Program evaluation of Bachelor's Program in Information Science (BASV-INFO) 2017-2021

The evaluation follows the University of Bergen's template for program evaluations. The Bachelor's Program in Information Science (BASV-INFO) is run by the Department of Information Science and Media Studies (Infomedia). The BASV-INFO program has been running since 2003.

Requirements for the study offer in UiB's system for quality assurance of the educations

Admission requirements and admission numbers

The study program is a full-time course that for lasts three years (six semesters) and starts in August. In 2017 the program had 65 places and 2.2 first priority applicants per study place. Since 2018 the program has 90 places, and the data indicates the first priority applicants per study place has been consistent over the last 5 years. In 2021 the program had 3.0 first priority applicants per study place.

Søkning og opptak

Studieprogram	Årstall	Termin	Studieplasser	1.prioritet	1. pri søker per studieplass	Fått tilbud	Svart ja	Registrert	Andel registrert av tilbud
BASV-INFO Bachelorprogram i ..	2017	HØST	65	143	2.2	151	111	98	64.9%
	2018	HØST	90	220	2.4	205	147	125	61.0%
	2019	HØST	90	230	2.6	190	137	119	62.6%
	2020	HØST	90	248	2.8	192	124	111	57.8%
	2021	HØST	90	267	3.0	201	155	140	69.7%
	2022	HØST	90	240	2.7	178	118	104	58.4%

Since the beginning of the program the number of applications to the program has been increasing for many years. The demand for IT competence in the society has increased, and therefore also many internal students at UiB take courses from the BASV-INFO program. In order to provide aid in the labs and follow up on assignments we need to engage several teaching assistants. To maintain the quality of teaching, it is important not to overbook. In 2022 we asked the faculty to reduce the overbooking to make sure that the number of students do not produce too high pressure (correction/following up on assignments) on our teaching resources (subject teachers, seminar leaders, seminar coordinators).

The *poenggrense* for *førstegangsvitnemål* has increased from 33.10 in 2017 to 41.30 in 2021, while the point limit for *ordinær kvote* has increased from 45.80 in 2017 to 51.00 in 2021. This indicates that the program is becoming more attractive to the students. Hopefully this will have a positive effect on the studypoint production and lead to less dropouts.

Poenggrense

			Kvote					
			Registrert			Min. Poenggrense		
Studieprogram	Årstall	Termin	1gangsvitne..	Ordkvote	Ukjent	1gangsvitne..	Ordkvote	Ukjent
BASV-INFO Bachelorprogram i informasjonsvitenskap	2017	HØST	41	46	11	33.10	45.80	
	2018	HØST	54	55	16	38.10	46.90	
	2019	HØST	57	57	5	38.10	49.70	
	2020	HØST	46	55	10	39.70	51.80	
	2021	HØST	59	50	32	41.30	51.00	
	2022	HØST	41	49	14	41.10	52.60	

Popular social media channels are used to increase the visibility of the program, Small insights into everyday study life are shared both on Facebook, Instagram under the username @infomedia.uib. Infomedia also has a youtube channel (https://www.youtube.com/user/infomediauib), where short video clips about the programs are posted. Students from Infomedia are interviewed about their experience and their expectations. It would be useful to have more interviews with former students where they express their opinions about the program.

Completion, dropout and candidate production

BASV-INFO is by far the largest program in Infomedia. The table below shows the number of active students in BASV-INFO each semester for each batch since 2012. The percentage of completed degrees is also shown in the table. The number of completed degrees has been ranging from 39.47%-62.10% with the highest percentage in 2018. In 2018 the number of active students is 124 and 77 of these have completed. The records since 2016 give the impression of a stabilization at a significantly higher level than was usual a few years ago. For 2017 and 2018 the percentage of completed degrees in BASV-INFO is higher than the average percentage 45.7% at SV faculty.

