

Report on the perceived quality of study programmes connected to bioCEED according to Studiebarometeret respondents

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Introduction

The Norwegian Agency for Quality Assurance in Education (NOKUT) conducts an annual student survey about the perceived quality of education in Norwegian bachelor and master programmes. The survey takes place in October, and NOKUT publishes the results in February of the next year on the web portal studiebarometeret.no.

The population of the survey includes all second-year bachelor and master degree students, as well as fifth-year students in integrated master degree programmes. In 2016, the survey comprised more than 60 000 students in approximately 1800 study programmes at 46 higher education institutions. Students receive email and SMS invitations to participate in the survey. The response rate was 45%.

The questionnaire includes 103 questions or statements, covering a range of topics. The question: *"I am, all things considered, satisfied with the programme I am currently attending"* is included to monitor the overall satisfaction with the quality of the students' study programme. The questionnaire also includes questions about students' rationale for choosing their specific programme, their academic goals, their motivation, and the effort they put into their studies. Almost all questions use a Likert scale for the answering categories, ranging from 1 (lowest score) to 5 (highest score).

In this fact sheet, we describe the results from the survey for the five study programmes belonging to bioCEED. We compare the results with other biology programmes at other institutions. We also show results from previous years (2013-2016).

Participants in the survey

bioCEED is connected to 5 different study programmes on which we have data from the Norwegian National Student Survey ("Studiebarometeret"). These include three bachelor programmes (biology, sustainable aquaculture, and environment and resources), and two master programmes (master in biology and integrated master program in aquamedicine). All study programmes have data in the past four years of the survey. The study programmes connected to bioCEED are shown in Table 1, including the number of respondents and the response rate in the last four years. The number of respondents has increased gradually from 2013 to 2016, with a total of 68 respondents in 2016 (response rate of 44%). Since the number of students in each study programme is fairly small, survey data from the three bachelor programmes will be combined, as will data from the master in biology and the integrated master in aquamedicine.

Data from the bioCEED study programmes will be discussed over time (2013-2016), and will be compared with the other Norwegian study programmes within the field of biology. In 2016, other study programmes within the field of biology encompassed 393 respondents, mainly from the universities and a few university colleges.

Table 1. Number of respondents and response rate for the bioCEED study programmes, and for the other study programmes within biology.

Study program	N (response rate)			
	2013	2014	2015	2016
bioCEED				
Bachelor's Programme in Biology	16 (43%)	24 (39%)	23 (38%)	24 (37%)
Bachelor's Programme in sustainable aquaculture	4 (50%)	3 (27%)	2 (22%)	7 (41%)
Bachelor's Programme in Environment and Resources	5 (27%)	4 (24%)	13 (72%)	4 (31%)
Master's Programme in Biology	7 (44%)	5 (24%)	9 (24%)	16 (53%)
Integrated Master Programme in Aquamedicine	6 (32%)	10 (59%)	12 (67%)	17 (59%)
Total bioCEED	38 (34%)	46 (36%)	59 (42%)	68 (44%)
Other biology study programmes	284 (37%)	386 (47%)	371 (49%)	393 (47%)

Overall satisfaction

The overall satisfaction of students at bioCEED-connected programmes was generally consistent over time. The master study programmes had a mean of 4.3-4.4 over the past four years, and the bachelor study programmes increased from 3.4 to 4.2 in 2013/2014, and remained at 3.9 for 2015-2016. In comparison, other study programmes within biology showed a mean overall satisfaction score of 4.1 for all years.

To test for differences in satisfaction scores between the bioCEED bachelor and master study programmes and other biology programmes, we ran an ANOVA testing for differences

between the three groups. Pairwise comparisons¹ were performed to identify the direction of the effect, and all results are shown in Table 2. The only significant difference was between the groups in 2013, where bachelor students at bioCEED had a lower mean overall satisfaction score than both the master programmes at bioCEED and the other biology study programmes. The scores from 2014-2016 showed no differences between the groups.

Table 2. Mean overall satisfaction scores (“I am, all things considered, satisfied with the programme I am currently attending”).

