

SFU 2013-2023 Årsrapport 2022

Introduksjon

Årsrapporten for 2022 skal dekke prosjektaktivitet, oppnådde resultat og utgifter i perioden 01.01.2022–31.12.2022. Rapport skjemaet kopierer informasjon (senterinformasjon, budsjett etc.) du har gitt i prosjektdokumentet og årsrapporten for 2021. Krav til rapporteringa er gitt i rettleiinga for kvart avsnitt i skjemaet. Vær merksam på at alle obligatoriske felt må vera fylt ut før du kan sende inn rapporten.

I seksjon 3. Tilleggsinformasjon, ber vi om resultat og effekt av senteret sitt arbeid. Denne delen er ikkje obligatorisk, men vi håpar at du kan bidra til statistikk om ordningane som direktoratet forvaltar. Denne informasjonen er avgjerande for formidling av resultat og effektar av SFU-ordninga og som innspel til gjennomgang KD har annonsert. Vi ber derfor om at spørsmåla under punkt 3. Tilleggsopplysningar vert registrert innan 1. februar 2023. Når etterspurt data er registrert i seksjon 3., stadfest ved å krysse av for spørsmålet: "Vi har oppgitt relevante data som etterspurt av HK-dir" under fana "Effekt".

Dei resterande delane av årsrapporterings skjemaet for 2022 skal registrerast og sendast innan 1. mars 2023. Har du spørsmål angående rapporteringa, kontakt oss på sfu@hkdir.no.

1. Senterinformasjon

Om Senteret

Søknads ID SFU-2013/10001
Senterets navn bioCEED - Centre for Excellence in Biology Education
Senterperiode 01/2014 - 12/2023

Fields of education and training

- 1: Biological sciences (306)
- 2: Educational sciences, pedagogy and didactics (207)

Vertsinstitusjon

Verstsinstitusjon

UNIVERSITETET I BERGEN (NO-UiB)

Namn: Cotner, Sehoya
Gender: Kvinne
E-mail: sehoya.cotner@uib.no
Phone number:
Fax number:

Namn: Førland, Oddfrid
Gender:
E-mail: oddfrid.forland@uib.no
Address:
Phone number: 49001853
Fax number:

Samarbeidspartnere

Institusjon:	NO-UNIVERSITETSSENTERET PÅ SVALBARD AS (NO)
:	
Eining:	
Contact person:	Dahl, Tina
Gender:	
E-mail:	tinad@unis.no
Phone number:	
Fax number:	

Institusjon:	NO-Institute of Marine Research (NO)
:	
Eining:	
Contact person:	van der Meeren, Gro
Gender:	
E-mail:	GroM@hi.no
Phone number:	
Fax number:	

2. Skildring av senteret og resultat

2. Skildring av senter

Samandrag (frå årsrapport 2021)

bioCEED's vision is to develop relevant biology educations that fill future needs in science and society by connecting scientific knowledge, practical disciplinary and transferable skills, and societal applications. These connections should guide the development of curricula as well as teaching and learning methods throughout course portfolios and programmes. bioCEED's main approach towards achieving this vision is through developing a scholarly quality culture among teachers and learners. This means that educational innovations and practices are founded in relevant biological and educational theory, and that learning outcomes are documented, tested, and critically assessed. Such a culture will both allow innovations and innovators to flourish, provide an ideal testing ground for those innovations, and allow critical assessment of their role in an aligned curriculum. bioCEED is a catalyst, initiating projects that facilitate the corners of the biological triangle, biological theory, practical skills, and societal relevance (<https://bioceed.w.uib.no/files/2016/05/bioCEED-triangelet.jpg>). The interactions have created tensions and feedback loops, which have facilitated content curriculum development. bioCEED has thus progressed from a focus on "how" to teach and learn biology towards a focus that also concerns "what" biology education is and should be.

Focus areas: Learning culture (<https://bioceed.w.uib.no/teacher-culture/>), Innovative teaching (<https://bioceed.w.uib.no/innovation/>), Practical training (<https://bioceed.w.uib.no/practical-experience/>) and Outreach (<https://bioceed.w.uib.no/outreach/>).

For an overview of our results from 2014 until today, see our Annual reports: <https://bioceed.w.uib.no/annual-reports/>, our web pages: <https://bioceed.w.uib.no/>, our bioCEEDNewsletter: <https://bioceednews.w.uib.no/>, our scientific publications: <https://bioceed.w.uib.no/scientific-publications/>, our platforms: <https://bioceed.w.uib.no/resources/#bioceed-for-students>, media: <https://bioceed.w.uib.no/outreach/bioceed-in-the-media/>, cristin: <https://app.cristin.no/projects/show.jsf?id=468879>.

Samandrag

Mål og arbeidspakker / fokusområder

Spreiing

Gje ei vurdering av effekten av senterets aktivitar. Har dei ført til auka kunnskap eller endra adferd hos målgruppa?

3. Tilleggsinformasjon: Resultat og effektar - Kunnskapsdepartementet etterspør talfesta effektar av HK-dir sine ordningar. Spørsmåla i denne seksjonen er tiltenkt for å kunne vise korleis ordningane bidreg til endring og for å sjå dei ulike utlysingane i samanheng. Vi ber dykk rapportere på heile senterperioden, frå oppstart til 31.12.2022. For eventuelle kommentarar - skriv kort. Når etterspurt data er registrert i seksjon 3., stadfest ved å krysse av for spørsmålet: "Vi har oppgitt relevante data som etterspurt av HK-dir under fana "Effekt". Frist for å fyller ut denne seksjonen er 1. februar.

Arbeidsrelevans

Praksis og ferdighetstrening

Praksisplassar og anna ferdighetstrening(studentar)

Type	Studenter	Duration	Level of education	Year
Praksis	5	53		2019
AB-208 Internship in Arctic Biology (15 ECTS)				
Praksis	5	53		2020
AB-208 Internship in Arctic Biology (15 ECTS)				
Praksis	5	53		2021
AB-208 Internship in Arctic Biology (15 ECTS)				
Praksis	1	53		2016
AB-207 Research Project in Arctic Biology (15 ECTS)				
Praksis	7	53		2017
AB-207 Research Project in Arctic Biology (15 ECTS)				
Praksis	1	53		2018
AB-207 Research Project in Arctic Biology (15 ECTS)				
Praksis	9	53		2019
AB-207 Research Project in Arctic Biology (15 ECTS)				
Praksis	10	53		2021
AB-207 Research Project in Arctic Biology (15 ECTS)				
Praksis	4	53		2022
AB-207 Research Project in Arctic Biology (15 ECTS)				
Praksis	8	33		2016
BIO298 Yrkespraksis i biologi (10 ECTS)				
Praksis	20	33		2017
BIO298 Yrkespraksis i biologi (10 ECTS)				
Praksis	6	33		2018
BIO298 Yrkespraksis i biologi (10 ECTS)				
Praksis	15	33		2019
BIO298 Yrkespraksis i biologi (10 ECTS)				
Praksis	17	33		2020
BIO298 Yrkespraksis i biologi (10 ECTS)				
Praksis	22	33		2021
BIO298 Yrkespraksis i biologi (10 ECTS)				
Praksis	23	33		2022
BIO298 Yrkespraksis i biologi (10 ECTS)				
Praksis	21	33		2023
BIO298 Yrkespraksis i biologi (10 ECTS)				
Praksis	10	4		2016

Type	Studenter	Duration	Level of education	Year
BIO198 Yrkespraksis i biologi (3 ECTS)				
Praksis	14	33		2016
BIO299 Forskningspraksis i biologi (10 ECTS)				
Praksis	16	33		2017
BIO299 Forskningspraksis i biologi (10 ECTS)				
Praksis	15	33		2018
BIO299 Forskningspraksis i biologi (10 ECTS)				
Praksis	24	33		2019
BIO299 Forskningspraksis i biologi (10 ECTS)				
Praksis	36	33		2020
BIO299 Forskningspraksis i biologi (10 ECTS)				
Praksis	34	33		2021
BIO299 Forskningspraksis i biologi (10 ECTS)				
Praksis	29	33		2022
BIO299 Forskningspraksis i biologi (10 ECTS)				
Praksis	12	33		2023
BIO299 Forskningspraksis i biologi (10 ECTS)				
Praksis	29	5		2019-2022
UNISprout. Utviklet og driftet av BSc studenter. BSc studenter får praktisk erfaring ved å arbeide sammen med MSc og PhD studenter				
Praksis	20	4		2022
UNISprout. Utviklet og driftet av BSc studenter. BSc studenter får praktisk erfaring ved å arbeide sammen med MSc og PhD studenter				
Annen ferdighetstrening	5	45		2020
bioBEES : student partners working 20% in SFU bioCEED as research assitants and educational developers				
Annen ferdighetstrening	5	45		2021
bioBEES : student partners working 20% in SFU bioCEED as research assitants and educational developers				
Annen ferdighetstrening	6	45		2022
bioBEES : student partners working 20% in SFU bioCEED as research assitants and educational developers				
Praksis	11	5		2018
bioSPIRE is a student-coordinated project which facilitates access to practical experience to undergraduates by allowing them to join an ongoing project at the Department for Biological Sciences, whether in the field or at the laboratory, mentored by MSc- or PhD-students, or other personnel at the University of Bergen (UiB).				
Praksis	23	5		2019
bioSPIRE is a student-coordinated project which facilitates access to practical experience to undergraduates by allowing them to join an ongoing project at the Department for Biological Sciences, whether in the field or at the laboratory, mentored by MSc- or PhD-students, or other personnel at the University of Bergen (UiB).				
Praksis	9	5		2020
bioSPIRE is a student-coordinated project which facilitates access to practical experience to undergraduates by allowing them to join an ongoing project at the Department for Biological Sciences, whether in the field or at the laboratory, mentored by MSc- or PhD-students, or other personnel at the University of Bergen (UiB).				
Praksis	9	5		2021
bioSPIRE is a student-coordinated project which facilitates access to practical experience to undergraduates by allowing them to join an ongoing project at the Department for Biological Sciences, whether in the field or at the laboratory, mentored by MSc- or PhD-students, or other personnel at the University of Bergen (UiB).				
Praksis	5	5		2022
bioSPIRE is a student-coordinated project which facilitates access to practical experience to undergraduates by allowing them to join an ongoing project at the Department for Biological Sciences, whether in the field or at the laboratory, mentored by MSc- or PhD-students, or other personnel at the University of Bergen (UiB).				
Annen ferdighetstrening	300	5		2014-2018
Biologisk karrieredag, arrangert av og for biologistudentane. ca, 20 bedrifter på stand per år.				
Praksis	4	33		2017-2020
BIO296 Formidlingspraksis i biologi (10 ECTS)				

Type	Studenter	Duration	Level of education	Year
Praksis	14	15		2016-2022
BIO297 Feltkursundervisning - praksis og pedagogikk (5 ECTS)				
Annen ferdighetstrening	18	25		2017
biORAKEL - veileder og underviser (orakel) for yngre studenter				
Annen ferdighetstrening	21	30		2018
biORAKEL - veileder og underviser (orakel) for yngre studenter				
Annen ferdighetstrening	24	45		2019
biORAKEL - veileder og underviser (orakel) for yngre studenter				
Annen ferdighetstrening	22	25		2020
biORAKEL - veileder og underviser (orakel) for yngre studenter				
Annen ferdighetstrening	24	45		2021
biORAKEL - veileder og underviser (orakel) for yngre studenter				
Annen ferdighetstrening	21	35		2022
biORAKEL - veileder og underviser (orakel) for yngre studenter				
Annen ferdighetstrening	150	1		2021
SCOPE, student led conference on polar environment. Utviklet og driftet av MSc studenter for BSc, MSc og Phd studenter. Gir studenter trening i å arrangere konferanse, vere en aktiv deltaker og presentere på konferanser etc.				
Annen ferdighetstrening	75	2		2022
SCOPE, student led conference on polar environment. Utviklet og driftet av MSc studenter for BSc, MSc og Phd studenter. Gir studenter trening i å arrangere konferanse, vere en aktiv deltaker og presentere på konferanser etc.				
Praksis	105	15		2015-2022
Plant Functional Traits Courses, intpart.				
Praksis	60	30		2018-2022
International research internships, intpart RECITE, IAESTE				
Annen ferdighetstrening	6	1		2022
UNISorakel - veileder og mentor (orakel) for yngre studenter				
Total	1335	24105		

Tverrsektoriell mobilitet

Tverrsektoriell mobilitet(ansatte)

Type	Number of employees	Duration	Year
Veiledning	5	32	2019
AB-208 praksisverter			
Veiledning	5	32	2020
AB-208 praksisverter			
Veiledning	5	32	2021
AB-208 praksisverter			
Kombinasjonsstillinger	1	25	2015
Førsteamanusis II Roy Andersson, LTH Lunds Universitet			
Kombinasjonsstillinger	1	25	2016
Førsteamanusis II Roy Andersson, LTH Lunds Universitet			
Kombinasjonsstillinger	1	25	2017
Førsteamanusis II Roy Andersson, LTH Lunds Universitet			
Kombinasjonsstillinger	1	25	2018
Førsteamanusis II Roy Andersson, LTH Lunds Universitet			
Kombinasjonsstillinger	1	50	2019
Førsteamanusis II Roy Andersson, LTH Lunds Universitet			