If we compare the candidate production in BASV-INFO with some relevant programs at Informatikk (e.g., *Bachelorprogram i datateknologi* and *Bachelorprogram i datavitenskap* BAMN-DTEK and BAMN-DVIT), we see that the candidate production is much higher for BASV-INFO. Comparing the percentage candidate production in for example 2018, we see that it was 62.90% in BASV-INFO, 48,89 in BAMN-DTEK and 52,63% in BAMN-DVIT.

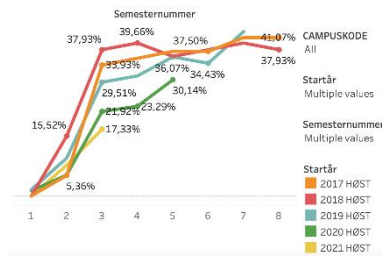
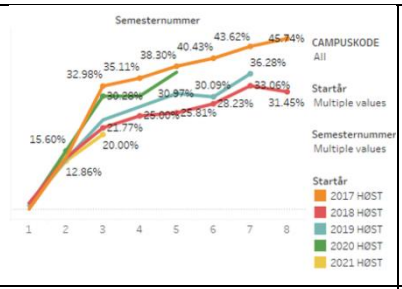
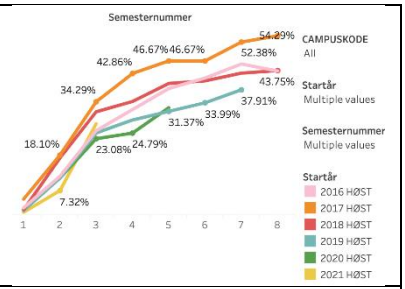
One of the reasons for some students not completing the program could be that there is a shortage of IT skilled persons in the job market, and therefore students consider starting work in the industry as soon as they get an offer. Another reason for students dropping out from IT related programs could be that there is not sufficient following up during the semester. In our opinion, The BASV-INFO program handles this situation efficiently, even though the courses are very big. The department recruits many teaching assistants from its master programs to provide help to the bachelor students in the lab and seminars. This follow-up of students not only helps students when needed, but also facilitates the sharing of ideas and thoughts among students. In addition, the seminar leaders provide feedback to the subject teachers. However, the number of dropouts in the program is still high.

Gjennomstrømming

				Semesternummer									
Startår	Studieprogram		Grand T..	1	2	3	4	5	6	7	8	9	10
2012 HØST	BAMN-DTEK Bachelorprogram i informatikk: datateknologi	Aktive	51	50	42	30	24	20	19	8	7	4	2
		Akkumulerte Kvalifikasjoner	16	0	0	0	2	3	12	12	15	16	16
		Andel_kvalifikasjoner	31.37%	0.00%	0.00%	0.00%	3.92%	5.88%	23.53%	23.53%	29.41%	31.37%	31.37%
	BAMN-DVIT Bachelorprogram i informatikk: data science ..	Aktive	25	25	19	12	11	7	5	5	3	2	1
		Akkumulerte Kvalifikasjoner	6	0	0	0	1	2	3	3	5	6	6
		Andel_kvalifikasjoner	24.00%	0.00%	0.00%	0.00%	4.00%	8.00%	12.00%	12.00%	20.00%	24.00%	24.00%
	BASV-INFO Bachelorprogram i informasjonsvitenskap	Aktive	38	37	32	28	25	21	19	13	7	8	6
		Akkumulerte Kvalifikasjoner	15	0	0	0	1	2	7	10	12	14	15
		Andel_kvalifikasjoner	39.47%	0.00%	0.00%	0.00%	2.63%	5.26%	18.42%	26.32%	31.58%	36.84%	39.47%
2013 HØST	BAMN-DTEK Bachelorprogram i informatikk: datateknologi	Aktive	60	59	48	42	40	29	28	19	12	5	2
		Akkumulerte Kvalifikasjoner	27	0	0	0	0	1	9	17	22	26	27
		Andel_kvalifikasjoner	45.00%	0.00%	0.00%	0.00%	0.00%	1.67%	15.00%	28.33%	36.67%	43.33%	45.00%
	BAMN-DVIT Bachelorprogram i informatikk: data science ..	Aktive	28	26	21	17	15	12	11	6	3	2	
		Akkumulerte Kvalifikasjoner	9	0	0	1	1	1	5	7	8	9	9
		Andel_kvalifikasjoner	32.14%	0.00%	0.00%	3.57%	3.57%	3.57%	17.86%	25.00%	28.57%	32.14%	
	BASV-INFO Bachelorprogram i informasjonsvitenskap	Aktive	64	62	51	42	35	27	26	10	6	3	2
		Akkumulerte Kvalifikasjoner	31	0	0	1	6	8	24	27	29	31	31
		Andel_kvalifikasjoner	48.44%	0.00%	0.00%	1.56%	9.38%	12.50%	37.50%	42.19%	45.31%	48.44%	48.44%
2014 HØST	BAMN-DTEK Bachelorprogram i informatikk: datateknologi	Aktive	62	62	50	42	40	34	33	10	4	3	3
		Akkumulerte Kvalifikasjoner	27	0	0	0	3	3	22	26	26	26	27
		Andel_kvalifikasjoner	43.55%	0.00%	0.00%	0.00%	4.84%	4.84%	35.48%	41.94%	41.94%	41.94%	43.55%
	BAMN-DVIT Bachelorprogram i informatikk: data science ..	Aktive	22	22	21	14	11	5	4	2	2	1	
		Akkumulerte Kvalifikasjoner	5	0	0	0	1	2	4	4	4	5	5
		Andel_kvalifikasjoner	22.73%	0.00%	0.00%	0.00%	4.55%	9.09%	18.18%	18.18%	18.18%	22.73%	
	BASV-INFO Bachelorprogram i informasjonsvitenskap	Aktive	79	78	69	50	49	42	38	18	13	8	7
		Akkumulerte Kvalifikasjoner	38	1	3	4	6	9	27	32	36	37	38
		Andel_kvalifikasjoner	48.10%	1.27%	3.80%	5.06%	7.59%	11.39%	34.18%	40.51%	45.57%	46.84%	48.10%
2015 HØST	BAMN-DTEK Bachelorprogram i informatikk: datateknologi	Aktive	54	53	50	39	35	30	27	11	6	3	2
		Akkumulerte Kvalifikasjoner	20	0	0	0	0	1	12	16	18	19	20
		Andel_kvalifikasjoner	37.04%	0.00%	0.00%	0.00%	0.00%	1.85%	22.22%	29.63%	33.33%	35.19%	37.04%
	BAMN-DVIT Bachelorprogram i informatikk: data science ..	Aktive	15	15	12	9	8	8	7	3	2	2	
		Akkumulerte Kvalifikasjoner	7	0	1	1	1	1	5	5	5	7	7
		Andel_kvalifikasjoner	46.67%	0.00%	6.67%	6.67%	6.67%	6.67%	33.33%	33.33%	33.33%	46.67%	
	BASV-INFO Bachelorprogram i informasjonsvitenskap	Aktive	88	84	67	51	48	48	43	23	16	9	6
		Akkumulerte Kvalifikasjoner	35	0	0	1	1	3	20	26	33	35	35
		Andel_kvalifikasjoner	39.77%	0.00%	0.00%	1.14%	1.14%	3.41%	22.73%	29.55%	37.50%	39.77%	39.77%
2016 HØST	BAMN-DTEK Bachelorprogram i informatikk: datateknologi	Aktive	72	70	63	50	44	37	32	16	12	10	9
		Akkumulerte Kvalifikasjoner	31	0	3	5	7	9	22	26	29	30	31
		Andel_kvalifikasjoner	43.06%	0.00%	4.17%	6.94%	9.72%	12.50%	30.56%	36.11%	40.28%	41.67%	43.06%
	BAMN-DVIT Bachelorprogram i informatikk: data science ..	Aktive	22	22	20	16	14	11	11	6	6	1	1
		Akkumulerte Kvalifikasjoner	12	0	1	1	3	3	7	9	11	11	12
		Andel_kvalifikasjoner	54.55%	0.00%	4.55%	4.55%	13.64%	13.64%	31.82%	40.91%	50.00%	50.00%	54.55%
	BASV-INFO Bachelorprogram i informasjonsvitenskap	Aktive	100	100	83	66	65	59	55	21	15	7	4
		Akkumulerte Kvalifikasjoner	59	0	1	1	2	6	39	45	54	57	59
		Andel_kvalifikasjoner	59.00%	0.00%	1.00%	1.00%	2.00%	6.00%	39.00%	45.00%	54.00%	57.00%	59.00%
2017 HØST	BAMN-DTEK Bachelorprogram i informatikk: datateknologi	Aktive	75	70	63	52	47	43	41	17	7	4	4
		Akkumulerte Kvalifikasjoner	36	0	0	0	2	5	21	31	34	34	36
		Andel_kvalifikasjoner	48.00%	0.00%	0.00%	0.00%	2.67%	6.67%	28.00%	41.33%	45.33%	45.33%	48.00%
	BAMN-DVIT Bachelorprogram i informatikk: data science ..	Aktive	30	30	23	17	12	10	8	2			
		Akkumulerte Kvalifikasjoner	10	0	0	1	1	2	7	10	10	10	10
		Andel_kvalifikasjoner	33.33%	0.00%	0.00%	3.33%	3.33%	6.67%	23.33%	33.33%			
	BASV-INFO Bachelorprogram i informasjonsvitenskap	Aktive	94	94	81	60	56	39	32	10	7	4	3
		Akkumulerte Kvalifikasjoner	47	0	3	5	19	24	43	44	46	46	47
		Andel_kvalifikasjoner	50.00%	0.00%	3.19%	5.32%	20.21%	25.53%	45.74%	46.81%	48.94%	48.94%	50.00%
2018 HØST	BAMN-DTEK Bachelorprogram i informatikk: datateknologi	Aktive	90	90	76	62	58	53	47	16	11	4	
		Akkumulerte Kvalifikasjoner	44	0	0	0	2	4	33	39	44	44	44
		Andel_kvalifikasjoner	48.89%	0.00%	0.00%	0.00%	2.22%	4.44%	36.67%	43.33%	48.89%	48.89%	
	BAMN-DVIT Bachelorprogram i informatikk: data science ..	Aktive	38	36	30	24	23	16	13	5	3	1	
		Akkumulerte Kvalifikasjoner	20	0	2	3	6	10	17	19	20	20	20
		Andel_kvalifikasjoner	52.63%	0.00%	5.26%	7.89%	15.79%	26.32%	44.74%	50.00%	52.63%	52.63%	
	BASV-INFO Bachelorprogram i informasjonsvitenskap	Aktive	124	122	106	91	87	68	62	13	14	7	
		Akkumulerte Kvalifikasjoner	78	1	6	6	24	27	70	71	77	78	78
		Andel_kvalifikasjoner	62.90%	0.81%	4.84%	4.84%	19.35%	21.77%	56.45%	57.26%	62.10%	62.90%	
2019 HØST	BAMN-DTEK Bachelorprogram i informatikk: datateknologi	Aktive	105	105	94	80	75	70	64	36			
		Akkumulerte Kvalifikasjoner	34	0	1	2	4	9	33	34	34	34	34
		Andel_kvalifikasjoner	32.38%	0.00%	0.95%	1.90%	3.81%	8.57%	31.43%	32.38%			
	BAMN-DVIT Bachelorprogram i informatikk: data science ..	Aktive	48	46	42	34	31	27	22	12			
		Akkumulerte Kvalifikasjoner	15	0	0	1	4	5	14	15	15	15	15
		Andel_kvalifikasjoner	31.25%	0.00%	0.00%	2.08%	8.33%	10.42%	29.17%	31.25%			
	BASV-INFO Bachelorprogram i informasjonsvitenskap	Aktive	113	112	98	84	78	62	54	10			
		Akkumulerte Kvalifikasjoner	62	0	2	4	15	22	61	62	62	62	62
		Andel_kvalifikasjoner	54.87%	0.00%	1.77%	3.54%	13.27%	19.47%	53.98%	54.87%			

There are some differences in the dropout rates between the programs: In Media and Kommunikasjon bachelor program (BASV-MEVI) the dropout rate is much higher at the beginning of the program. In BASV-INFO and the programs at Informatikk, the dropout rate is more evenly distributed. A general conclusion we can draw from all the programs is that in 2017 it was the worst situation. Then the situation improved in 2018. Although there is a peak

in the beginning, it is not as high as in BASV-MEVI. Students getting jobs towards the end of the study could be a reason for the dropout at the later stage of the program. The dropout rate at BASV-INFO is overall less than the dropout rate at BAMN-DTEK and BAMN-DVIT. However, the dropout rate of the first few semesters needs to be investigated further.

		
Dropout percentage in BASV-MEVI	Dropout percentage in BASV-INFO	Dropout percentage in BAMN-DTEK og BAMN-DVIT

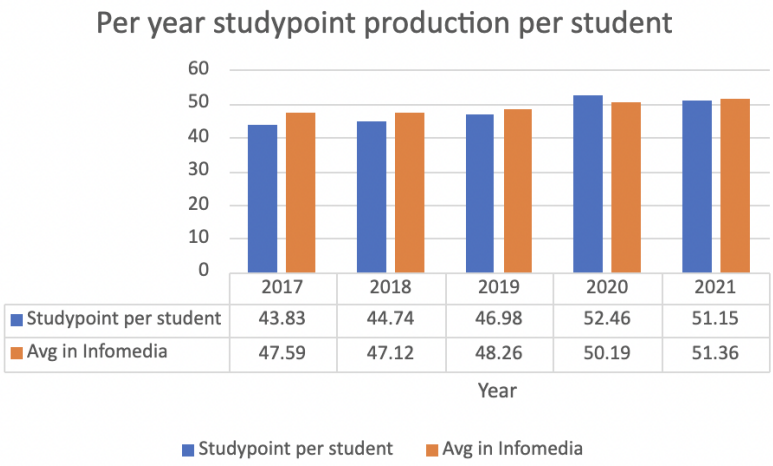
The study programs are evaluated by students every year via Studiebaromteret. Students in their third and fifth semester participate in this survey. Internal students' evaluations for the courses indicate that they are interested in spending more time on technical subjects and are less interested in theoretical subjects. Since the program has several theoretical subjects in the first few semesters, it may have caused an impression among the students about the irrelevance of the courses with their working life. This needs to be investigated, and the misunderstandings need to be resolved so that the students are more motivated in learning theoretical subjects which will essentially help them in their career path.

Studypoint production on the program has been good for the last few years, as shown below.

Bestått studiepoeng

	Termin / Studieprogram					
	VÅR			HØST		
	BASV-INFO Bachelorprogram i informasjonsvitenskap			BASV-INFO Bachelorprogram i informasjonsvitenskap		
Årstall	Studiepoeng	Aktive	Bestått studiepoeng per stu..	Studiepoeng	Aktive	Bestått studiepoeng per st..
2017	4,555	207	22.00	5,435	252	21.57
2018	5,240	228	22.98	6,375	293	21.76
2019	6,550	282	23.23	7,290	307	23.75
2020	7,660	288	26.60	8,275	320	25.86
2021	7,895	293	26.95	7,890	326	24.20
2022	7,120	307	23.19	90	306	0.29

The data from the table is used to produce the following chart where we can find the yearly studypoint per student from 2017-2021. In 2017, the yearly studypoint production per student was 43.83. This has been increased by 7.32 studypoints per student. The increase was steady before corona, and then the production was a bit high during the corona in year 2020. In 2022 the studypoint production of the spring semester seems to be similar to the studypoint production before the corona time. The studypoint production per student in BASV-INFO is very close to the average studypoint production per student in Infomedia. Considering the fact that BASV-INFO is a large program and there are many challenges involved, the production figure appears to be good.



Assessment of the learning environment

All the courses in BASV-INFO include lectures and lab/seminar. Students get plenty of opportunities to get help from subject teachers, seminar leaders and fellow students. Subject teachers use a variety of pedagogical practices to interact with the students during the class. Formative assessment techniques are used during the semester, including both traditional assessment formats and digital tools such as Kahoot, mentimeter, padlet, miro.com. Teachers and students get immediate feedback from formative assessments, which allows them to adjust their teaching and learning paths. Students get to interact with seminar leaders in the labs and seminars. Active learning methods are used in many of the lab/seminars.

Besides IT skills, many jobs in IT require better communication skills. Students in BASV-INFO get plenty of opportunities to get better at communication both in oral and written forms. Students learn to work in groups with other students in the program. This helps them to improve their oral communication skills. In addition, students are given assignments to write reports in several of the courses in BASV-INFO. These assignments also require critical thinking.

Students in BASV-INFO can go abroad to study. They can take courses from abroad and apply for free elective study points in their degree. BASV-INFO program allows students to take courses for free elective study points if they don't overlap with other compulsory courses of the program. This arrangement provides them with valuable international experience.

Fagutvalget (https://www.uib.no/infomedia/38184/enter-studentforeningen-ved-infomedia) plays an important role in engaging students with social involvement as well as creative and innovative activities. They promote study quality for students in the department. They are involved with students when important decisions are made and raise matters with the management at the institute. They also arrange professional evenings, company presentations and social events. They actively post updates in social media channels, for example, in Instagram (https://www.instagram.com/enter_uib/), facebook (https://www.facebook.com/groups/169851180398380/ , https://www.facebook.com/studentforeningen.enter) and in Linkedin (https://www.linkedin.com/company/studentforeningen-enter/). Students from BASV-INFO are well represented in the student organization. Fagutlalget also coordinates events with similar other student organizations, for example friByte (https://twitter.com/fribyte).

BASV-INFO students are also encouraged to participate in hackathons and workshops organized by research platforms at UiB. Recently, UiB AI hosted an interdisciplinary student workshop to find emerging solution for the traffic situation in Bergen (https://www.uib.no/ai/157022/bergen-hack) where Information Science students were encouraged to participate.

Requirements for the study offer in the Study Supervision Regulations

System for quality assurance

§ 4-1.Krav til det systematiske kvalitetsarbeidet *(3): Institusjonen skal ha ordninger for systematisk å kontrollere at alle studietilbud tilfredsstiller kravene i forskrift om kvalitetssikring og kvalitetsutvikling i høyere utdanning og fagskoleutdanning § 3-1 til § 3-3 og kapittel 2 i denne forskrift.*

Quality assurance

External evaluations:
Professor Ole Hanseth from the University of Oslo was the program sensor for 2017. He mentioned in his report that the bachelor program in Information Science is well composed and managed in an excellent way. He did not mention any substantial negative issues. According to his report, the bachelor program in Information Science can be characterized by a significant degree of stability in terms of the influx of students, the sequence of courses, the content of the courses and how the teaching is carried out. Overall Hanseth had a positive impression of the teaching evaluation system. According to his assessment, the number of students taking the courses and the results show considerable stability. However, he criticized some courses where students received extraordinarily good grades, which he believed to be consistently higher than what could be expected. He did not mention any specific measures, but recommended that we look into the situation.

Professor Guttorm Sindre from NTNU Trondheim has been the program sensor since 2018. In his assessments for 2018-2021, he mentioned that bachelor program in Information Science hold high quality, and there should be no need for any major changes. He suggested various small changes over time to improve the quality of the study program. The program council took those suggestions into account when implementing study plan changes.

2018 report:
Professor Guttorm Sindre wrote in his 2018 report about the following two negative points and recommended that we looked into those issues more carefully:

- The students' time investment appears to be low
- The students' opportunity to participate appears to be low

He presented a comparison with other similar programs from NTNU, UiO and UiA, although he also made a remark about the uncertainty of the figures from NOKUT's study barometer. He was concerned about the low number of students who participated in those surveys.

In the *«Medvirkning»* category on NOKUT's Study Barometer (survey conducted in 2017) the bachelor's degree in Information Science scored only 2.6. This was significantly below the average for both other studies within media and communication (3.3) and other studies within

IT (3.4). He interviewed several student representatives about this during his visit to the institute. According to the student representatives, the reason for the low score could be that certain changes in the course plan had been communicated late / unclear to the students. Also, some students might not have been sufficiently aware of their participation opportunities.

According to his assessment, the use of grades for most subjects were fine and in line with what is expected nationally. However, he mentioned a few courses where the grading looked strange, especially when combined with indications that the students' own effort on the bachelor's course is somewhat low. He suggested the following alternatives for the courses to improve the situation:

- Switch to Pass/Fail for a year or two, to "reset" the course's grading practices.
- Use an external examiner, preferably (if it can be found) an examiner at another Norwegian university that has a similar subject.
- Set up clearer criteria / rubrics for grading the students' work.

2019 report:
In his 2019 report, Guttorm Sindre pointed out the improvement of students' participation score in the Study Barometer. He interviewed students regarding this and mentioned that the students expressed that they are mostly satisfied with the participation. His report also mentions some dissatisfaction among the students regarding different interpretations of rules for compulsory attendance at different institutes.

2020 report:
The program sensor presented his opinion regarding the Study Barometers results. According to his interpretation, the *Læringsmiljø* was low most probably due to the Covid situation. In his opinion, the competence that the students gain through this study is very relevant for working life, so the low score does not necessarily have anything to do with real job relevance. Students need to be aware of the link of the competences/skills that they gain in the program with their future working life.

His report includes the evaluation of grading standards of all courses and suggestions for improvement. He pointed out some situations where the standard of the courses was compromised due to the recruitment of students from other programs who do not have the recommended prior knowledge. His suggestion was to take the prior knowledge of BASV-INFO students into consideration and make those as prerequisite. Courses should not review a portion of material that has considerable overlap with other subjects. Overlapping materials in several courses is not ideal and it demotivates BASV-INFO students.

Sindre's 2020 report also presents the students' views regarding their participation in the meetings. Sometimes the students feel that they are getting involved a little too late, and that they should have been informed about changes earlier. This was perhaps due to the Covid situation, when many decisions were made by top management and there was very little time to discuss the issues with students before putting them into action.

2021 report:
The program sensor expressed his concern about the decline of Study Barometers. He pointed out the low response rate (about 25%) for the BASV-INFO program and indicated that it was difficult to draw any firm conclusions because of that. He proposed the following action points for the department in connection with the somewhat worrying results for the Study Barometer:

- Carry out a more careful analysis of the raw data behind the above-mentioned indicator figures, to see if this can provide any more insight into the situation.
- Have a dialogue meeting with student representatives to find the reasons why the scores were so low, especially on the indicators that are down in the 2's.
- Come up with measures to significantly increase the response rate when the next Studie Barometer survey is sent out to students in autumn 2022. The greater the response rate, the more useful the results will be as a pointer to which aspects of the study program one should try to improve.

Internal evaluations:
The program has regularly carried out course evaluations. The program council discusses the egenevaluaring, studentevaluering and emnerapporter regularly and takes actions to address the issues.

It would be interesting to know in which subjects our students spend more/less time, and which subjects they consider relevant for their working life. However, the student evaluation forms do not include any specific questions regarding the relevance of working life. The nearest question that was used in the evaluation form is the 'relevance of lecture in relation to the objectives and content detailed in the course description'. A summary of the average time used and the relevance of lectures with course objectives for various courses can be found in the table below. The table is produced from student evaluations in 2021.

Generally, we can see that the students tend to spend more time on technical subjects e.g., DATA110/INFO132 (Introduction to Programming). At INFO135 (Advanced Programming) in spring 2020 there was however an exceptional situation. The instructor was new and there was a complaint from a student (outside of BASV-INFO program) who did not have a good IT background. Because of the corona situation it was difficult to communicate with the students. The subject teacher chose to reduce the difficulty of the course, which was demotivating for other students.

Regarding INFO125 (Database management), some of the students from BASV-MIX program (Bachelor's in Media and Interaction Design) who took this course, found that it was less relevant for their program, as they thought the course covered many details of database techniques which were perhaps not needed for them. But the students who take the course are very early in their program and may not be aware of the future opportunities that the course could provide to them.

The evaluation results of INFO263 (Interaction Design and Prototyping) and INFO212 (System Development) were exceptional as the courses were taught by external lecturers or PhD students. In 2022, INFO212 (System Development) has been restructured completely with a new curriculum and consists of a lot of cutting-edge technologies. The program council prefers in the future not to assign PhD students to take full responsibility for any BASV-INFO courses, as it requires a lot of time to maintain the quality of the courses. INFO263 (Interaction Design and Prototyping) may have overlapped with another BASV-MIX course, but the BASV-MIX program has changed it recently.

Although INFO104 (Formal Methods in Information Science) is a theoretical course, the subject teacher was successful in motivating the students. The difficulty was high, and a high standard was defined in the assignments. The organization of the assignment was not just a

pass/fail type of assignment, which was a good motivation for the students to spend more time on the course.

Spring 2021

Subject	Hours spent per week	Relevance of lecture in relation to the objectives and content detailed in the course description
Advanced Programming (INFO135)	5.8	4.72
Web Science (INFO215)	7.36	4.86
Knowledge Graphs (INFO216)	7.68	4.68
Interaction Design and Prototyping (INFO263)	8.64	2.66
Machine Learning (INFO284)	6.72	4.4
Introduction to Programming (DATA110)	8.46	5
Formal Methods in Information Science (INFO104)	9.86	4.95
Information Systems (INFO110)	4.55	3.87

Autumn 2021

Subject	Hours spent per week	Relevance of lecture in relation to the objectives and content detailed in the course description
Data Management (INFO125)	6.57	4.71
Knowledge Representation and Reasoning (INFO282)	7	5.57
Introduction to Information Science (INFO100)	5.03	3.85
Introduction to Programming (INFO132)	11.27	4.66
Methods in AI (INFO180)	7.25	4.4
Social Networks Theory (INFO207)	7.04	5.56
System Development (INFO212)	5.42	3.07

In general, BASV-INFO courses include students from a variety of programs, which sometimes becomes a problem, as the students from other programs do not always have the right background for taking the courses. Program sensor Guttorm Sindre recommended that we specify the prerequisite for taking BASV-INFO courses, so that the Information Science students should not have to go through the problem of repeated teaching materials. BASV-INFO subject teachers should be aware of the situation and should not compromise by reducing the difficulty of the courses.

Future student evaluations should include a question regarding the ‘relevance of the subject with their working life’. This measure will be useful for the program council to investigate how the working life relevance and the coherence between courses in the program can be made visible to the students.

Student involvement

To run a large program as BASV-INFO requires input from students. All of our courses have lab/seminar where seminar leaders are involved. While running courses, subject teachers get feedback from seminar leaders which help them to address issues as soon as they arrive. BASV-INFO students are also represented in the Program Council. With this arrangement, students participate in the study plan and evaluation related discussions. Program sensors also regularly interview students in the program and their feedback is included in the report.

Related regulations

§ 2-1.*Forutsetninger for akkreditering* (1) Aktuelle krav i lov om universiteter og høyskoler med tilhørende forskrifter skal være oppfylt.

Not relevant.

Study plan

§ 2-1.*Forutsetninger for akkreditering* (2) Informasjon om studietilbudet skal være korrekt, vise studiets innhold, oppbygging og progresjon samt muligheter for studentutveksling.

The university web page for the bachelor program can be found at https://www.uib.no/studier/BASV-INFO . The information on the program page is up to date. Students from BASV-INFO travel to Australia, Hong Kong, Italy, China, Mexico, New Zealand, