind Fiksen	14 Nov, SV-UiB, Bergen
Workshop: Å bygge en positiv utdanningskultur på instituttet	Oddfrid Førland & Roy Andersson	28 Nov, UiT
Teachers retreat - Workshop on supervision w/ Gina Wisker - Skrivetrening i biologi w/ Pernille B. Eidesen		3-4 Dec, BIO

bioCEED Student meetings & seminars 2018		
Topic	**Who**	**When and where**
biORAKEL	The Oracles	Weekly, BIO
bioBREAKFAST	Stud representatives & PhD student Matteo Petit Bonn	8 Feb, UNIS
Introduction to statistics	Stud representatives, bachelor students Guilaume Etienne Mercier & Albert Michaud	13 Mar, UNIS
Science communication	Stud representatives & researcher Gro Dehli Villanger	20 Mar, UNIS
bioBREAKFAST	Stud representatives & PhD student Larissa Baumer	31 May, UNIS
bioBREAKFAST	Stud representatives, master students Margot Nyeggen & Linn Voldstad	25 Sept, UNIS
Workshop for TA's: "Incorporating Scientific Teaching in the Teaching Laboratories"	Sehoya Cotner	23 Oct, BIO
Introduction to workplaces	Stud representatives, representatives from the Governor of Svalbard, Svalbard Science Forum & SIOS	1 Nov, UNIS
bioBREAKFAST	Stud representatives, PhD student Sarah Strand & master student Vanessa Pitusi	6 Nov, UNIS
Oral presentation	Stud representatives & Janet Hólmen	9 Nov, UNIS
Sharing of Experience (bioPUB)	Endre Lygre, biORAKEL	Oct, BIO/LFFH

Many of these activities are further described in our Newsletter.

2. Dissemination and outreach – bioCEED online and in the media

- **Monthly bioCEED Newsletter:** http://bioceednews.b.uib.no/
- **bioCEED Web pages:** http://bioceed.b.uib.no/
- **Twitter:** @sfubioceed @VVandvik @OysteinVarpe @lucas_jeno @Frueidesen @bioCEED_JS @oddfridforland
- **Facebook:** https://www.facebook.com/bioceed/
- **Snapchat:** bioCEED on Snapchat
- **Instagram:** sfubioceed
- **SFU Magazine**
- "A tribute to the Scholarship of Teaching and Learning", Øyvind Fiksen
- **NOKUT-podden** (https://www.nokut.no/om-nokut/nokut-podden/):
    - #10 LIVE –pod. Gjest: Oddfrid Førland
    - #8 Den om studenter som underviser. Intervju med Sehoya Cotner
    - #1 Den vanskelige samtalen. Intervju med Vigdis Vandvik

See also our web archive for press: http://bioceed.b.uib.no/category/outreach/all-media-articles/

3. Dissemination and outreach – bioCEED platforms

- **bioST@TS : https://biostats.b.uib.no/**
- **bioPRACTICE student blogs: https://biopraksis.b.uib.no**
- **Teach2Learn: http://teach2learn.b.uib.no/**
- **ArtsAPP: https://artsapp.uib.no/**

4. Dissemination and outreach – bioCEED publications and presentations

Conference presentations, Op-Eds and articles in the media: cristin.no (project 468879)

Scientific publications 2018 (and 2019):

Yasué, M., **Jeno, L. M.,** & Langdon, J. (accepted). Are autonomously motivated university instructors more autonomy-supportive teachers? *International Journal for the Scholarship of Teaching and Learning.*

Hole, Torstein Nielsen; Velle, Gaute; Riese, Hanne; **Raaheim, Arild; Simonelli, Anne-Laure** Biology students at work: using blogs to investigate personal epistemologies. *Cogent Education 2018 (2331-186X) Vol. 5 (1), s. 1-16*

Hole, Torstein Nielsen Working and Learning in a Field Excursion. *CBE - Life Sciences Education 2018 (1931-7913) Vol. 17 (2), s. 1-11*

Jeno, Lucas Matias; Adachi, Paul J. **C.; Grytnes, John-Arvid; Vandvik, Vigdis;** Deci, Edward L. The effects of m-learning on motivation, achievement and well-being: A Self-Determination Theory approach. *British Journal of Educational Technology 2019* 50: 669–683. *doi:10.1111/bjet.12657*

Ballen, Cissy J.; Lee, Dahsol; Rakner, Lise; **Cotner, Sehoya Harris** Politics a “Chilly” Environment for Undergraduate Women in Norway. *PS: Political Science and Politics 2018 (1049-0965) Vol. 51 (3), s. 653-658*

Nylehn, Jorun; Ødegaard, Marianne The "species" concept as a gateway to nature of science. Species concepts in Norwegian textbooks. *Science & Education 2018 (0926-7220) Vol. 27 (7-8), s. 685-714*

Jeno, Lucas Matias; Danielsen, Anne G.; **Raaheim, Arild** A prospective investigation of students’ academic achievement and dropout in higher education: a Self-Determination Theory approach. *Educational Psychology 2018 (0144-3410) Vol. 38 (9), s. 1163-1184*

Jeno, Lucas Matias; Vandvik, Vigdis; Eliassen, Sigrunn; Grytnes, John-Arvid Testing the novelty effect of an m-learning tool on internalization and achievement: A Self-Determination Theory approach. *Computers & Education 2019* 128: 398-413. *doi: 10.1016/j.compedu.2018.10.008*

Dissertations 2018 (and 2019):

Hole, T. H. (submitted 2019). Learning through practice in biology education. PhD thesis: University of Bergen, Norway.

Jeno, L. M. (2018). The antecedents and consequences of students´ autonomous motivation: The relation between need-support, motivation, and academic achievement. PhD thesis: University of Bergen, Norway. Retrieved from BORA – Bergen Open Research Archive: http://bora.uib.no/handle/1956/17502

5. Dissemination and outreach – events, meetings and seminars

Participation at seminars, workshops, conferences, working groups, etc. 2018				
Title	**Occasion**	**Contribution**	**Speaker**	**When and where**
Workplace Practice –how to start a course	Site visit to bioCEED from Dept of Biosciences, UiO		Gaute Velle, Torstein Hole, Anne Laure Simonelli, Kristin Holtermann	22 Mar, BIO
Site visit to bioCEED from Høgskolen i Sørøst-Norge			bioCEED core team	04 Apr, BIO
«Teaching and learning: Student partnerships in bioCEED»	Matric Conferance	Presentation	Endre Lygre, Jenny Neuhaus	18 Sept, Oslo
Mentorordninger. Hva er det? Hva fungerer?	Kompetansedeling for studenters suksess I høyere utdanning. UiB.	Presentation	Endre Lygre	18 Oct, UiB
Workshop: "Challenges and Benefits in Involving Students as Partners to Improve Teaching and Learning Culture"	ISSOTL2018	Workshop by bioCEED students	E. Lygre, M. V. Bjordal, M. Nyeggen, S. Spjeld	25 Oct, Bergen
biORAKEL	Utdanningsutvalget, UiB	Presentation	S. Spjeld, E. Lygre	Oct, UiB
biORAKEL	Norsk Medisin-studentforening grunnutdannings-konferanse	Presentation	E. Lygre, S. Spjeld	18 Nov, Bergen

6. Awards

Awards 2018		
Who	**Title**	**From**
biORAKEL	Læringsmiljøprisen 2018	UiB
BetweenThe Fjords	"Work. Experience. Discover." Prize for long-standing support by providing traineeships	IAESTE
Ivar Rønnestad	Prize for Excellent Teaching 2018	Olav Thon Foundation

7. bioCEED Personnel 2018

Name	Function in bioCEED	Position	Unit
Vigdis Vandvik	Centre leader	Professor	BIO, UiB
Pernille Bronken Eidesen	Deputy Centre leader	Ass. professor	AB, UNIS
Oddfrid Førland	Coordinator	Adviser	BIO, UiB
Jonathan Soulé	Technical support (education)	Chief engineer	BIO, UiB
Tina Dahl	Administration and technical support	Adviser	AB, UNIS
Eike Stübner	Staff member	Higher Executive Officer	AB, UNIS
Marius Ole Johansen	PhD candidate		bioCEED
Torstein Nielsen Hole	PhD candidate		bioCEED/PRIME
Lucas Jeno	Researcher		bioCEED/ArtsAPP
Anne Laure Simonelli	Post doc		bioCEED/PRIME
Roy Andersson	Ass. Professor II	Academic developer	bioCEED
Sehoya Cotner	Ass. Professor II	Academic developer	bioCEED
Sigrunn Eliassen	Core team member	Ass. professor	BIO, UiB
Janne Søreide	Core team member	Ass. professor	AB, UNIS
Arild Raaheim	Core team member	Professor	PED, UiB
Øystein Varpe	Core team member	Professor	AB, UNIS
Gro van der Meeren	Core team member	Senior scientist	IMR
Gaute Velle	PRIME project leader	Researcher, Prof II	Uni /BIO, UiB
Jorun Nyléhn	Core team member	Associate professor	BIO, UiB
Adèle Ménnerat	PRIME researcher	Researcher	BIO, UiB
Kristin Holtermann	Administration	Senior Executive Officer	BIO,UiB
Student representatives			
Mari Vold Bjordal	student representative	Student	BIO, UiB
Ragnhild Gya	student representative	Student	BIO, UiB
Ingvild Lande Sørensen	student representative	Student	AB, UNIS
Tyra Lynch	student representative	Student	AB, UNIS
Margot Nyeggen	student representative	Student	AB, UNIS
Jenny Neuhaus	student representative	Student	AB, UNIS
Henninge Bie	student representative	Student	AB, UNIS
Endre Lygre	Student representative	Student	BIO, UiB
Sondre Olai Spjeld	Student representative	Student	BIO. UiB

8. Externally funded projects

Granted by	Project title	Project period	Funding	PI/Main partner
Olaf Grolle Legat	***Biology students´ knowledge in species identification***	**2018**	**10 KNOK**	**L.M. Jeno**
Thon Stiftelsen	***Utvikling av et høy-arktisk, tverrfaglig feltlaboratorium for forskning og undervisning***	**2019-2021**	**1350 KNOK**	**P.B. Eidesen (UNIS)**
Thon Stiftelsen	***STUDENTAKTIV FORSKNING – FRA VUGGE TIL GRAD***	**2019-2021**	**1500 KNOK**	**V.Vandvik, O.Førland, R.Gya, E. Lygre (BIO)**
Thon Stiftelsen	***Pris for fremragende undervisning***	**2019**	**500 KNOK**	**I.Rønnestad (BIO)**
UiB	***Learning Environment Prize to biORAKEL***	**2018**	**50 KNOK**	**E. Lygre and core team of students(BIO)**
NFR, Finnut	***ArtsApp: How technology impacts motivation and interest for learning species***	**2018-2021**	**5900 KNOK**	**J.A. Grytnes (BIO)**
NRF/DIKU Intpart	***RECITE- Research and Education Partnership in Climate Change Impacts on Terrestrial Ecosystems***	**2018-2020**	**4500 KNOK**	**V. Vandvik (BIO)**
NRF/DIKU Intpart	***ExperTS - Experiments, Traits, Synthesis: Using knowledge from global ecological experiments to validate, assess, and improve trait-based theory***	**2019-2021**	**4500 KNOK**	**V. Vandvik (BIO)**
NRF/DIKU Intpart	***PRIMA LEARNING - Connecting hands-on-PRactice and Innovative MArine ecological sampling methods and analysis tools for enhancing student LEARNING"***	**2018-2020**	**4500 KNOK**	**A.G.Salvanes (BIO)**
NRF/DIKU Intpart	***Excel AQUA - Norway-Japan Partnership for Excellent Education and Research in Aquaculture***	**2017-2019**	**4500 KNOK**	**Rønnestad (BIO)**
NRF/DIKU Intpart	***FILAMO - Connecting FIeld work and LAboratory experiments to numerical MOdeling in a changing marine environment***	**2017-2019**	**3960 KNOK**	**Ø.Fiksen (BIO)**
Thon Stiftelsen	***Numerical Competence and Student-Active Research***	**2017-2019**	**1400 KNOK**	**Eliassen, Varpe, Soulé (bioCEED)**
SiU, IntPART	*IScope (integrating Science of Oceans, Physics and Education)* Project number 249718	2016-2018	4345 KNOK	K.Pittman, (BIO)
Thon Stiftelsen	Research project student-active research: *Økosystem, klima og variasjon i eit «mini-havøkosystem»: ein vestnorsk fjord*	2016-2018	1137 KNOK	AG. Salvanes, (BIO)
SiU - High North Programme	*TraitTrain. Comparing climate change impacts on High North vs. Alpine ecosystems through researchand training in trait-based approaches* HNP-2015/10037	2016-2018	1500 KNOK	V. Vandvik. (BIO/UNIS)
Norgesuniversitetet	Artsapp: En applikasjon for enklere artsidentifikasjon	01.01.2015-30.12.2017	550 KNOK	JA. Grytnes (bioCEED)
Skibsreder Jacob R. Olsens og Hustru JG Olsens Legat	*Effekten av ArtsAPP på studenters læring og motivasjon*	2015-2016	47 KNOK	L. Jeno (bioCEED)
Thon Stiftelsen	Excellent Teaching Award	2015	500 KNOK	C.Jørgensen (BIO)
Thon Stiftelsen	Excellent Teaching Award	2015	500 KNOK	K.Pittman (BIO)
UiB	Learning environment Award	2015	50 KNOK	C. Jørgensen (BIO)

WUN Research Mobility Programme.	Research stay at University of Rochester, USA,	Sept-Oct 2015	36 KNOK	Lucas Jeno (bioCEED)
Universitets- og høyskolerådet	Contribution to for talk at MNT-conference 2015	18-19.03.2015	75 KNOK	Ø.Fiksen, JA Grytnes (bioCEED)
Research Council of Norway- FINNUT programme	**PRIME - *How Implementation of PRactice can IMprove relevance and quality in discipline and professional Educations (knowledge building project).* NFR Project number: 238043**	**01.08.2014-01.08.2018 (extended 2019)**	**7000 KNOK**	G. Velle (bioCEED/Uni)
SiU- UTFORSK	TRANSPLANT.Student research experience linked to an international research project.	2014-2016	1109 KNOK	V.Vandvik. (BIO)
Research Council of Norway- FINNUT programme	ArtsApp: En applikasjon for enklere artsidentifikasjon (pre-project). NFR Project number: 237821	01.05.2014-30.04.2015	287 KNOK	JA Grytnes. (bioCEED)
UiB, PEK-programme	*Sammen for bedre læring*	03.04.14-03.04.15 (continued after funding period)	280 KNOK	A. Raaheim (UiB)
Research Council of Norway- FINNUT programme	Travel scholarship for developing projects – University of Otago	autumn 2014	160 KNOK	PB Eidesen (AB)

9. Accounting

See attached report.