Year	bioCEED		Other biology programs	ANOVA		
	Bachelor	Master		F-value	p-value	Effect
2013	3.4	4.4	4.1	6.33	.002	B<M, O*
2014	4.2	4.4	4.1	0.42	.611	
2015	3.9	4.4	4.1	1.25	.286	
2016	3.9	4.3	4.1	1.01	.364	

* The direction of effect in the ANOVA shows that bioCEED bachelor programmes have a lower mean than master programmes and other biology programmes.

Satisfaction scores on different topics (indexes)

Table 3 shows mean scores for the different indexes from 2013-2016. Again, results are fairly consistent over time within all three groups. ANOVAs were run to tests for differences between the three groups for 2015 and 2016 (Table 4). Results showed few significant differences. In 2015, bioCEED bachelor students had a lower mean score in satisfaction with the study environment than the other biology students, and both bioCEED bachelor and other biology students had lower scores in working life relevance than the bioCEED master students. For 2016, other biology students also had a lower score in the working life relevance than the bioCEED master students.

Table 3. Mean scores of the different indexes.

	2013			2014			2015			2016		
	Mean	F	p	Mean	F	p	Mean	F	p	Mean	F	p
Teaching and academic counselling												
bioCEED bachelor	3.1	2.65	0.072	3.1	2.41	0.091	3.5	1.62	0.200	3.4	1.26	0.285
bioCEED master	3.7			3.6			3.8			3.4		
Other biology programmes	3.3			3.4			3.7			3.6		
Study environment												
bioCEED bachelor	3.6	3.04	0.049	3.8	0.1	0.908	3.6*	3.26	0.040	3.7	1.73	0.179

¹ Tukey HSD was used for the post hoc comparisons.

bioCEED master	4.2*			3.9			3.9			3.9		
Other biology programmes	3.7			3.9			3.9			3.9		
Student influence and participation												
bioCEED bachelor	3.1	0.94	0.391	3.2	0.47	0.625	3.1	0.99	0.372	3.2	0.93	0.395
bioCEED master	3.5			3			3.3			3.3		
Other biology programmes	3.1			3.3			3.4			3.4		
Academic inspiration												
bioCEED bachelor	-			3.8	1.08	0.342	3.8	1.09	0.336	4.1	0.32	0.727
bioCEED master	-			4.1			4.1			4.2		
Other biology programmes	-			4			4			4.1		
Working life relevance ¹												
bioCEED bachelor	3.7	3.3	0.038	3.6	5.48	0.004	3.7	5.53	0.004	3.9	6.74	0.001
bioCEED master	4.3*			4.5*			4.6*			4.2*		
Other biology programmes	3.7			3.9			4			3.7		
Examinations												
bioCEED bachelor	-			3.6	0.67	0.513	3.6	0.78	0.457	3.8	1.27	0.281
bioCEED master	-			3.8			3.7			3.7		
Other biology programmes	-			3.5			3.7			3.6		
Learning outcomes												
bioCEED bachelor	3.2	6.5	0.002	3.5	1.84	0.160	3.5	1.42	0.244	3.7	0	1
bioCEED master	4*			3.9			3.8			3.7		
Other biology programmes	3.6			3.7			3.7			3.7		
Students' expectations												
bioCEED bachelor	-			-			-			3.8	0.38	0.684
bioCEED master	-			-			-			3.7		
Other biology programmes	-			-			-			3.6		

* Indicates which group has a mean score that is statistically significant from one or both of the other groups.

¹ The working life index contains two additional questions in 2016 that were not asked for in 2015. Students generally give a lower rating on these two questions than on the other. There is therefore a decrease in the rating of working life relevance in most programmes.

Student motivation

The National Survey also includes questions about students' goals and level of motivation. Table 4 shows six questions regarding this topic, along with the mean scores and significant differences in 2013-2016. There were not many significant effects, but in 2015 bioCEED bachelor students had a lower mean score than the master students regarding whether they thought of themselves as hard-working students. In 2016, bioCEED bachelor students had a lower score than the other biology students in the goals they had concerning their grades. However, it should be noted that all three groups were around 4, meaning their goals were to achieve grades above average.

Table 4. Mean scores for questions regarding student' motivation.

	2013			2014			2015			2016		
	Mean	F	p	Mean	F	p	Mean	F	p	Mean	F	p
What goals do you have concerning your grades? (1=merely passing, 2=below average, 3=average, 4=above average, 5=well above average)												
bioCEED bachelor	3.9	2.89	0.057	3.8*	4.11	0.017	3.9	2.51	0.082	3.9*	3.2	0.042
bioCEED master	4.3			4.2			4.1			4		
Other biology programmes	4.3			4.2			4.2			4.2		
To what extent do you agree that I have to work hard to achieve the grades I am aiming at:												
bioCEED bachelor	-			4.1	0.52	0.594	3.9	0.61	0.544	4.3	2.6	0.076
bioCEED master	-			4.2			3.9			3.8		
Other biology programmes	-			4			4.1			4.1		
To what extent do you agree that I am motivated for working on my studies:												
bioCEED bachelor	-			4.2	0.35	0.703	3.7	2.55	0.079	3.9	1.02	0.360
bioCEED master	-			3.9			4.2			3.7		
Other biology programmes	-			4.1			4.1			4		
To what extent do you agree that I participate in the organised learning activities that are offered:												
bioCEED bachelor	-			3.9	1.02	0.361	3.5	1.76	0.174	3.7	0.83	0.437
bioCEED master	-			3.3			4.1			3.4		
Other biology programmes	-			3.7			3.7			3.7		
To what extent do you agree that I show up well prepared for organised learning activities:												
bioCEED bachelor	-			3.1	0.88	0.416	3	2.48	0.085	3	2.51	0.082
bioCEED master	-			3.1			3.2			3.2		
Other biology programmes	-			3.3			3.4			3.4		

To what extent do you agree that I think of myself as a hard-working student:												
bioCEED bachelor	-			3.6	0.35	0.706	3.3*	3.35	0.036	3.7	0.29	0.746
bioCEED master	-			3.7			3.9			3.7		
Other biology programmes	-			3.7			3.8			3.8		

* Indicates which group has a mean score that is statistically significant from one or both of the other groups.

Satisfaction with feedback and counselling

Students scored around 3 (on a scale from 1 to 5) regarding their satisfaction with feedback and counselling from the academic staff. Scores were generally stable over time and between the groups, with the exception of the satisfaction with the academic counselling given by the academic staff. Here, the bachelor students at bioCEED had a lower mean score than the other groups. The scores also increased with time for this statement, though it is important to note that the wording has changed and has likely changed how the students respond.

Table 5. Mean scores for questions regarding satisfaction with feedback and counselling.

	2013			2014			2015			2016		
	Mean	F	p	Mean	F	p	Mean	F	p	Mean	F	p
Satisfaction with the amount of feedback on the students' work by the teachers:												
bioCEED bachelor	-			-			-			3.1	1.27	0.281
bioCEED master	-			-			-			3		
Other biology programmes	-			-			-			3.3		
Satisfaction with the feedback on the students' work by the teachers (is the feedback constructive?):												
bioCEED bachelor	3.3	1.21	0.300	3.1	0.62	0.54	3.3	0.49	0.615	3.5	0.68	0.507
bioCEED master	3.6			3.4			3.5			3.2		
Other biology programmes	3.1			3.3			3.5			3.4		
Satisfaction with the academic counselling given by the teachers:												
bioCEED bachelor	2.2*	4.40	0.013	2.2*	4.64	0.01	3.1	0.93	0.395	3.2*	3.11	0.046
bioCEED master	3.5			3.2			3.2			3.3		
Other biology programmes	2.8			2.9			3.4			3.6		

* Indicates which group has a mean score that is statistically significant from one or both of the other groups.

Working life relevance

The students were asked how far their study programme was relevant to working life. The master students associated with bioCEED scored higher than the other two groups regarding the extent to which the study programme provided good career opportunities,

and the extent to which the study programme provided competence that is useful in occupational life (data from 2016 only). The bioCEED study programs also scored higher than other biology programmes in that students think their study programme cooperates well with industry and the labour market.

Table 6. Mean scores for questions regarding working life relevance.

	2013			2014			2015			2016		
	Mean	F	p	Mean	F	p	Mean	F	p	Mean	F	p
To what extent do you think that the study programme is relevant to "natural" occupational fields?												
bioCEED bachelor	3.9	2.26	0.106	3.8	2.94	0.054	3.7*	5.86	0.003	4.2	1.01	0.366
bioCEED master	4.5			4.5			4.7			4.3		
Other biology programmes	3.9			4.0			4.1			4.1		
To what extent do you think that the study programme provides good career opportunities?												
bioCEED bachelor	3.4	3.87	0.022	3.4	8.36	<0.001	3.4	6.77	0.001	4	9.35	<0.001
bioCEED master	4.2*			4.7*			4.6*			4.3		
Other biology programmes	3.3			3.5			3.5			3.5*		
To what extent do you think that the study programme provides competence that is generally useful in occupational life?												
bioCEED bachelor	-			-			-			4	3.43	0.033
bioCEED master	-			-			-			4.4*		
Other biology programmes	-			-			-			4		
To what extent do you think that the study programme cooperates well with workplaces in the labour market?												
bioCEED bachelor	-			-			-			3.5	12.67	<0.001
bioCEED master	-			-			-			3.9		
Other biology programmes	-			-			-			2.9*		

* Indicates which group has a mean score that is statistically significant from one or both of the other groups.

Use of different teaching and learning methods

The students were asked about to what degree different teaching and learning methods were used in their study programme. Traditional lectures were most used (scores 4.7-4.8), while other methods often used were laboratory work and written assignments. Project

work and field work were more often used in the bioCEED bachelor programmes than in the other groups.

Table 7. Mean scores from 2015-2016 regarding to what degree these teaching and learning methods are used in the programme.

	2015			2016		
	Mean	F	p	Mean	F	p
Lecture						
bioCEED bachelor	4.7	0.29	0.750	4.8	0.3	0.742
bioCEED master	4.8			4.8		
Other biology programmes	4.7			4.7		
Seminar						
bioCEED bachelor	3.2	1.35	0.261	3.7*	8.61	<0.001
bioCEED master	2.7			3.2		
Other biology programmes	2.6			2.6		
Group without a teacher						
bioCEED bachelor	2.1	0	0.998	2.4	2.27	0.105
bioCEED master	2.1			2.3		
Other biology programmes	2.1			1.9		
Written assignments						
bioCEED bachelor	3.5	0.84	0.432	3.9	0.73	0.485
bioCEED master	3.9			3.5		
Other biology programmes	3.5			3.6		
Project work						
bioCEED bachelor	2.8	0.85	0.429	3.2*	3.8	0.023
bioCEED master	2.4			2.4		
Other biology programmes	2.4			2.5		
Fieldwork / data collection						
bioCEED bachelor	3.4*	5.6	0.004	3.9*	20.11	<0.001
bioCEED master	2.8			2.3		
Other biology programmes	2.2			2		
Laboratory work						
bioCEED bachelor	2.9*	4.8	0.009	3.9	0.29	0.749

bioCEED master	3.9			3.7		
Other biology programmes	3.7			3.7		
Other practical work						
bioCEED bachelor	1.7	0.11	0.896	1.9	2.22	0.110
bioCEED master	2			2.4		
Other biology programmes	1.8			1.8		
Case						
bioCEED bachelor	0.6	0.36	0.695	0.7	0.55	0.575
bioCEED master	0.7			0.6		
Other biology programmes	0.8			0.8		
Simulation / role play						
bioCEED bachelor	0.3	0.19	0.829	0.2	2.89	0.057
bioCEED master	0.5			0.6		
Other biology programmes	0.4			0.3		
Practice training						
bioCEED bachelor	0.9	10.92	<0.001	1.1	13.87	<0.001
bioCEED master	2.5*			1.6		
Other biology programmes	0.7			0.5*		
Digital (electronic) work methods						
bioCEED bachelor	2.8	2.37	0.095	2.6	0.55	0.578
bioCEED master	1.7			2.4		
Other biology programmes	2.3			2.3		

* Indicates which group has a mean score that is statistically significant from one or both of the other groups.

Selected questions

A few other questions were of interest to include (table 8). The only statement that differed between the groups was to what extent the programme consisted of courses that were well connected and integrated. Here, the bachelor students associated with bioCEED scored much lower than the other groups for all years except 2016.

Table 8. Mean scores for selected questions regarding learning environment, students' influence, and programme consistency.

	2013			2014			2015			2016		
	Mean	F	p	Mean	F	p	Mean	F	p	Mean	F	p
How satisfied are you with the social environment among students in the programme?												
bioCEED bachelor	4.1	3.24	0.041	4.3	2.43	0.089	4.1	0.16	0.850	4.1	1.67	0.190
bioCEED master	4.5			3.7			3.9			4.3		
Other biology programmes	3.8			3.8			4			4		
How satisfied are you with the academic environment among students in the programme?												
bioCEED bachelor	3.8	3.06	0.048	3.8	0.04	0.961	3.7	0.28	0.757	3.8	1.86	0.157
bioCEED master	4.5			3.8			3.9			4.2		
Other biology programmes	3.7			3.8			3.9			4		
How satisfied are you with students' opportunity to influence the study programmes' content and design?												
bioCEED bachelor	2.8	0.41	0.666	2.9	0.47	0.624	2.8	1.85	0.159	2.8	1.83	0.161
bioCEED master	3.2			2.9			3.1			3.1		
Other biology programmes	3			3.1			3.2			3.2		
How satisfied are you with how students' viewpoints are taken into account and followed?												
bioCEED bachelor	2.9	0.8	0.451	3.1	0.84	0.433	3	1.14	0.322	3	0.92	0.400
bioCEED master	3.5			3.6			3.4			3.4		
Other biology programmes	3			3.2			3.3			3.3		
To what extent do you find that the programme consists of courses that are well connected and integrated?												
bioCEED bachelor	2.9*	11.74	<0.001	3.3*	7.8	<0.001	3*	14.23	<0.001	3.8	0.02	0.980
bioCEED master	4.3			3.9			3.9			3.8		
Other biology programmes	3.8			4			3.9			3.8		

* Indicates which group has a mean score that is statistically significant from one or both of the other groups.

Grades

We did not find any differences between the groups regarding high school character points (data only available for 2015 and 2016). The percentage of students with grades A or B in their study programme did not show any significant differences between the groups, though the percentage of students with a failing grade was significantly higher in the bioCEED bachelor study programmes in 2016 (17.2%).

Table 9.

	2015	2016

	N	Mean	F	N	Mean	F
High school character points						
bioCEED bachelor	22	43.6	0.07	11	43.9	1.07
bioCEED master	12	43.6		9	43.9	
Other biology programmes	155	44.0		189	45.3	
Percentage of students with grades A or B						
bioCEED bachelor	24	40.5%	0.18	32	32%	1.37
bioCEED master	14	39.8%		30	45%	
Other biology programmes	286	26.1%		332	38.4%	
Percentage of students with an F						
bioCEED bachelor	24	9.8%	2.39	32	17.2%*	13.72
bioCEED master	14	3.7%		30	4.6%	
Other biology programmes	286	4.7%		332	5.1%	

* Indicates which group has a mean score that is statistically significant from one or both of the other groups.

The data portal at studiebarometeret.no

For more information about individual study programmes, please go to studiebarometeret.no. Programmes with sufficient number of respondents will be shown in the portal. It is possible to search for the study programme of interest by name, or by finding it by selecting the appropriate field of study. Add the programme(s) of interest, and click "Compare". To look at historical data from previous years, select "Show historical data". Note that this option is only available when one study programme is selected. To get more detailed information (including standard deviation and response distribution), click on the link "detailed information".

In table 10 all the programmes connected to bioCEED are listed with the direct links to the programmes' sites on Studiebarometeret.no. Notice that the programmes in red do not have the required number of respondents to meet our thresholds (6-9 respondents and a response rate higher than 49,5%, or 10 or more respondents and a response rate higher than 19,5%) for presenting the results for that particular study programme. No results will therefore be presented for these programmes. The page does contain some facts about the programme, such as the total number of students, number of credits, organisation of teaching and more. These can be found by scrolling down in the web browser.

Table 10: Overview of BioCEED programmes and links to the programmes' sites on Studiebarometeret.no

Study programme	Link
Bachelor's Programme in Biology	http://www.studiebarometeret.no/en/Sammenligne/1120_BAMN-BIO
Bachelor's Programme in sustainable aquaculture	http://www.studiebarometeret.no/en/Sammenligne/1120_BAMN-HAV

Bachelor's Programme in Environment and Resources	http://www.studiebarometeret.no/en/Sammenligne/1120_BATF-MIRE
Master's Programme in Biology	http://www.studiebarometeret.no/en/Sammenligne/1120_MAMN-BIO
Integrated Master Programme in Aquamedicine	http://www.studiebarometeret.no/en/Sammenligne/1120_MAMN-FISK

Conclusion

In conclusion, results from the student survey are generally stable over time and between groups, though there are some differences between bioCEED bachelor programmes, bioCEED master programmes, and other biology programmes. The most consistent finding is that bioCEED master programmes score higher on working life relevance than the other groups. The bioCEED study programmes also scored higher than other biology programmes in that students think their study programme cooperates well with workplaces in the labour market. bioCEED bachelor students are also the least satisfied with academic counselling, and think that the courses are integrated and connected to a lesser extent than the other groups (except in 2016). The bioCEED bachelor programmes use field and project work to a greater extent, though lectures and laboratory work are often used by all groups. The results therefore show that there are some differences between the groups, though it is important to note that the sample size of the bioCEED programmes is rather small, meaning the variation will be greater.

Bioceed

bioCEED – Student data

Number of students

	2013	2014	2015	2016
bioCEED - bachelor				
<i>bioCEED</i>	332	353	397	326
<i>Other institutions</i>	908	950	1291	1342
bioCEED – master				
<i>bioCEED</i>	51	56	72	165
<i>Other institutions</i>	736	721	943	964
All bioCEED programs	383	409	469	491
All other biology programmes	1644	1671	2234	2306
All biology programmes (incl. bioCEED)	2027	2080	2703	2797

Staff

In this table, the number of full-time equivalent (FTE) work years is listed for all departments offering biology education in Norway. Only the academic staff (including PhD-students) are included in the numbers. It is not possible to retrieve the number of FTE work years or number of staff at the study programme level when using the Norwegian statistics databases for higher education.

We have only included the biology departments at the four “old universities” in Norway. There are biology faculty at other institutions as well, but they are not included here because the organization of faculties and departments at these institutions make it impossible for us to identify biology faculty at these institutions. At least one of these institutions, the Norwegian University of Life Sciences, has a substantial number of biology faculty, but we have no way of identifying an approximate number of staff without asking them.

The four institutions most likely have addition biology faculty at other departments as well (f.i. in biomedicine, which is not included in the numbers below).

Student numbers at the department level are not included here because some of these institutions only partly report student numbers on department level.

Institution	2013	2014	2015	2016
UiB - Department of Biology	122.0	121.5	130.3	130.2
UiO – Department of Biosciences	n.a	220.1	228.4	231.2
UiT – Department of Arctic and Marine Biology	83.2	91.3	96.5	95.0
NTNU - Department of Biology	93.2	86.1	87.5	102.8

Abbreviations:

UiB = University of Bergen

UiO = University of Oslo

UiT = University of Tromsø – The Arctic University of Norway

NTNU = Norwegian University of Science and Technology