Type	Number of employees	Duration	Year
Kombinasjonsstillinger	1	50	2020
Førsteamanusis II Roy Andersson, LTH Lunds Universitet			
Kombinasjonsstillinger	1	50	2021
Førsteamanusis II Roy Andersson, LTH Lunds Universitet			
Kombinasjonsstillinger	1	50	2022
Førsteamanusis II Roy Andersson, LTH Lunds Universitet			
Kombinasjonsstillinger	1	12	2015
Arbeidspakkeleder fra Havforskningsinstituttet, Gro van der Meeren			
Kombinasjonsstillinger	1	12	2016
Arbeidspakkeleder fra Havforskningsinstituttet, Gro van der Meeren			
Kombinasjonsstillinger	1	12	2017
Arbeidspakkeleder fra Havforskningsinstituttet, Gro van der Meeren			
Kombinasjonsstillinger	1	12	2018
Arbeidspakkeleder fra Havforskningsinstituttet, Gro van der Meeren			
Kombinasjonsstillinger	1	12	2019
Arbeidspakkeleder fra Havforskningsinstituttet, Gro van der Meeren			
Kombinasjonsstillinger	1	12	2020
Arbeidspakkeleder fra Havforskningsinstituttet, Gro van der Meeren			
Kombinasjonsstillinger	1	12	2021
Arbeidspakkeleder fra Havforskningsinstituttet, Gro van der Meeren			
Kombinasjonsstillinger	1	12	2022
Arbeidspakkeleder fra Havforskningsinstituttet, Gro van der Meeren			
Kombinasjonsstillinger	1	12	2023
Arbeidspakkeleder fra Havforskningsinstituttet, Gro van der Meeren			
Veiledning	132	21	2014-2023
Praksisverter BIO298			
Kombinasjonsstillinger	1	25	2014
Prosjektleder, professor II fra NORCE, Gaute Velle			
Kombinasjonsstillinger	1	25	2015
Prosjektleder, professor II fra NORCE, Gaute Velle			
Kombinasjonsstillinger	1	25	2016
Prosjektleder, professor II fra NORCE, Gaute Velle			
Kombinasjonsstillinger	1	25	2017
Prosjektleder, professor II fra NORCE, Gaute Velle			
Kombinasjonsstillinger	1	25	2018
Prosjektleder, professor II fra NORCE, Gaute Velle			
Kombinasjonsstillinger	1	25	2019
Prosjektleder, professor II fra NORCE, Gaute Velle			
Kombinasjonsstillinger	1	25	2020
Prosjektleder, professor II fra NORCE, Gaute Velle			
Kombinasjonsstillinger	1	25	2021
Prosjektleder, professor II fra NORCE, Gaute Velle			
Hospiteringsordninger	1	30	2014
Nestleder Pernille Bronken Eidesen til University of Otago, NZ, på sabbatical (undervisningstermin),			
Hospiteringsordninger	1	30	2015
Kath Dickinson fra University of Otago, NZ, på sabbatical (undervisningstermin) til UNIS.			
Veiledning	1	10	2014-2017
Advisory Board member Ivar Myklebust, Artsdatabanken			
Veiledning	1	10	2014-2017
Advisory Board member Trond Schumacher, Universitetet i Oslo			
Veiledning	1	10	2014-2017
Advisory Board member Gunnar Öquist, Umeå University			
Veiledning	1	10	2014-2017
Advisory Board member Mette Marianne Svenning, UIT Norges Arktiske Universitet			
Veiledning	1	2	2014

Type	Number of employees	Duration	Year
Adviory Board member Roy Andersson, LHT Lunds Universitet			
Veiledning	1	8	2015-2017
Adviory Board member Anders Ahlberg, LHT Lunds Universitet			
Veiledning	1	10	2014-2017
Adviory Board member Doris Jorde, SFU ProTED			
Veiledning	1	10	2014-2017
Adviory Board member Jeremy Pritchard, University of Birmingham			
Veiledning	1	10	2014-2017
Adviory Board member Päivi Kinnunen, Aalto University			
Undervisning	2	50	2014-2017
Prosjektsamarbeid med Artsdatabanken og Skolelab for realfag om utvikling av ArtsAPP - en applikasjon for enklere artsidentifikasjon			
Undervisning	2	50	2014-2016
IntPART prosjekt TRANSPLANT - students research experience, med NMBU og Chinese Academy of Sciences,			
Undervisning	3	50	2014-2015
Prosjektsamarbeid med TVEPS, UpED, Griegakademiet, SFU CEMPE. Sammen for bedre læring (praksis)			
Hospiteringsordninger	1	60	2015
Reseach mobility, Lucas Jenö til University of Rochester, USA			
Undervisning	2	50	2016-2018
Prosjektsamarbeid, SiU High North Programme; TraitTRAIN - research and training med University of Arizona US and Chinese Academy of Sciences			
Undervisning	1	1	2015
Silje Mæland, HVL, Gjesteseminar TBL			
Undervisning	1	1	2015
Kath Dickinson, University of Otago, Gjesteseminar studentaktiv forskning			
Undervisning	1	2	2015
Sehoya Cotner, University of Minnesota, Gjesteseminar Scientific Teaching			
Undervisning	1	1	2015
Anders Malthe-Sørensen, UiO, gjesteseminar Studentaktiv undervisning			
Kombinasjonsstillinger	1	25	2016
Professor II bioCEED, Sehoya Cotner, University of Minnesota			
Kombinasjonsstillinger	1	25	2017
Professor II bioCEED, Sehoya Cotner, University of Minnesota			
Kombinasjonsstillinger	1	25	2018
Professor II bioCEED, Sehoya Cotner, University of Minnesota			
Kombinasjonsstillinger	1	25	2019
Professor II bioCEED, Sehoya Cotner, University of Minnesota			
Kombinasjonsstillinger	1	25	2020
Professor II bioCEED, Sehoya Cotner, University of Minnesota			
Undervisning	2	50	2015
Samarbeid med SFU Matric UiA om utvikling av læringsressursen bioSTATS			
Undervisning	3	50	2020-2021
Samarbeid med NTNU om utvikling av læringsressursen bioSTATS			
Undervisning	5	30	2022
Samarbeid med UiT Norges Arktiske universitet og NTNU om utvikling av læringsressursen bioSTATS			
Hospiteringsordninger	1	20	2016
Gjesteforsker, Cissy Ballen, University of Minnesota.			
Undervisning	1	1	2016
Gjeste forelesing ved UiB, Cissy Ballen, University of Minnesota			
Hospiteringsordninger	1	45	2016
bioCEED PhD student Torstein Hole was a visiting scholar at Griffith University USA.			
Undervisning	20	5	2014-2018
Biologisk karrieredag, ca 20 bedrifter på stand hvert år.			
Undervisning	1	1	2017
Gjeste forelesing bioCEED UNIS, Astrid Sinnes, NMBU, higher education for sustainable development			
Undervisning	1	1	2017

Type	Number of employees	Duration	Year
Gjesteseminar PhD learning hurdles at UNIS/bioCEED, Anders Ahlberg LTH Lund University			
Kombinasjonsstillinger	1	12	2021
Pernille Bronken Eidesen (UiO), prof II UNIS 10%			
Kombinasjonsstillinger	1	36	2022
Pernille Bronken Eidesen (UiO), prof II UNIS 10%			
Undervisning	2	5	2019-2021
Utvikling av ArtsAPP for Svalbard, partnere Ishavskystens friluftsråd og SALLIR Naturrådgivning			
Total	241	5266	

Studieprogram/emne

Study programme/course:	AB-201 Terrestrial Arctic biology UNIS
Description:	Innføring av Team-based learning modul i emnet. Learning outcome: Explain the origin and development of the Arctic terrestrial flora and fauna. Explain how various species groups, like bacteria, fungi, mosses, vascular plants, invertebrates, birds and mammals are adapted to live under marginal Arctic conditions. Explain ecological and trophical interactions between these various species groups, and how various abiotic factors, including climate change, affect this interplay. Evaluate statements and results within the field of terrestrial Arctic biology by using the knowledge gained through the course. Critically read and debate scientific literature orally. Communicate scientific results, both in writing and orally. Pedagogical approach: Seminars. Sustainability of developed course: Integrated in regular course catalogue.
Level:	Bachelor
Fields of education and training - ISCED F2013:	Biological sciences
Course format:	Physical
ECTS Credits (or similar):	15,00
Student capacity:	20
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Nei
Status:	Starta
Comments:	I beskrivelsen er det listet opp de aktuelle læringsutbyttebeskrivelsene, læringsverktøyene og vurderingsformene fra emnebeskrivelsen som favner bruken av verktøyet. Det er ikke gjort endringer i emnebeskrivelsen som følge av implementeringen av verktøyet.

Study programme/course:	AB-201 Terrestrial Arctic Biology, AB-202 Marine Arctic Biology, AB-203 Arctic Environmental Management, AB-204 Arctic population ecology
Description:	Focus on problem-solving, individual and group work, scientific writing, presentations training and peer review in all four courses.
Level:	Bachelor
Fields of education and training - ISCED F2013:	Biological sciences
Course format:	Physical
ECTS Credits (or similar):	60,00
Student capacity:	80
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Nei
Status:	Starta
Comments:	Each course yields 15 ECTS and with a student capacity of 20.

Study programme/course: Description:	AB-204 Arctic population ecology UNIS Implementation of bioSTATS and video tutorials made by students in the course to support learning. Learning outcome: list, classify, compare and evaluate how the combination of density-dependence and climatic factors impact populations and tropic interactions in the Arctic. Analyse population time series dynamics. Use the software system R for development of simple models and data analyses in population ecology. Pedagogical approach: Lectures, seminars, group assignments, student presentations, poster design and presentation as well as fieldwork constitute the learning activities. Seminars and statistical exercises in R. Assessments form: Project work which is assessed through a poster presentation. Sustainability of developed course: Integrated in regular course catalogue.
Level:	Bachelor
Fields of education and training - ISCED F2013:	Biological sciences
Course format:	Physical
ECTS Credits (or similar):	15,00
Student capacity:	20
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Nei
Status:	Starta
Comments:	I beskrivelsen er det listet opp de aktuelle læringsutbyttebeskrivelsene, læringsverktøyene og vurderingsformene fra emnebeskrivelsen som favner bruken av verktøyet. Det er ikke gjort endringer i emnebeskrivelsen som følge av implementeringen av verktøyet.

Study programme/course: Description:	AB-206 Introduction to Svalbards Terrestrial Flora and Fauna UNIS Development of learning tools such as ArtsApp Svalbard and name tags with flags and integration into course. Learning outcome: list names and describe characters of common terrestrial species or taxa in Svalbard related to taxonomy in many Arctic species. identify common species in the field. Use identification keys (dichotomous and polyclave keys). Use various field and lab methods to identify, collect and prepare species. Pedagogical approach: Field and lab work and seminars. Assessment forms: Practical exam where the plan is to partly use the artsapp as a identification key for some of the specimens. Sustainability of developed course: Teaching tools well integrated within the course and ArtsApp is also used for the assessment part.
Level:	Bachelor
Fields of education and training - ISCED F2013:	Biological sciences
Course format:	Physical
ECTS Credits (or similar):	5,00
Student capacity:	20
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Nei
Status:	Starta
Comments:	

Study programme/course: Description:	AB-207 Research project in Arctic Biology UNIS Learning outcome: how to design their own research project, evaluate their own results and discuss their results in a wider perspective. Academic skills training. Pedagogical approach: Planning of the project, collect data, analyse data and prepare a written report. Field and lab work and
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	supervising. Integrated in regular course catalogue. Assessment: Written report. Sustainability of developed course: Integrated in regular course catalogue.
Level:	Bachelor
Fields of education and training - ISCED F2013:	Biological sciences
Course format:	Physical
ECTS Credits (or similar):	15,00
Student capacity:	4
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Nei
Status:	Starta
Comments:	

Study programme/course:	AB-208 Internship in Arctic Biology UNIS
Description:	Student internship in relevant work-placements. Learning outcome: understand how biology is useful in a workplace and apply the biological knowledge in a workplace setting. Skills training. Pedagogical approach: Internship at a local company. Through observation, cooperation, supervision and practical work the intern shall be given the possibility to discover professional abilities and skills needed, and gain authentic work experience. Pedagogical seminar with emphasis on students experience from the workplace. Seminars with focus on transferable research skills. .Assessment: Portfolio includes internship evaluation by contact person at hosting workplace. Student blog/podcast/video and a reflection note (ILO dissemination). Sustainability of developed course: Integrated in regular course catalogue.
Level:	Bachelor
Fields of education and training - ISCED F2013:	Biological sciences
Course format:	Physical
ECTS Credits (or similar):	15,00
Student capacity:	5
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Ja
Status:	Starta
Comments:	

Study programme/course:	Bachelor programme in Biology, Geology and Geophysics
Description:	Hovedmålet er å utvikle en overordnet design for vurdering av læring i felt. I dette prosjektet vil vi utforme, teste og evaluere vurderingsformer tilpasset læringsutbyttebeskrivelser (fagspesifikke- og overførbare ferdigheter) som vanligvis ikke fanges opp av tradisjonelle vurderingsformer. Prosjektet er knyttet til tre fagavdelinger på UNIS (Arktisk biologi, Arktisk geologi og Arktisk geofysikk) samt ved Instiutt for biovitenskap, UiO og BIO (UiB). 3 årig prosjekt finansiert av Diku aktiv og rapportert til HK-dir (AKTIV 2018/10172).
Level:	Bachelor
Fields of education and training - ISCED F2013:	Biological sciences
Course format:	Physical
ECTS Credits (or similar):	205,00
Student capacity:	776

Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Nei
Status:	Starta
Comments:	Opprinnelig planlagt for programpakker på totalt 150 studiepoeng. Dette prosjektet involverer Biological Sciences, Earth sciences and Physical sciences. Samarbeid mellom UiB, UNIS, Skolelaboratoriet ved UiO og bioCEED. Prosjektrapportering for dette prosjektet er også å finne i program for studentaktiv læring - AKTIV-2018/10172

Study programme/course:	Bachelorprogram i biologi og BIO100, BIO101, BIO102, BIO103, BIO104 (UiB)
Description:	<p>Bachelorprogrammet i biologi ved UiB, og alle obligatoriske BIO-emner i programmet har gjennom de siste 4 årene systematisk blitt utviklet basert på bioCEEDs utviklingsarbeid og utprøving gjennom 2014-2018. Mye av dette arbeidet er organisert under AKTIV-prosjektet redesign, og rapportert i dette prosjektet (AKTIV-2018/10146).</p> <p>Prosjektet omfatter redesign av program og tilhørende emner, etter en modell for studentsentrert program-redesign. Sentralt i prosjektet er studenters forskningskompetanse og ferdigheter (research based teaching - content, method, skills), constructive alignment av faglig innhold og overførbare og fagspesifikke ferdigheter.</p> <p>Endringer er gjort i undervisningen for alle emner (se eksempler under impact), blant annet ved å ta i bruk forskningsbasert metoder som TBL, samarbeidslæring, nyskapende labøvelser, fra passiv (forelesing) til aktiv (seminar) undervisning, bruk av digitale verktøy (feks videotutorials for flipped classroom, kursbaserte forskningsprosjekt (CURE), rapportering i imrad (akademisk skrivetrening).</p> <p>Endringer er også gjort i vurderingsformer for å sikre meningsfullt samsvar, mer autentisk vurdering, og feks. porteføljevurdering for å øke studenters påvirkning.</p> <p>Studenter og undervisere har sammen, og hver for seg, utviklet nye måter for studentene å delta i og dele sitt forsknings- og læringsarbeid. F.eks i form av blogger, postere (poster session) og studenttidsskriftet biKUBEN.</p> <p>Endringene er støttet av, og bidrar til, bioCEEDs digitale plattformer (bioSTATS, bioSKRIV, bioPITCH etc)</p>
Level:	Bachelor
Fields of education and training - ISCED F2013:	Biological sciences
Course format:	Physical
ECTS Credits (or similar):	180,00
Student capacity:	99
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, obligatorisk for noen studenter
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Ja
Status:	Starta
Comments:	Collaboration with bioCEED, UiB Learning Lab and Department of biological sciences, UiB

Study programme/course:	BIO student symposium (BIO299, BIO250, BIO201, BIO300a, MOL231, SDG215, SDG214, BIO241, MOL270, and guest: GEO338)
Description:	Kvar av dei involverte kurs har eigen læringsutbyttar spesifikke for kurset. Postersesjonen er ein del av den pedagogiske tilnærminga og ein del av vurderingsforma, då studentane sine prosjekt skal presenterast i eit felles arrangement. Studentane får opplæring gjennom posterworkshop

	for å utvikle ein god vitenskaplig framstilling som kommuniserer godt. Plattformen bioSKRIV inneheld og ressursar som støttar studetane. I vurdering av posterane blir det brukt digitale hjelpemiddel som gjer at studentane kan få tilbakemelding frå publikum, men og ein fagleg tilbakemelding frå ei gruppe fagleg ansatte som vurderer posteren.
	Postersesjonen er godt integrert i emna som deltar, og vi har all tru på at den held fram etter SFU-en er avslutta.
Level:	Bachelor
Fields of education and training - ISCED F2013:	Biological sciences
Course format:	Physical
ECTS Credits (or similar):	80,00
Student capacity:	300
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, obligatorisk for noen studenter
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Nei
Status:	Starta
Comments:	Student poster symposium to ganger i året (i slutten av hvert semester), ca 150 studenter presenterer faglig arbeid hvert semester, dvs ca 300 studenter i året. Under pandemien ble Student Poster Symposium arrangert som en digital konferanse.

Study programme/course: Description:	BIO208 Environmental Impact of Aquaculture Redesign elements of course. Introduction of video report by students from field work. Added learning outcome video reports: training transferrable skills like communication of science, digital competence, team work and collaboration, critical thinking (ethics and sources).
Level:	Bachelor
Fields of education and training - ISCED F2013:	Biological sciences
Course format:	Physical
ECTS Credits (or similar):	10,00
Student capacity:	25
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, obligatorisk for noen studenter
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Nei
Status:	Starta
Comments:	

Study programme/course: Description:	BIO241 Adferdsøkologi Course redesign: Pedagogical approach and assessment changed from traditional lectures and end-of-term-exam to team based learning (TBL) and portfolio assessment. The process of changing the course was documented in a study by R. Esterhazy (University of Oslo) Esterhazy, R. and Fiksen, Ø. (2019). Evolution of a portfolio-based design in ecology: a three-year design cycle. Uniped, 01/2019 (volum 42) https://doi.org/10.18261/issn.1893-8981-2019-01-05
Level:	Bachelor
Fields of education and training - ISCED F2013:	Biological sciences
Course format:	Physical
ECTS Credits (or similar):	10,00

Student capacity:	50
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Ikke relevant
Status:	Starta
Comments:	

Study programme/course:	BIO250 Palaeøkologi
Description:	Redesigned elements of course. Developing innovative digital tools for field work preparation in the form of virtual field guides (visit field site virtually to prepare). Developing innovative teaching sessions: Escape room (student developed project) to create learning opportunities in structured team work while solving course relevant problems and puzzles. Introduced new assessment through certification of discipline spesific practical skills (e.g. microscoping).
Level:	Bachelor
Fields of education and training - ISCED F2013:	Biological sciences
Course format:	Physical
ECTS Credits (or similar):	10,00
Student capacity:	25
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Ja
Status:	Starta
Comments:	

Study programme/course:	BIO298 Yrkepraksis i biologi
Description:	<p>Praksisopphaldet skal bidra til at studenten opplever verdien av den faglege kompetansen i biologi for aktuelle samfunnsaktørar og arbeidsgivarar. Gjennom observasjon, samhandling, rettleiing og praktisk utøving skal studentane få høve til å verte meir medvitne på eiga yrkesrolle og yrkeshøve.</p> <p>Studentane deltek i arbeidsoppgåvene i bedriftene dei er utplasserte i, og får oppgåver som er relevante i forhold til deira faglege kompetanse og bedriftene sine behov.</p> <p>Omfang: Totalt ca. 250 timar. Minimum 140 timar skal vere arbeid hos praksisverten. Studentane skal også skrive fire blogginnlegg, eit refleksjonsnotat, møte til to samlingar (informasjonsmøte og midtsemester møte) og gje ein kort presentasjon av praksisopphaldet sitt. Praksisrapport må få karakter "Bestått" for at ein skal bestå emnet.</p> <p>Læringsutbyte</p> <p>Etter fullført praksis skal studentane</p> <ul style="list-style-type: none"> -ha fått generell arbeidserfaring og konkret bransjeefaring -ha fått innblikk i arbeidsoppgåver i organisasjonar, etatar, og næringsliv som kandidaten etter fullførte studiar skal vere i stand til å løyse -kombinere teori med erfaringsbasert læring -reflektere over forholdet mellom teori og praksis -arbeide med observasjon, samhandling, rettleiing og praktisk utøving av faget -beskrive korleis ein bedrift/organisasjon organiserer arbeidet -bruke biologisk kunnskap på arbeidsrelevante praktiske oppgåver -oppsummere eit arbeid i form av ein prosjektrapport
Level:	Bachelor

Fields of education and training - ISCED F2013:	Biological sciences
Course format:	Physical
ECTS Credits (or similar):	10,00
Student capacity:	20
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Har arbeidslivspartnere vært involvert i utvikling av emne/ studieprogram?:	Ja
Status:	Starta
Comments:	Workplace Practice in Biology. Student internship in relevant workplacements. Skills training. Pedagogical seminar with empeziis on relevance. Integrated in regular course catalouge. Assesment: Portfolio, includes student blog (ILO dissemination)

Study programme/course:	BIO299 Forskningspraksis i biologi
Description:	<p>Gjennom Forskningspraksis i biologi får studentene praktisk erfaring med forskning som prosess og arbeidsmetode. Studentene tilegner seg relevant faglig kunnskap og ferdigheter og bygger samtidig faglig identitet og rolleforståelse. Gjennom å delta i forskning utvikler studentene en bedre forståelse for forskningens egenart og forskningens bidrag i samfunnet</p> <p>Pedagogisk tilnærming: Studenten vil, under veiledning av en vitenskapelig ansatt ved BIO, gjennomføre en praktisk forskningsoppgave. Praksisoppgaven kan være frittstående eller del av et pågående forskningsprosjekt, og den kan gjennomføres selvstendig eller i samarbeid med andre studenter. Oppgaven kan være metodisk, empirisk, analytisk, eller teoretisk. Studenten vil få kjennskap til forskningsprosessen (veien fra hypotese eller et forskningsspørsmål via studiedesign, datainnsamling, analyse, tolking, og presentasjon av resultatene) og vil få praktisk erfaring med to eller flere av trinnene i denne prosessen (for eksempel datainnsamling, datasammenstilling, og skriving av felt- eller lab-rapport). Studentene deltar også i felles samlinger, arbeidsverksted, og en postersesjon der de utvikler ulike faglige og overførbare ferdigheter. Omfanget av kurset er totalt ca. 250 timer inkludert obligatoriske aktiviteter samt planlegging, gjennomføring, rapportering, og presentasjon av resultater fra prosjektet.</p> <p>Arbeids- og undervisningsformer Oppstartseminar om Forskningspraksis i biologi Midtsemestermøte og diskusjoner Selvstendig arbeid med en forskningsoppgave under veiledning av en vitenskapelig ansatt ved BIO. Praksisoppgaven avtales med veileder, og kan bestå av labarbeid, feltarbeid eller annet som er relevant for den aktuelle oppgaven. Deltagelse på poster-workshop og presentasjon av praksisarbeidet som en poster. Skrive en bloggpost. En skriftlig rapport etter fastsatt mal. Formatet på det faglige produktet som er del av rapporten avtales med veileder, og kan for eksempel være en feltrapport, labrapport, et dokumentert datasett, eller en full vitenskapelig rapport.</p> <p>Læringsutbytte Kunnskap Studenten har praktisk erfaring med biologisk forskning som prosess og arbeidsmetode</p>

kan forklare prinsippene bak og formålet med de forskningsaktivitetene som inngår i prosjektoppgaven
har praktiske ferdigheter i noen av fagfeltets vitenskapelige metoder
kan plassere egne data og funn i en faglig kontekst
Ferdigheter

Studenten
kan planlegge, gjennomføre, og rapportere resultater fra en definert forskningsoppgave i henhold til fagets standarder
kan finne, sammenfatte og bruke litteratur og annen fagkunnskap som er relevant for et definert faglig prosjekt
har kjennskap til hvordan resultatene i prosjektoppgaven kan tolkes og vurderes
kan vurdere egne resultater opp mot oppdatert faglig kunnskap innenfor fagfeltet
Generell kompetanse

Studenten
utvikler forståelse for forskningens egenart og forskningens bidrag i samfunnet
utvikler faglig identitet og rolleforståelse
kan samarbeide med andre i et forskningsfelleskap
kan rapportere eget arbeid og resultater etter en standardisert mal
kan lage og presentere en faglig poster

Vurderingsformer
Studenten leverer en mappe etter oppsatt mal. Mappen består av en rapport etter oppsatt mal, som inneholder:
Prosjektbeskrivelse (5%)
Et vitenskaplig produkt som dokumenterer resultatene av forskningspraksisprosjektet. Formatet på rapporten tilpasses prosjektets behov, og avtales med veileder (60%).
En poster (10%)
Tilbakemelding på poster og posterpresentasjon (10%)
En bloggpost (10%)
En oversikt over arbeidstimer (5%)

Bærekraftighet - etter SFU:
Emnet inngår i Institutt for biovitenskaps (UiB) faste kursportefølje.
Emneansvarlig og studieadministrasjon ved Institutt for biovitenskap.
Bachelor

Level:

Fields of education and training - ISCED F2013:

Course format:

ECTS Credits (or similar):

Student capacity:

Has the study programme/course

been integrated in the regular course catalogue offered at the institution?:

Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:

Status:

Comments:

Biological sciences

Physical

10,00

20

Ja, valgfritt for noen studenter

Ja

Starta

bioCEED har redesignet og systematisk utviklet emnet siden 2016, og styrket den pedagogiske rammen og læringsutbyttet med særlig fokus på forskningsferdigheter, forskningsetikk, praktiske forskningsferdigheter, forskningsformidling, akademisk skriving mm. Emnet er utviklet i samarbeid med deltakende studenter (co-creation) og forskere på og utenfor UiB.

Study programme/course:

Description:

BIO325 Havforskning

Redesign elements of course. Students produce video tutorials to be used as learning material in course. Added learning outcome video tutorials: training transferrable skills like communication of science, digital

	competence, team work and collaboration, critical thinking (ethics and sources). Teach2Learn
Level:	Master
Fields of education and training - ISCED F2013:	Biological sciences
Course format:	Physical
ECTS Credits (or similar):	20,00
Student capacity:	20
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Ja
Status:	Starta
Comments:	

Study programme/course:	bioSKRIV/bioWRITE - læringsressurs for alle kurs/program
Description:	Support for academic writing and scientific literacy in biology courses with web-based resources. The platform contains both general and course specific resources for students. Eg. IMRAD, posters, essays, labjournals, blogposts. Referenceing, reading scientific literature etc. The platform is used by all bachelor and master courses in biology at BIO-UiB and AB-UNIS, where relevant. bioWRITE/bioSKRIV is created in collaboration with both teachers and students. These resources are then used as teaching materials in biology courses across programs and curricula. The platform has both an English and a Norwegian version to support developing scientific literacy and communication skills in both languages.
Level:	Bachelor
Fields of education and training - ISCED F2013:	Biological sciences
Course format:	Digital
ECTS Credits (or similar):	300,00
Student capacity:	800
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Ikke relevant
Status:	Starta
Comments:	Plattformen blir brukt av BSc og MSc emner, samt av studenter som jobber med forskningsprosjekt (feks master, bachelorprosjekter, praksis etc). Emner ved BIO-UiB >100, AB-UNIS: 39 . bioWRITE/bioSTATS er en del av bioCEEDs ressurser under paraplyen bioSKILLS. NB! antall studiepoeng satt til BSc+MSc, studentkapasitet satt til antall studenter BIO+AB.

Study programme/course:	bioSTATS - læringsressurs for all kurs/program
Description:	bioCEED has created bioST@TS, a web-based learning platform (https://biostats.uib.no/) 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 all biology courses at University of Bergen (Norway) and at the University Centre in Svalbard (Norway). Modules in bioST@TS focus on the following: Working in Excel Working in R Statistics in R

	Data visualization Data management Working and collaborating in Git/GitHub
	bioST@TS is also a repository for resources created in collaboration with both teachers and students. These resources are then used as teaching materials in biology courses across programs and curricula. https://biostats.w.uib.no/
Level:	Master
Fields of education and training - ISCED F2013:	Biological sciences
Course format:	Digital
ECTS Credits (or similar):	300,00
Student capacity:	800
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Ja
Status:	Starta
Comments:	Plattformen blir brukt av BSc og MSc emner, samt av studenter som jobber med forskningsprosjekt (feks master, bachelorprosjekter, praksis etc). Det obligatoriske masteremnet BIO300b er bygd rundt bioSTATS som læringsressurs. I tillegg er det utviklet skreddersydde ressursetr for emnene AB202, AB204, BIO101, BIO104, BIO241, BIO325 m.f. Emner ved BIO-UiB >100, AB-UNIS: 39 . bioSTATS er en del av bioCEEDs ressurser under paraplyen bioSKILLS.
	ECTS satt til BSc+MSc, studentkapasitet satt til studenttall BIO+AB. Nivå: inkluderer alle, men må velge en.

Study programme/course: Description:	Learning Arctic Biology platform - learning resource for all courses The online learning platform Learning Arctic Biology at UNIS is an open teaching and learning resource for students and teachers containing scientific knowledge, teaching material and an external resource library on arctic ecosystems and organisms. The teaching material is aimed mainly at UNIS biology courses and other biology courses in higher education but can also be used by secondary schools, nature guides and others who want to learn more about arctic biology. The platform is created in collaboration with both teachers and students. The Learning Arctic Biology platform have been introduced as part of the curriculum in different courses at UNIS.
Level:	Bachelor
Fields of education and training - ISCED F2013:	Biological sciences
Course format:	Digital
ECTS Credits (or similar):	120,00
Student capacity:	170
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Nei
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Ikke relevant
Status:	Starta
Comments:	The ECTS Credit and student capacity is calculated for all terrestrial biology courses at UNIS. Since the resource is an open online platform the numbers will not reflect this. Bachelor and Master level.

Study programme/course: Description:	Pedagogical Training Course for PhD students Teaching and learning course for biology PhD candidates with teaching duties.
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Level:	2 days of seminar for all participants, followed by reading relevant teaching and learning literature, and writing reflective paper on own teaching in relation to pedagogical principles and knowledge of student learning. PhD
Fields of education and training - ISCED F2013:	Educational sciences, pedagogy and didactics
Course format:	Physical
ECTS Credits (or similar):	5,00
Student capacity:	18
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Ikke relevant
Status:	Starta
Comments:	Dette PhD-kurset var en pilot ved BIO-UiB, som senere er utviklet til TA-kurset (teaching assistants) holdt av bioCEED hvert semester for å styrke den pedagogiske kompetansen hos undervisningsassistenter.

Study programme/course:	Teaching Assistant Course UNIS
Description:	The 3-day TA course "Teaching and Learning course" at UNIS have been run twice and primary offered to PhD students across all scientific departments but also open to Master and Postdocs as well. The course is developed and taught in collaboration with iEarth and Ivar Nordmo and teachers from UNIS. It consists of 4 parts focusing on central theories and concept of learning, presenter vs. facilitator role in classroom, written feedback and field learning
Level:	PhD
Fields of education and training - ISCED F2013:	Educational sciences, pedagogy and didactics
Course format:	Physical
ECTS Credits (or similar):	1,00
Student capacity:	15
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Nei
Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Nei
Status:	Starta
Comments:	Da kurset ikke inngår i emneporteføljen må studentene søke fastlandsuniversitetene om å få godkjent studiepoeng for kurset.

Study programme/course:	Writing course UNIS
Description:	Learning outcome: to introduce and train PhD students in scientific writing as well as in giving feedback. Pedagogical approach: Lectures, seminars, project work. Assessment forms: a rewritten proposal based on the knowledge learned in lectures and seminars. Sustainability of developed course: The course have been presented in a workshop for all teachers at UNIS. Part of the course have been implemented in the AB-201 course
Level:	PhD
Fields of education and training - ISCED F2013:	Educational sciences, pedagogy and didactics
Course format:	Physical
ECTS Credits (or similar):	5,00
Student capacity:	15
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Nei

Har arbeidslivspartnere vært involvert i utvikling av emne/studieprogram?:	Ja
Status:	Starta
Comments:	MSc and PhD level. Da kurset ikke inngår i emneporteføljen må studentene søke fastlandsuniversitetene om å få godkjent studiepoeng for kurset.

Studieprogram/emne

Navn på studieprogram eller emne:	AB-201 Terrestrial Arctic biology UNIS
Description:	Innføring av Team-based learning modul i emnet. Learning outcome: Explain the origin and development of the Arctic terrestrial flora and fauna. Explain how various species groups, like bacteria, fungi, mosses, vascular plants, invertebrates, birds and mammals are adapted to live under marginal Arctic conditions. Explain ecological and trophical interactions between these various species groups, and how various abiotic factors, including climate change, affect this interplay. Evaluate statements and results within the field of terrestrial Arctic biology by using the knowledge gained through the course. Critically read and debate scientific literature orally. Communicate scientific results, both in writing and orally. Pedagogical approach: Seminars. Sustainability of developed course: Integrated in regular course catalogue.
Level:	Bachelor
Fields of education and training:	Biological sciences
Course format:	Physical
Studiepoeng:	15,00
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Have non-academic partners been involved in the development of the study programme?:	Nei
Student capacity:	
Status:	Starta
Comments:	I beskrivelsen er det listet opp de aktuelle læringsutbyttebeskrivelsene, læringsverktøyene og vurderingsformene fra emnebeskrivelsen som favner bruken av verktøyet. Det er ikke gjort endringer i emnebeskrivelsen som følge av implementeringen av verktøyet.

Navn på studieprogram eller emne:	AB-201 Terrestrial Arctic Biology, AB-202 Marine Arctic Biology, AB-203 Arctic Environmental Management, AB-204 Arctic population ecology
Description:	Focus on problem-solving, individual and group work, scientific writing, presentations training and peer review in all four courses.
Level:	Bachelor
Fields of education and training:	Biological sciences
Course format:	Physical
Studiepoeng:	60,00
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Have non-academic partners been involved in the development of the study programme?:	Nei
Student capacity:	
Status:	Starta
Comments:	Each course yields 15 ECTS and with a student capacity of 20.

Navn på studieprogram eller emne:	AB-204 Arctic population ecology UNIS
Description:	Implementation of bioSTATS and video tutorials made by students in the course to support learning. Learning outcome: list, classify, compare and evaluate how the combination of density-dependence and climatic factors impact populations and trophic interactions in the Arctic. Analyse population time series dynamics. Use the software system R for development of

	simple models and data analyses in population ecology. Pedagogical approach: Lectures, seminars, group assignments, student presentations, poster design and presentation as well as fieldwork constitute the learning activities. Seminars and statistical exercises in R. Assessments form: Project work which is assessed through a poster presentation. Sustainability of developed course: Integrated in regular course catalogue.
Level:	Bachelor
Fields of education and training:	Biological sciences
Course format:	Physical
Studiepoeng:	15,00
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Have non-academic partners been involved in the development of the study programme?:	Nei
Student capacity:	
Status:	Starta
Comments:	I beskrivelsen er det listet opp de aktuelle læringsutbyttebeskrivelsene, læringsverktøyene og vurderingsformene fra emnebeskrivelsen som favner bruken av verktøyet. Det er ikke gjort endringer i emnebeskrivelsen som følge av implementeringen av verktøyet.

Navn på studieprogram eller emne:	AB-206 Introduction to Svalbards Terrestrial Flora and Fauna UNIS
Description:	Development of learning tools such as ArtsApp Svalbard and name tags with flags and integration into course. Learning outcome: list names and describe characters of common terrestrial species or taxa in Svalbard related to taxonomy in many Arctic species. identify common species in the field. Use identification keys (dichotomous and polyclave keys). Use various field and lab methods to identify, collect and prepare species. Pedagogical approach: Field and lab work and seminars. Assessment forms: Practical exam where the plan is to partly use the artsapp as a identification key for some of the specimens. Sustainability of developed course: Teaching tools well integrated within the course and ArtsApp is also used for the assessment part.
Level:	Bachelor
Fields of education and training:	Biological sciences
Course format:	Physical
Studiepoeng:	5,00
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Have non-academic partners been involved in the development of the study programme?:	Nei
Student capacity:	
Status:	Starta
Comments:	

Navn på studieprogram eller emne:	AB-207 Research project in Arctic Biology UNIS
Description:	Learning outcome: how to design their own research project, evaluate their own results and discuss their results in a wider perspective. Academic skills training. Pedagogical approach: Planning of the project, collect data, analyse data and prepare a written report. Field and lab work and supervising. Integrated in regular course catalogue. Assessment: Written report. Sustainability of developed course: Integrated in regular course catalogue.
Level:	Bachelor
Fields of education and training:	Biological sciences
Course format:	Physical
Studiepoeng:	15,00

Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Have non-academic partners been involved in the development of the study programme?:	Nei
Student capacity:	
Status:	Starta
Comments:	

Navn på studieprogram eller emne:	AB-208 Internship in Arctic Biology UNIS
Description:	Student internship in relevant work-placements. Learning outcome: understand how biology is useful in a workplace and apply the biological knowledge in a workplace setting. Skills training. Pedagogical approach: Internship at a local company. Through observation, cooperation, supervision and practical work the intern shall be given the possibility to discover professional abilities and skills needed, and gain authentic work experience. Pedagogical seminar with emphasis on students experience from the workplace. Seminars with focus on transferable research skills. .Assessment: Portfolio includes internship evaluation by contact person at hosting workplace. Student blog/podcast/video and a reflection note (ILO dissemination). Sustainability of developed course: Integrated in regular course catalouge.
Level:	Bachelor
Fields of education and training:	Biological sciences
Course format:	Physical
Studiepoeng:	15,00
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Have non-academic partners been involved in the development of the study programme?:	Ja
Student capacity:	
Status:	Starta
Comments:	

Navn på studieprogram eller emne:	Bachelor programme in Biology, Geology and Geophysics
Description:	Hovedmålet er å utvikle en overordnet design for vurdering av læring i felt. I dette prosjektet vil vi utforme, teste og evaluere vurderingsformer tilpasset læringsutbyttebeskrivelser (fagspesifikke- og overførbare ferdigheter) som vanligvis ikke fanges opp av tradisjonelle vurderingsformer. Prosjektet er knyttet til tre fagavdelinger på UNIS (Arktisk biologi, Arktisk geologi og Arktisk geofysikk) samt ved Instiutt for biovitenskap, UiO og BIO (UiB). 3 årig prosjekt finansiert av Diku aktiv og rapportert til HK-dir (AKTIV 2018/10172).
Level:	Bachelor
Fields of education and training:	Biological sciences
Course format:	Physical
Studiepoeng:	205,00
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Have non-academic partners been involved in the development of the study programme?:	Nei
Student capacity:	
Status:	Starta
Comments:	Opprinnelig planlagt for programpakker på totalt 150 studiepoeng. Dette prosjektet involverer Biological Sciences, Earth sciences and Physical sciences. Samarbeid mellom UiB, UNIS, Skolelaboratoriet ved UiO og

Navn på studieprogram eller emne:	Bachelorprogram i biologi og BIO100, BIO101, BIO102, BIO103, BIO104 (UiB)
Description:	<p>Bachelorprogrammet i biologi ved UiB, og alle obligatoriske BIO-emner i programmet har gjennom de siste 4 årene systematisk blitt utviklet basert på bioCEEDs utviklingsarbeid og utprøving gjennom 2014-2018. Mye av dette arbeidet er organisert under AKTIV-prosjektet redesign, og rapportert i dette prosjektet (AKTIV-2018/10146).</p> <p>Prosjektet omfatter redesign av program og tilhørende emner, etter en modell for studentsentrert program-redesign. Sentralt i prosjektet er studenters forskningskompetanse og ferdigheter (research based teaching - content, method, skills), constructive alignment av faglig innhold og overførbare og fagspesifikke ferdigheter.</p> <p>Endringer er gjort i undervisningen for alle emner (se eksempler under impact), blant annet ved å ta i bruk forskningsbasert metoder som TBL, samarbeidslæring, nyskapende labøvelser, fra passiv (forelesing) til aktiv (seminar) undervisning, bruk av digitale verktøy (feks videotutorials for flipped classroom, kursbaserte forskningsprosjekt (CURE), rapportering i imrad (akademisk skrivetrening).</p> <p>Endringer er også gjort i vurderingsformer for å sikre meningsfullt samsvar, mer autentisk vurdering, og feks. porteføljevurdering for å øke studenters påvirkning.</p> <p>Studenter og undervisere har sammen, og hver for seg, utviklet nye måter for studentene å delta i og dele sitt forsknings- og læringsarbeid. F.eks i form av blogger, postere (poster session) og studenttidsskriftet biKUBEN.</p> <p>Endringene er støttet av, og bidrar til, bioCEEDs digitale plattformer (bioSTATS, bioSKRIV, bioPITCH etc)</p>
Level:	Bachelor
Fields of education and training:	Biological sciences
Course format:	Physical
Studiepoeng:	180,00
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, obligatorisk for noen studenter
Have non-academic partners been involved in the development of the study programme?:	Ja
Student capacity:	
Status:	Starta
Comments:	Collaboration with bioCEED, UiB Learning Lab and Department of biological sciences, UiB

Navn på studieprogram eller emne:	BIO student symposium (BIO299, BIO250, BIO201, BIO300a, MOL231, SDG215, SDG214, BIO241, MOL270, and guest: GEOF338)
Description:	<p>Kvar av dei involverte kurs har eigen læringsutbyttar spesifikke for kurset. Postersesjonen er ein del av den pedagogiske tilnærminga og ein del av vurderingsforma, då studentane sine prosjekt skal presenterast i eit felles arrangement. Studentane får opplæring gjennom posterworkshop for å utvikle ein god vitenskaplig framstilling som kommuniserer godt. Plattformen bioSKRIV inneheld og ressursar som støttar studetane. I vurdering av posterane blir det brukt digitale hjelpemiddel som gjer at studentane kan få tilbakemelding frå publikum, men og ein fagleg tilbakemelding frå ei gruppe fagleg ansatte som vurderer posteren.</p> <p>Postersesjonen er godt integrert i emna som deltar, og vi har all tru på at den held fram etter SFU-en er avslutta.</p>
Level:	Bachelor
Fields of education and training:	Biological sciences
Course format:	Physical
Studiepoeng:	80,00

Has the study programme/course been integrated in the regular course catalogue offered at the institution?: Ja, obligatorisk for noen studenter

Have non-academic partners been involved in the development of the study programme?: Nei

Student capacity:
Status: Starta

Comments: Student poster symposium to ganger i året (i slutten av hvert semester), ca 150 studenter presenterer faglig arbeid hvert semester, dvs ca 300 studenter i året. Under pandemien ble Student Poster Symposium arrangert som en digital konferanse.

Navn på studieprogram eller emne: BIO208 Environmental Impact of Aquaculture

Description: Redesign elements of course. Introduction of video report by students from field work. Added learning outcome video reports: training transferrable skills like communication of science, digital competence, team work and collaboration, critical thinking (ethics and sources).

Level: Bachelor

Fields of education and training: Biological sciences

Course format: Physical

Studiepoeng: 10,00

Has the study programme/course been integrated in the regular course catalogue offered at the institution?: Ja, obligatorisk for noen studenter

Have non-academic partners been involved in the development of the study programme?: Nei

Student capacity:
Status: Starta

Comments:

Navn på studieprogram eller emne: BIO241 Adferdsøkologi

Description: Course redesign:
Pedagogical approach and assessment changed from traditional lectures and end-of-term-exam to team based learning (TBL) and portfolio assessment.

The process of changing the course was documented in a study by R. Esterhazy (University of Oslo)
Esterhazy, R. and Fiksen, Ø. (2019). Evolution of a portfolio-based design in ecology: a three-year design cycle. Uniped, 01/2019 (volum 42)
<https://doi.org/10.18261/issn.1893-8981-2019-01-05>

Level: Bachelor

Fields of education and training: Biological sciences

Course format: Physical

Studiepoeng: 10,00

Has the study programme/course been integrated in the regular course catalogue offered at the institution?: Ja, valgfritt for noen studenter

Have non-academic partners been involved in the development of the study programme?: Ikke relevant

Student capacity:
Status: Starta

Comments:

Navn på studieprogram eller emne: BIO250 Palaeøkologi

Description: Redesigned elements of course. Developing innovative digital tools for field work preparation in the form of virtual field guides (visit field site virtually to prepare). Developing innovative teaching sessions: Escape room (student developed project) to create learning opportunities in structured team

	work while solving course relevant problems and puzzles. Introduced new assessment through certification of discipline specific practical skills (e.g. microscoping).
Level:	Bachelor
Fields of education and training:	Biological sciences
Course format:	Physical
Studiepoeng:	10,00
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Have non-academic partners been involved in the development of the study programme?:	Ja
Student capacity:	
Status:	Starta
Comments:	

Navn på studieprogram eller emne:	BIO298 Yrkepraksis i biologi
Description:	<p>Praksisopphaldet skal bidra til at studenten opplever verdien av den faglege kompetansen i biologi for aktuelle samfunnsaktørar og arbeidsgivarar. Gjennom observasjon, samhandling, rettleiing og praktisk utøving skal studentane få høve til å verte meir medvitne på eiga yrkesrolle og yrkeshøve.</p> <p>Studentane deltek i arbeidsoppgåvene i bedriftene dei er utplasserte i, og får oppgåver som er relevante i forhold til deira faglege kompetanse og bedriftene sine behov.</p> <p>Omfang: Totalt ca. 250 timar. Minimum 140 timar skal vere arbeid hos praksisverten. Studentane skal også skrive fire blogginnlegg, eit refleksjonsnotat, møte til to samlingar (informasjonsmøte og midtsemester møte) og gje ein kort presentasjon av praksisopphaldet sitt. Praksisrapport må få karakter "Bestått" for at ein skal bestå emnet.</p> <p>Læringsutbyte</p> <p>Etter fullført praksis skal studentane</p> <ul style="list-style-type: none"> -ha fått generell arbeidserfaring og konkret bransjeefaring -ha fått innblikk i arbeidsoppgåver i organisasjonar, etatar, og næringsliv som kandidaten etter fullførte studiar skal vere i stand til å løyse -kombinere teori med erfaringsbasert læring -reflektere over forholdet mellom teori og praksis -arbeide med observasjon, samhandling, rettleiing og praktisk utøving av faget -beskrive korleis ein bedrift/organisasjon organiserer arbeidet -bruke biologisk kunnskap på arbeidsrelevante praktiske oppgåver -oppsummere eit arbeid i form av ein prosjektrapport
Level:	Bachelor
Fields of education and training:	Biological sciences
Course format:	Physical
Studiepoeng:	10,00
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Have non-academic partners been involved in the development of the study programme?:	Ja
Student capacity:	
Status:	Starta
Comments:	Workplace Practice in Biology. Student internship in relevant workplacements. Skills training. Pedagogical seminar with empezis on relevance. Integrated in regular course catalouge. Assesment: Portfolio, includes student blog (ILO dissemination)

<p>Navn på studieprogram eller emne: BIO299 Forskningspraksis i biologi</p> <p>Description:</p>	<p>Gjennom Forskningspraksis i biologi får studentene praktisk erfaring med forskning som prosess og arbeidsmetode. Studentene tilegner seg relevant faglig kunnskap og ferdigheter og bygger samtidig faglig identitet og rolleforståelse. Gjennom å delta i forskning utvikler studentene en bedre forståelse for forskningens egenart og forskningens bidrag i samfunnet</p> <p>Pedagogisk tilnærming: Studenten vil, under veiledning av en vitenskapelig ansatt ved BIO, gjennomføre en praktisk forskningsoppgave. Praxisoppgaven kan være frittstående eller del av et pågående forskningsprosjekt, og den kan gjennomføres selvstendig eller i samarbeid med andre studenter. Oppgaven kan være metodisk, empirisk, analytisk, eller teoretisk. Studenten vil få kjennskap til forskningsprosessen (veien fra hypotese eller et forskningsspørsmål via studiedesign, datainnsamling, analyse, tolking, og presentasjon av resultatene) og vil få praktisk erfaring med to eller flere av trinnene i denne prosessen (for eksempel datainnsamling, datasammenstilling, og skriving av felt- eller lab-rapport). Studentene deltar også i felles samlinger, arbeidsverksted, og en postersesjon der de utvikler ulike faglige og overførbare ferdigheter. Omfanget av kurset er totalt ca. 250 timer inkludert obligatoriske aktiviteter samt planlegging, gjennomføring, rapportering, og presentasjon av resultater fra prosjektet.</p> <p>Arbeids- og undervisningsformer Oppstartseminar om Forskningspraksis i biologi Midtsemestermøte og diskusjoner Selvstendig arbeid med en forskningsoppgave under veiledning av en vitenskapelig ansatt ved BIO. Praxisoppgaven avtales med veileder, og kan bestå av labarbeid, feltarbeid eller annet som er relevant for den aktuelle oppgaven. Deltagelse på poster-workshop og presentasjon av praksisarbeidet som en poster. Skrive en bloggpost. En skriftlig rapport etter fastsatt mal. Formatet på det faglige produktet som er del av rapporten avtales med veileder, og kan for eksempel være en feltrapport, labrapport, et dokumentert datasett, eller en full vitenskapelig rapport.</p> <p>Læringsutbytte Kunnskap Studenten har praktisk erfaring med biologisk forskning som prosess og arbeidsmetode kan forklare prinsippene bak og formålet med de forskningsaktivitetene som inngår i prosjektoppgaven har praktiske ferdigheter i noen av fagfeltets vitenskapelige metoder kan plassere egne data og funn i en faglig kontekst</p> <p>Ferdigheter Studenten kan planlegge, gjennomføre, og rapportere resultater fra en definert forskningsoppgave i henhold til fagets standarder kan finne, sammenfatte og bruke litteratur og annen fagkunnskap som er relevant for et definert faglig prosjekt har kjennskap til hvordan resultatene i prosjektoppgaven kan tolkes og vurderes kan vurdere egne resultater opp mot oppdatert faglig kunnskap innenfor fagfeltet</p> <p>Generell kompetanse Studenten</p>
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utvikler forståelse for forskningens egenart og forskningens bidrag i samfunnet
utvikler faglig identitet og rolleforståelse
kan samarbeide med andre i et forskningsfelleskap
kan rapportere eget arbeid og resultater etter en standardisert mal
kan lage og presentere en faglig poster

Vurderingsformer

Studenten leverer en mappe etter oppsatt mal. Mappen består av en rapport etter oppsatt mal, som inneholder:

Prosjektbeskrivelse (5%)

Et vitenskaplig produkt som dokumenterer resultatene av forskningspraksisprosjektet. Formatet på rapporten tilpasses prosjektets behov, og avtales med veileder (60%).

En poster (10%)

Tilbakemelding på poster og posterpresentasjon (10%)

En bloggpost (10%)

En oversikt over arbeidstimer (5%)

Bærekraftighet - etter SFU:

Emnet inngår i Institutt for biovitenskaps (UiB) faste kursportefølje.

Emneansvarlig og studieadministrasjon ved Institutt for biovitenskap.

Level:

Bachelor

Fields of education and training:

Biological sciences

Course format:

Physical

Studiepoeng:

10,00

Has the study programme/course been integrated in the regular course catalogue offered at the institution?:

Ja, valgfritt for noen studenter

Have non-academic partners been involved in the development of the study programme?:

Ja

Student capacity:

Status:

Starta

Comments:

bioCEED har redesignet og systematisk utviklet emnet siden 2016, og styrket den pedagogiske rammen og læringsutbyttet med særlig fokus på forskningsferdigheter, forskningsetikk, praktiske forskningsferdigheter, forskningsformidling, akademisk skriving mm. Emnet er utviklet i samarbeid med deltakende studenter (co-creation) og forskere på og utenfor UiB.

Navn på studieprogram eller emne:

BIO325 Havforskning

Description:

Redesign elements of course. Students produce video tutorials to be used as learning material in course. Added learning outcome video tutorials: training transferrable skills like communication of science, digital competence, team work and collaboration, critical thinking (ethics and sources). Teach2Learn

Level:

Master

Fields of education and training:

Biological sciences

Course format:

Physical

Studiepoeng:

20,00

Has the study programme/course been integrated in the regular course catalogue offered at the institution?:

Have non-academic partners been involved in the development of the study programme?:

Ja

Student capacity:

Status:

Starta

Comments:

Navn på studieprogram eller emne:

bioSKRIV/bioWRITE - læringsressurs for alle kurs/program

Description:

Support for academic writing and scientific literacy in biology courses with web-based resources. The platform contains both general and course

	specific resources for students. Eg. IMRAD, posters, essays, labjournals, blogposts. Referenceing, reading scientific litterature etc. The platform is used by all bachelor and master courses in biology at BIO-UiB and AB-UNIS, where relevant. bioWRITE/bioSKRIV is created in collaboration with both teachers and students. These resources are then used as teaching materials in biology courses across programs and curricula. The plattform has both an English and a Norwegian version to support developing scientific literacy and communication skills in both languages.
Level:	Bachelor
Fields of education and training:	Biological sciences
Course format:	Digital
Studiepoeng:	300,00
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Have non-academic partners been involved in the development of the study programme?:	Ikke relevant
Student capacity:	
Status:	Starta
Comments:	Plattformen blir brukt av BSc og MSc emner, samt av studenter som jobber med forskningsprosjekt (feks master, bachelorprosjekter, praksis etc). Emner ved BIO-UiB >100, AB-UNIS: 39 . bioWRITE/bioSTATS er en del av bioCEEDs ressurser under paraplyen bioSKILLS. NB! antall studiepoeng satt til BSc+MSc, studentkapasitet satt til antall studenter BIO+AB.

Navn på studieprogram eller emne:	bioSTATS - læringsressurs for all kurs/program
Description:	bioCEED has created bioST@TS, a web-based learning platform (https://biostats.uib.no/) 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 all biology courses at University of Bergen (Norway) and at the University Centre in Svalbard (Norway). Modules in bioST@TS focus on the following: Working in Excel Working in R Statistics in R Data visualization Data management Working and collaborating in Git/GitHub bioST@TS is also a repository for resources created in collaboration with both teachers and students. These resources are then used as teaching materials in biology courses across programs and curricula. https://biostats.w.uib.no/
Level:	Master
Fields of education and training:	Biological sciences
Course format:	Digital
Studiepoeng:	300,00
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Have non-academic partners been involved in the development of the study programme?:	Ja
Student capacity:	
Status:	Starta

Comments:	<p>Plattformen blir brukt av BSc og MSc emner, samt av studenter som jobber med forskningsprosjekt (feks master, bachelorprosjekter, praksis etc). Det obligatoriske masteremnet BIO300b er bygd rundt bioSTATS som læringsressurs. I tillegg er det utviklet skreddersydde ressursetr for emnene AB202, AB204, BIO101, BIO104, BIO241, BIO325 m.f. Emner ved BIO-UiB >100, AB-UNIS: 39 . bioSTATS er en del av bioCEEDs ressurser under paraplyen bioSKILLS.</p> <p>ECTS satt til BSc+MSc, studentkapasitet satt til studenttall BIO+AB. Nivå: inkluderer alle, men må velge en.</p>
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Navn på studieprogram eller emne:	Learning Arctic Biology platform - learning resource for all courses
Description:	The online learning platform Learning Arctic Biology at UNIS is an open teaching and learning resource for students and teachers containing scientific knowledge, teaching material and an external resource library on arctic ecosystems and organisms. The teaching material is aimed mainly at UNIS biology courses and other biology courses in higher education but can also be used by secondary schools, nature guides and others who want to learn more about arctic biology. The platform is created in collaboration with both teachers and students. The Learning Arctic Biology platform have been introduced as part of the curriculum in different courses at UNIS.
Level:	Bachelor
Fields of education and training:	Biological sciences
Course format:	Digital
Studiepoeng:	120,00
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Nei
Have non-academic partners been involved in the development of the study programme?:	Ikke relevant
Student capacity:	
Status:	Starta
Comments:	The ECTS Credit and student capacity is calculated for all terrestrial biology courses at UNIS. Since the resource is an open online platform the numbers will not reflect this. Bachelor and Master level.

Navn på studieprogram eller emne:	Pedagogical Training Course for PhD students
Description:	Teaching and learning course for biology PhD candidates with teaching duties. 2 days of seminar for all participants, followed by reading relevant teaching and learning literature, and writing reflective paper on own teaching in relation to pedagogical principles and knowledge of student learning.
Level:	PhD
Fields of education and training:	Educational sciences, pedagogy and didactics
Course format:	Physical
Studiepoeng:	5,00
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Ja, valgfritt for noen studenter
Have non-academic partners been involved in the development of the study programme?:	Ikke relevant
Student capacity:	
Status:	Starta
Comments:	Dette PhD-kurset var en pilot ved BIO-UiB, som senere er utviklet til TA-kurset (teaching assistants) holdt av bioCEED hvert semester for å styrke den pedagogiske kompetansen hos undervisningsassistenter.

Navn på studieprogram eller emne:	Teaching Assistant Course UNIS
Description:	The 3-day TA course "Teaching and Learning course" at UNIS have been run twice and primary offered to PhD students across all scientific departments but also open to Master and Postdocs as well. The course

	is developed and taught in collaboration with iEarth and Ivar Nordmo and teachers from UNIS. It consists of 4 parts focusing on central theories and concept of learning, presenter vs. facilitator role in classroom, written feedback and field learning
Level:	PhD
Fields of education and training:	Educational sciences, pedagogy and didactics
Course format:	Physical
Studiepoeng:	1,00
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Nei
Have non-academic partners been involved in the development of the study programme?:	Nei
Student capacity:	
Status:	Starta
Comments:	Da kurset ikke inngår i emneporteføljen må studentene søke fastlandsuniversitetene om å få godkjent studiepoeng for kurset.

Navn på studieprogram eller emne:	Writing course UNIS
Description:	Learning outcome: to introduce and train PhD students in scientific writing as well as in giving feedback. Pedagogical approach: Lectures, seminars, project work. Assessment forms: a rewritten proposal based on the knowledge learned in lectures and seminars. Sustainability of developed course: The course have been presented in a workshop for all teachers at UNIS. Part of the course have been implemented in the AB-201 course
Level:	PhD
Fields of education and training:	Educational sciences, pedagogy and didactics
Course format:	Physical
Studiepoeng:	5,00
Has the study programme/course been integrated in the regular course catalogue offered at the institution?:	Nei
Have non-academic partners been involved in the development of the study programme?:	Ja
Student capacity:	
Status:	Starta
Comments:	MSc and PhD level. Da kurset ikke inngår i emneporteføljen må studentene søke fastlandsuniversitetene om å få godkjent studiepoeng for kurset.

Effekt

Effekt

Hvilket utbytte har studentene hatt av senteret?

Økte analytiske- og problemløsningsferdigheter

Økt endringskompetanse

Økt samarbeidskompetanse

Økt kompetanse i kritisk tenkning

Økt digital kompetanse

Økte organisatoriske ferdigheter

Økt sektor- eller fagspesifikk kunnskap

Økt motivasjon til å fullføre studier

Annet utbytte for deltakende studenter

Vennligst utdyp relevant utbytte for studenter.

Through our focus areas *Innovative teaching* and *Practical training* bioCEED has worked systematically to increase students learning outcomes. Particularly;

- * Students experience and value that they now experience active teaching methods and evidence-based teaching in biology courses across the curriculum.
- * Teaching and research are linked and integrated in courses across the curriculum, e.g. training students in the research process (build research skills and competences), involving students in ongoing biological and educational research (authentic learning experiences)
- * Students can gain practical experience through work practice courses offered in the discipline based educations (see work relevance)
- * Developing methods for assessing practical skills
- * Developed and maintain a range of digital platforms to support student learning (e.g. virtual field guides, bioSTATS, bioWRITE, ArtsAPP), specifically aimed at strengthening transferrable skills, research and teaching integration, and discipline specific skills.

See also quality of study programmes below, that also outline outcomes for students.

Some concrete short examples:

Improved sector- or field-specific knowledge

Work practice in Biology (BIO298/AB208)– bioCEED developed work practice courses that offer biology students work experience with practice hosts outside the university. Students report improved knowledge in biology, as well as the use of their knowledge in practice. Students also emphasize the importance and relevance of generic competences and skills training during internship. See blogs for student reports: <https://biopraksis.w.uib.no/>

Improved analytical and problem-solving skills

BioCEED develop and support implementation of team-, problem- and project-based teaching methods that support improvement of analytical and problem-solving skills. This skills development is also supported by our platforms: <https://bioceed.w.uib.no/resources/#bioceed-for-students>

Improved organisational skills

Student partners develop and run projects like biORAKEL (<https://bioceed.w.uib.no/resources/toolkits/toolkit-bioracle/>), with full responsibility for the organisation and reporting of project. Student partners develop and organise events like the student conference SCOPE (UNIS, <https://bioceednews.w.uib.no/2022/11/10/scope-2022-the-student-led-conference-on-polar-environments-was-a-full-success/>). Active, team-based and project-based learning methods support organisational skills development.

Improved critical thinking skills

In the core biology courses in BSc Biology, UiB, the course teachers have mapped and aligned transferrable skills (100-klubben) in the first year of the degree program, including critical thinking. Skills like critical thinking are now taught in all courses with a progression from year 1 to year 2 (part of project REdesign of BSc BIO).

Attitudes and perceptions of the concept critical thinking have been surveyed in BIO-students and staff (Nylehn et al., to be presented at MNT-konferansen 2023).

Improved cooperation skills

Cooperative learning as teaching and learning method introduced in 2nd year biology course BIO103, and student outcomes were documented through a study. Results show that students taught in cooperative learning compared to traditional lectures enhance their generic skills,

sense of belonging and science confidence while reducing loneliness. These factors are critical to both retention and learning outcomes. (see Møgelvang et al. 2023).

Improved capacity to adapt and act in new situations

The project FieldPass (reported separately as an AKTIV-project-2018/10172 under HKdir), as well as other bioCEED efforts, have improved students' capacity to adapt and act in field situations.

The project works to align theory and practice, and strengthen preparation for field and lab work. Eg. Virtual field guides for preparation: <https://www.unis.no/project/fieldpass/360-virtual-field-guides/>. Reflection tools – preparing students for situations and for analyzing situations to be better prepared for next time. See <https://www.unis.no/project/fieldpass/>

Improved digital competence

Digital platforms used across the curricula and open access – support students developing digital competence, specifically using digital tools for data analysis, presentation of data, scientific literacy, preparation for practical work, creating digital learning material. Examples: bioSTATS, bioSKRIV, Teach2Learn, Learning Arctic Biology, Virtual Field Guides.

All available at BioCEED.no and <https://www.unis.no/project/fieldpass/360-virtual-field-guides/>

Increased motivation to complete studies

Evidence that students experience our innovations as motivational (e.g. ArtsAPP, see publications by Jenø et al).

Students are directly involved as representatives and as partners in educational development and research projects. Courses and programs have been developed in partnership with teachers and students, benefitting all students in BIO (UiB) (>750 students/year, in particular BSc biology app 200 students) and at UNIS (> 800 p/y in particular AB BSc Bachelor 40 p/y).

bioCEED has implemented student active learning in several courses at the departments (see Courses/Study programs).

New teaching and learning strategies have been developed and tested, such as ArtsAPP.

There has been a major focus on skills training, and in implementing transferable skills such as collaboration, critical thinking, writing skills (IMRAD format) and dissemination. The bi-annual Student Poster Session involves 5-8 courses each time and 80-100 student poster presentations each year. All posters made available at the digital platform bioPITCH (<https://clichex.w.uib.no>).

We would like to highlight our digital platforms for increased student learning and skills training, e.g. bioSTATS (<https://biostats.w.uib.no>), bioWRITE (<https://bioskriv.w.uib.no>), virtual field guides (<https://www.unis.no/project/fieldpass/360-virtual-field-guides/>). Student partners lead projects that directly impact the learning environment and offer new opportunities; such as bioORAKEL/UNISOrakel, student research practice bioSPIRE /UNISsprout, and SCOPE - a student led conference with up to 150 participants, biKUBEN peer reviewed student journal

developed and maintained by student partners and UNISbreakfast, a meeting arena for BSc-, MSc- and PhD students where students can exchange knowledge and experience connected to their thesis work across different departments.

Work relevance courses have been developed at BIO and UNIS in collaboration with hosts in industry, management and other sectors. Research practice course give students practical work experience. Student research and outreach through posters and blogs are open and available for all, in addition to traditional reporting.

Opportunities to participate in international research and internships include the Plant Functional Traits Courses, successfully run five courses on four continents with 105 students. This course have involved 35 scientists from 12 institutions as instructors on the course, and the project (Intpart RECITE) have hosted 60 international student research interns.

Some of the changes and impact are documented in research (see reference list of educational research in bioCEED on student learning below), changes in course ILOs and other.

Relevant references documenting student outcomes and experience:

- * Core Themes in Critical Thinking: Perspectives from Students and Teachers. J. Nyléhn, C. Boge, and J. Soulé. MNT konferansen 2023 – UiS
- * Cotner, S, et al. 2020. International scientists need better support during global emergencies. <https://www.timeshighereducation.com/blog/international-scientists-need-better-support-during-global-emergencies>
- * Sehoya Cotner, Lucas M Jenó, Cissy Ballen. – Strategies to document active learning practices in biology – MNT-konferansen 2017
- * Esterhazy, R. and Fiksen, Ø. (2019). Evolution of a portfolio-based design in ecology: a three-year design cycle. Uniped, 01/2019 (volum 42)
- * <https://doi.org/10.18261/issn.1893-8981-2019-01-05>
- * Hole, T. N. (2018). Working and Learning in a Field Excursion. CBE – Life Sciences Educational Vol 17, No 2 (2018), pp 1-11
- * Jenó, L. M., Adachi, P. J. C., Grytnes, J.-A., Vandvik, V., Deci, E. L. The effects of m learning on motivation, achievement and well being: A Self Determination Theory approach (2018). British journal of educational technology.
- * Jenó, L. M., Raaheim, A., Kristensen, S. M., Kristensen, K. D., Hole, T. N., Haugland, M. J., and Mæland, S. (2017). The Relative Effect of Team-Based Learning on Motivation and Learning: A Self-Determination Theory Perspective. CBE—Life Sciences Education 16:ar59, Winter 2017.
- * Jenó, L. M. (2015). Encouraging Active Learning in Higher Education: A Self-Determination Theory Perspective. International Journal of Technology and Inclusive Education, 5(1), 716-721
- * Møgelvang, A., Vandvik, V., Ellingsen, S., Strømme, C. B., & Cotner, S. (2023). Cooperative learning goes online: Teaching and learning intervention in a digital environment impacts psychosocial outcomes in biology students. International Journal of Educational Research, 117, 102114. <https://doi.org/10.1016/j.ijer.2022.102114>
- * Patrick, L., S. Thompson, A. H. Halbritter, B. J. Enquist, V. Vandvik, S. Cotner. 2020. Adding Value to a Field-Based Course with a Science Communication Module on Local Perceptions of Climate Change. Bull Ecol Soc Am 101(3):e01680. <https://doi.org/10.1002/bes2.1680>

Hvilket utbytte har ansatte hatt av senteret?

Økt tverrfaglig samarbeidskompetanse

Utvidet nettverk

Økt pedagogisk kompetanse

Økt sektor- og/eller fagspesifikk kunnskap

Andre effekter for deltagende ansatte

Vennligst utdyp relevant utbytte for ansatte

The development and promotion of a collegial learning culture, based on SoTL and inspired by the research culture, is a major success and impact of bioCEED. bioCEED has had a significant

impact on the level of pedagogical competence and teaching skill among the of staff at our institutions – and beyond. Also, we have had a positive influence on willingness to innovate and disseminate these innovations. Biology courses at our institutions have during bioCEEDs existence implemented a range of evidence-based teaching and assessment methods, strengthened research-based teaching and training, as well as strengthened transferrable skills training and alignment in our courses and programs.

bioCEED works systematically with students, faculty and staff, to promote cultural change towards a Scholarly approach to teaching and learning (SoTL and evidence-based teaching).

This includes a range of professional development opportunities, arenas for sharing and developing teaching and learning, development project and involvement in educational research and SoTL.

bioCEED has a number of collegial activities aimed primarily on our local teaching staff and students, but open to other interested audience from UiB and other HE institutions.

bioCEED support teachers that work to develop, test, and document the impacts of new teaching and learning methods in biology.

bioCEED has initiated collegial collaboration for course alignment (such as the 100 club), and we have developed digital tools in collaboration with course teachers (such as bioWRITE and bioSTATS), and have developed and organized student dissemination arenas such as the BIO Student Poster Symposium, providing teachers with a new arena for teaching and assessment of ILOs.

Examples (ranging from local to institutional to national/international activities):

- * BIO100 club: course leaders of core BIO-courses in the BIO BSc in biology at UiB. The club is a community of practice that has monthly meetings, discussing teaching and learning in biology, focusing on aligning the introductory level (100-courses) in particular, implementing active learning, research-based teaching (content, method, skills) and transferrable skills training.
- * The digital teachers' meetings continued to provide an arena for collegial sharing, conversations, and support for BIO and UNIS teachers, with contributions from the teachers, as well as invited speakers. Meetings covered topics such as digital tools, learning platforms, cooperative learning, and how to encourage student participation during remote instruction.
- * Teaching assistants' course: bioCEED developed targeted short pedagogical courses for TAs and tech/admin staff involved in teaching at BIO and UNIS. This course is currently being further developed as a cross-faculty course to serve teaching assistants in chemistry, information technology, and beyond. The first inter-departmental offering, in January 2023, including TAs from BIO and KJEM.
- * Collegial Project Course in Biology/STEM (MNPED660, 5 ECTS): this pedagogical course have been offered to faculty and staff at all levels and in all relevant positions since 2015. More than 80 STEM educators from different STEM disciplines and institutions have participated in this course.
- * Learning Forum (UNIS) and Teachers Retreat (BIO): annual events at BIO and UNIS to support a professional and scholarly teacher culture at our institutions. Teachers contribute to the knowledge and experience exchange and development, supported and inspired by invited speakers that offer new perspectives and knowledge.
- * The course Leading Educational Change Training educational leaders in SoTL-based educational change. Offered in collaboration with the SFU iEARTH. Several of these course participants—from four institutions and two disciplines—have shared their findings at local, regional, and international conferences.
- * Excellent teaching practitioner and the Pedagogical Academy – the reward system developed by The Faculty of Mathematics and Natural Sciences, UiB, with considerable support from bioCEED. Several bioCEED-affiliated individuals have been recognized as Excellent Teaching Practitioners.

- * bioCEED partnered with MATRIC director and Nordic Journal of STEM Education (NJSTEME) editor Thomas Gjesteland (as well as faculty from NTNU, UiS, and Lund U) to lead a workshop for scientists interested in developing their STEM-education work for publication in NJSTEME.
- * bioCEED hosted 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. 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).
- * bioCEED staff are frequently invited to contribute to seminars, workshops, conferences etc in support of teaching development beyond BIO. (see annual reports for overview and examples in categories below).

Relevant publications and conference contributions documenting faculty/staff outcomes:

- * Førland, O., Vandvik, V. and Andersson, R. (2016) The story of bioCEED or how to grow a SoTL culture from scratch. Proceedings of The 38th ANNUAL EAIR FORUM. <https://lup.lub.lu.se/search/publication/21da69fd-e9cf-491d-926b-46d4d5e53751>
- * Førland, O. and Andersson, R. 2021. Conferences as a learning arena in a pedagogical course – MNT-konferansen 2021
- * R. Andersson, P. B. Eidesen, Ø. Fiksen, O. Førland, S. Stefansson og V. Vandvik. Korleis få professorar med på ein kollegial SoTL-kultur? – MNT-konferansen 2017
- * Førland, O. & Andersson, R. (2021, March 15-16). Conferences as a learning arena in a pedagogical course. Nordic Journal of STEM Education MNT konferansen 2021, Volume 5 No. 1. DOI: <https://doi.org/10.5324/njsteme.v5i1.3930>
- * Andersson, R. & Førland, O. (2019, October 9-12). Thrown in at the Deep End - Using SoTL Conferences to Train Teachers in SoTL. PAPER PRESENTATION. ISSOTL19 SoTL Without Bordes. Engaged Practices for Social Change. Atlanta, USA. <https://drive.google.com/file/d/1x72wp-BctGDPFIGKi3A2UiReaZQ4zb4z/view>
- * Førland, O., Høie, E.N., Vandvik, V. & Walderhaug, H. (2017, September 3-6). Rewarding excellence in education. Establishing a merit system for teaching at university. PAPER PRESENTATION på EAIR 39th Annual Forum 2017. Porto, Portugal. https://www.uib.no/sites/w3.uib.no/files/attachments/forland_hoie_vandvik_walderhaug_track4_eair2017.pdf
- * Førland, O., Andersson, R. & Eidesen, P.B.. 2017. Hvordan kan et institutt og en institusjon bidra til forskningsbasert og vitenskaplig tilnærming til undervisning og læring? PRESENTASJON. Læringsfestivalen 2017. 8-9. mai 2017, NTNU, Trondheim.

Examples of SoTL projects by staff to develop teaching:

- * J. Nyléhn, C. Boge, and J. Soulé. 2023. Core Themes in Critical Thinking: Perspectives from Students and Teachers - MNT konferansen 2023 – UiS
- * P. B. Eidesen, A. Vader og J. E. Søreide. Utnytter vi potensialet for læring og personlig utvikling i feltundervisning? – MNT-konferansen 2017
- * S. Eliassen, J. Kolding, J. Smedmark, and V. Vandvik. Numerical competence and quantitative skills in biology education – MNT-konferansen 2017

På hvilke måter har senteret forbedret kvaliteten på studietilbudene ved de deltakende institusjonene?

Økt grad av medstudentundervisning og/eller vurdering

Forbedret læringsmiljø

Nytt eller revidert pensum er tatt i bruk

Nye eller reviderte lærings- og vurderingsformer er tatt i bruk

Ny teknologi og/ eller digitale læremidler er tatt i bruk

Andre effekter på kvaliteten av studieprogram

Vennligst utdyp senterets innvirkning på studieprogramsnivå

Study programs are made up of courses, taught by staff and taken by students. Therefore, much the impact on study program quality is achieved through course development (see

courses/programs, student outcomes and quality of study programmes) and professional and educational development with staff (see staff outcomes).

The HK-dir AKTIV project Redesign of BSc Biology brings together much of our efforts to ensure constructive alignment, research-based education (content, method, skills), and transferrable and discipline specific skills training in a full redesign of the Bachelor's program in Biology at UiB. This project and its outcomes for students, staff and programs are reported separately (AKTIV-2018/10146) and much of the bioCEED initiated and led course- and program development at BIO are organised under this project.

The HK-dir AKTIV project Fieldpass works to align theory and practice in field and lab teaching at UNIS, UiB and UiO. This project is reported separately (AKTIV-2018/10172).

bioCEED has worked systematically throughout the centre period with our institutions to develop systems for quality assurance (e.g. UNIS Quality Assurance system, Student evaluations of teaching), educational quality strategy (e.g. Action plan for quality in Education at UiB), improvement of physical learning environment (e.g. active learning space at UNIS), and participating in institutional quality development through working groups and representation in decision making.

bioCEED has worked on the national level to support educational quality enhancement and educational leadership across institutions (e.g. bioFagrådet, UHR), responding to hearings on national policy and participating in public debates (see dissemination output), and with a large number of contributions to teaching and learning conferences and networks.

Some examples of impact on study programs/ improved quality:

New/revised educational methods and assessment forms adopted:

Many of our colleagues have transformed their teaching as a result of the structures put in place by bioCEED (digital teachers meetings, teachers retreats, courses, workshops and seminars, and mini-grant opportunities). For example, the entire first two years of the curriculum has been revised and instructors no longer offer traditional, uninterrupted lectures but rather have implemented various evidence-based pedagogies: team-based learning and in-class assessment (BIO100), novel formative assessments and inquiry-based laboratories (BIO101), student-active, community-based research (BIO102), and cooperative learning (BIO103). These changes are reported in detailed under the AKTIV-project Redesign.

Further, several of these same instructors are embarking on a systematic study of assessment in their courses, and are planning to implement one of three different assessment changes in the coming academic year, in an effort to ensure that we are assessing FOR learning, not just OF learning.

New/revised educational tools and materials adopted.

Beyond implementing existing evidence-based pedagogies, several of the bioCEED-affiliated staff and students have developed novel tools for teaching. For example, a student-staff team, working with a bioCEED mini-grant, developed an escape room for BIO250 (Paleoecology). In BIO101, several novel labs have been developed. A completely new framework for inquiry-based laboratories in our Behavior and Evolution courses, centered on the life history of the

bean beetle (*Callosobruchus maculatus*) has engaged hundreds of students in authentic scientific inquiry.

New/revised curriculum adopted.

Several courses have been created to better serve student needs, and others have been dramatically modified. For example, BIO300b is now built around the bioCEED-supported tool, bioSTATs. BIO298 was developed to provide support for students engaged in work-practice experiences in the community, and BIO299 was developed to support students working in apprentice-style research experiences with BIO faculty.

Improvement of students' learning environment.

BioCEED has been actively involved in improving the learning environment for our students, supporting staff as they implemented Team-Based Learning. Cooperative learning, various in-class assessment strategies such as the Immediate Feedback Assessment Technique (IF-AT), classroom response systems such as PollEV and Menti, and peer-led tutoring through biOrakel. Recent evidence that these efforts have been effective includes findings reported in Møgelvang et al (2023), in which we document that the introduction of cooperative learning into a large intro-BIO course made significant and meaningful positive impacts on student sense of belonging, loneliness, and self-efficacy. Additional interdepartmental work, led by bioCEED in collaboration with iEarth, involves mitigating the detrimental impacts of test anxiety and improving student sense of belonging in our courses. bioCEED have been involved in a project group working with the use and the furnishment of the student learning spaces at UNIS in collaboration with iEarth and Department of Education, UiB and together with student representatives from the Student Council. These learning areas are important in terms of supporting the development of generic skills within student-active research such as collaboration, communication, critical thinking and problem solving and give demands on how we design the physical learning environment.

Other effects on the quality of study programmes.

BioCEED has supported several initiatives to make our overall curriculum more cohesive, from integrating active learning throughout the first two years, to leading a large-scale curriculum-redesign project involving all UiB biology teachers. This curriculum redesign has been the focus of several workshops and two of our teachers retreats, As a result our instructors have had many productive discussions about the skills and knowledge we want our students to have, and how best to help these develop during the curriculum. In particular, we have emphasized alignment on many levels, reconsidering how we assess for learning and how our required courses (e.g., math, chemistry) inform subsequent learning.

Hvilken effekt har senteret hatt på integrering av utdanning og forskning?

Utvikling av utdanning basert på nyere pedagogisk forskning
Nyere forskning er integrert i studieprogram og/ eller emner
Andre effekter av integrasjon mellom forskning og utdanning
Studenter deltar i forskning

Vennligst utdyp senterets effekter på integrering av utdanning og forskning.

The integration of education and research is core to all bioCEED activities. See work relevance for examples of student research practice, and see courses/programmes, student outcomes, and other categories for examples of research based education (content, method, skills).

Some examples of our efforts and effects:

New research is embedded in study programme and/or courses.

Student-active research is embedded in our study programs from the first year. Students begin by working in collaborative groups on inquiry-based exercises in BIO101, via an initiative supported by bioCEED in collaboration with BIO Head of Education Anne Bjune. Then, students develop their science-process skills in BIO102 in different field-based investigations in which they contribute to ongoing research at the Lyngheisenteret (sp?) and collect data for a community-based project on carbon sequestration. Beyond the introductory series, there are many other options for students to engage in research as part of the formal curriculum. Hundreds of students have enrolled in BIO299, a research-support course that is designed to help students navigate their first research-apprenticeship position. Similarly, hundreds have participated in BIO298, a course that supports students engaged in work-practice in the community. Lastly, many bioCEED students have participated in various study-abroad offerings (see example under Student outcomes, international research and internships in RECITE), and their stories have been featured on the bioCEED web page.

Development of education based on recent pedagogical research.

BioCEED has evidence-based teaching at its core, and always has. Initial bioCEED-supported courses and workshops introduced BIO staff to Scientific Teaching—e.g., via the work of Carl Wieman, Scott Freeman, etc.—and the Scholarship of Teaching and Learning—e.g., via the work of Biggs, Boud, Mårtensson etc. From that core bioCEED has supported BIO and AB teachers as they have read a growing body of diverse literature, and used this work to inform their own teaching. The introduction of, for example, Team Based Learning into BIO100 and AB-201, was based on reading of compelling evidence indicating improved performance and psychosocial outcomes for students participating in Team Based Learning. Similar evidence led to the incorporation of Learning Readiness Tests, Inquiry-based laboratories, Cooperative Learning, and various inclusive engagement strategies, such as those advocated by Kimberley Tanner and colleagues. In sum, pedagogical research drives what bioCEED does. Further, our colleagues are now contributing to this body of evidence, with discipline-based scientists in BIO and AB publishing education-research findings in BioScience, the International Journal of STEM Education, the International Journal of Education Research, PLOSOne, etc.

Student participation on research.

Beyond the formal curriculum, bioCEED supports a cadre of student researchers, the “bioBEES,” who are BSc- and MS-level students collaborating on several different research projects and supported through a community, the BioHIVE, that meets regularly with bioCEED leaders. BioCEED students have investigated faculty perceptions of assessment strategies, Sense of Belonging and Test Anxiety in introductory-STEM courses, and the needs of supervisors in our work-relevance programs. These students have presented at regional and international conferences and published in the peer-reviewed literature. BioCEED also supports students that are not bioBEES, but who aim to publish their research findings in the in-house journal, Bikuben. Through this journal, students develop critical science-communication skills. BSc students can get involved with MSc and Phd students research through the student led program bioSPIRE/UNISpire, and get a taste of what their future might hold if they choose to continue with a MSc degree or a research career. If not, they will gain an understanding of the research process and skills, important in their future work life as biologists. This type of research and education integration is also achieved through projects like the student led conference

SCOPE, the student community UNISbreakfast, and the student postersession where students train scientific communication skills.

Other effects related to integration of education and research.

BioCEED has initiated several cross-disciplinary investigations into effective teaching. For example, we have collaborated with computer science to learn more about challenges in their introductory-level course, one that is required by all students (including our BIO students) and is characterized by a poor reputation, significant gaps in performance favoring men, and a high failure rate. We identified both Sense of Belonging and Test Anxiety as factors influencing student performance in this course, and have actively engaged with our colleagues in computer science to address these challenges. We consulted with them on an intervention, replicated successful Sense of Belonging work led by bioCEED's Cotner, and are currently planning a test-anxiety intervention for Fall 2023. There are MANY similar examples, including Mathematics at UiA, Legal Education at UiO, and GEO at UiT, UiO, and UiB.

Hvilken betydning har det hatt å inkludere ikke-akademiske partnere i senteret?

Økt læringsutbytte for studenter

Økt relevans av studieprogram/ emne

Mulighet for studenter deltagelse i tverrsektorielle samarbeidsprosjekter

Mulighet for studenter å delta i praksis

Andre effekter av tverrsektorielt samarbeid

Vennligst utdyp effekter av å inkludere ikke-akademiske partnere.

Institute of Marine Research is a partner in bioCEED and represents the sector outside HE in all our work. IMR has a member on the Board, and a working member in the core team that runs the center. IMR has special responsibility for practical training and societal relevance in our educational development, research and projects.

We collaborate with other HE institutions nationally and internationally in research and development (e.g. LTH Lund University, SFU Matric, University of Minnesota, UiO etc). This ensures a solid and state-of-the-art level of our work, new ideas, and a broader impact of our innovations and research.

We have in the period 2014-2022 had several projects under the INTPART-program with extensive international collaboration to integrate research and education (see cross sectoral mobility).

We collaborate with a range of societal partners in developing research and work practice (e.g. NORCE, Artsdatabanken, Skolelaboratoriet), and have practice hosts in a wide range of end-users. These partners and hosts give important input and feedback that informs our work to improve quality and relevance of all education.

Har prosjektet hatt noen effekter utover det faglige samarbeidet?

Ja

Beskriv eventuell påvirkning utenfor rammen av det akademiske samarbeidet.

Short examples of effects beyond bioCEED and our host departments:

- Work practice courses have significantly increased student and end-user contact (see work relevance), and end-user input to education through the work relevance projects (previously PRIME, now DEVELOP).

- University of Oslo have used our work and research practice courses as templates to develop similar courses at their institution.
- Student projects similar to biORAKEL have spread to several departments at UiB.
- We have included staff from other departments and institutions in our pedagogical courses, workshops, seminars and project, and through that contributed to educational development in STEM programs.
- The establishment of a pedagogical reward system at UiB and UNIS was largely due to bioCEED efforts.
- The bioSTATS platform is an open resource for student and teachers on biological data analysis – developed by teachers, students, and educational developers from UIB, UNIS, SFU, Matric UiA, UiT and NTNU.

Dissemination:

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. Therefore, Outreach is one of our 4 focus areas.

Community and inclusion (target audience: our institutions, biology educators, educational developers and students):

- bioCEED Newsletter, Twitter, Facebook, course blogs, and email are used for information of presumed general interest, such as promoting upcoming events, announcing various opportunities, and sharing news about bioCEED projects, our students or staff, and our outputs and external impacts.
- bioCEED Seminar Series □ a separate series is provided for staff and students to cater to their specific interests □ used for sharing experiences and providing training.
- bioCEED web pages – are more static web pages with basic information about bioCEED
- bioSKILLS web pages – are resources directly geared towards students and use in teaching

Sharing and spreading innovations and knowledge (outcomes of focus areas and projects):

Combining presentations, press coverage, and own contributions to the public debate, with scholarly outputs □ such as presentations at both educational and biological conferences and scientific papers in the educational science literature. BioCEED also contributes to policy and public debate by contributing to the public debate, in working groups and strategy/policy development.

In our years of (reported) outreach activity (2014-2021) (NB! this was actually a nice table, but Espresso says no)

External Internal

Seminars: 15 external, 59 internal

Professional development activities: 7 external, 56 internal

Student meetings & Seminars: 2 external, 83 internal

Presentations at scientific conferences: 23

Presentations at seminars, conferences etc: 168 external, 81 internal

Sum: 213 (external), 281 (internal) - showing a good balance between working with the local scientific community "at home" and sharing experience, knowledge and innovations with others (nationally or internationally).

Some more detailed examples of our outreach output from 2016 and 2020:

2016:

- * > 10 local seminars and workshops for staff (active learning, quality assurance, digital tools)
- * >10 local seminars for and with students (career, teaching methods, transferrable skills in work life, scientific literacy)
- * >12 op-eds and media articles from bioCEED staff and students in public debate (meritteringssystem, motivasjon, aktiv undervising, gender differences)
- * >5 scientific publications and conference papers
- * 2 commissioned reports (work practice in education, quality in HE)
- * >55 contributions to seminars and conferences, about bioCEED, pedagogy and educational innovations, and policy development. Examples of topics: SoTL and quality culture for teaching learning, active and evidence-based teaching, digital tools, constructive alignment, assessment, student partnership). Of these talks/workshops
 - * - 16 were at our institutions (UiB/UNIS)
 - * - 29 were at other HE institutions or national teaching and learning networks/conferences in Norway
 - * - 10 were at international conferences/institutions

2020 (NB! Pandemic year):

- * >26 open, local seminars and workshops (student perspectives on teaching, digital and hybrid teaching, off-campus assessment, online labs, teaching portfolios, cooperative learning)
- * >14 student seminars for and with students (motivation, group work, learning outcomes, poster presentations, assessment)
- * >10 presentations and workshops at other institutions or at national / international seminars/conferences
- * >9 scientific publications
- * >14 op-eds, hearings and media appearances

Merverdi

Etter din mening, hva er merverdien av SFU programmet sammenlignet med andre prosjektfinansieringskilder?

Two critical aspects of the SFU scheme, that allow us to accomplish tasks otherwise impossible, include the timeline and the scope of the scheme.

The extended timeline has been absolutely critical for us to realize many of our goals, largely because so much of what we have accomplished relied on staff and student buy-in. Buy-in is something that relies on the existence of a strong community with a shared language and set of values, and this takes time to create. Initial efforts within bioCEED were restricted to the efforts of a few enthusiastic faculty members, but over time the culture has shifted to one in

which discussions about evidence-based teaching are the norm, and teachers are comfortable sharing their ideas—and even their setbacks. Evidence for this includes staff attendance at the Digital Teachers Meetings—during the restrictions of COVID, our colleagues knew they had a community in which they could discuss pandemic-era teaching challenges, and attendance at these discussions was consistently high. Further, the 5+5 scheme promotes evidence of institutional buy-in, via commitments that are concrete and do not oscillate with changing leadership, top-down priorities, etc., and allows us to scale up our initial efforts into curricular and extracurricular innovations that are integrated into our programs.

The scope of bioCEED is extensive, and it is difficult to image how such an initiative could have been so successful under any other funding mechanism. The SFUs are not course- or program-based, allowing for (a) the participation of individuals from all roles in academia—from bachelors' students to administrative staff to full professors—and (b) the creation of novel collaborations, including with other SFUs. Some of these collaborations (e.g., with iEarth and MatRic) have allowed us to build new Disciple-Based Education Research communities that can collaborate across Norway, and that are not necessarily based in a single discipline. Products from these collaborations have significantly increased Norway's footprint in the research literature, and led to findings that are not simply theoretical, but immediately put into action in teaching and learning. In other words, our findings are immediately translated into practices that benefit students.

We also value that the selection process for SFUs is based on quality and not subject to political whims. We acknowledge that SFUs involve the allocation of significant funds, but these are still relatively small compared to that of research centers. Given that the SFUs have accelerated national efforts to improve higher education, it is clear that the resulting value far exceeds the investment.

Andre kommentarer til HK-dir?

Stadfesting

Eg stadfestar at vi har oppgitt relevante data som etterspurd av HK-dir under fana "Tilleggsinformasjon: Resultat og effekt".

4. Budsjett og regnskap

Utgifter

Regnskap 2022

NOK - Norwegian kroner	Regnskap 2016	Budsjett 2022
Budsjett HK-dir midler		
Personal- og indirekte kostnader	0	4 048 091
Innkjøp av tjenester	0	0
Utstyr	0	0
Andre driftskostnader	0	1 019 449
SUM - Budsjett HK-dir midler	0	5 067 540
SUM - Total	0	5 067 540

Informasjon til reknskap

Tilsette

Namn:	., .
Position:	.
Status:	Avslutta
Namn:	Andersson, Roy
Position:	Prof II
Status:	Fortset
Namn:	Cotner, Sehoja
Position:	Center Director
Status:	Fortset
Namn:	coulson, stephen
Position:	Deputy leader
Status:	Fortset
Namn:	Dahl, Tina
Position:	Center Admin UNIS
Status:	Fortset
Namn:	Eidesen, Pernille Bronken
Position:	Deputy Center Director
Status:	Avslutta
Namn:	Førland, Oddfrid
Position:	Center Coordinator
Status:	Fortset
Namn:	Holtermann, Kristin
Position:	Project administrator
Status:	Fortset
Namn:	Soule, Jonathan
Position:	Teaching Technician
Status:	Fortset
Namn:	Thomodsæter, Ruben
Position:	Student partner
Status:	Fortset
Namn:	Vandvik, Vigdis
Position:	Center Director

Status:

Avslutta

Budsjett

NOK - Norwegian kroner	Regnskap 2019	Regnskap 2020	Regnskap 2021	Budsjett 2022	Budsjett 2023	Sum
Budsjett HK-dir midler						
Personal- og indirekte kostnader	3 349 598	3 142 242	3 425 791	4 048 091	4 029 962	17 995 684
Innkjøp av tjenester	0	17 500	0	0	0	17 500
Utstyr	0	9 704	0	0	0	9 704
Andre driftskostnader	1 042 842	283 204	451 815	1 019 449	1 033 230	3 830 540
SUM - Budsjett HK-dir midler	4 392 440	3 452 650	3 877 606	5 067 540	5 063 192	21 853 428
SUM - Total	4 392 440	3 452 650	3 877 606	5 067 540	5 063 192	21 853 428

Total tildeling	21853428
Gjenverande midlar	0

Merknad til budsjett

Vil andre eksternt finansierte prosjekter være tilknyttet senteret?

5. Vedlegg

Vedlegg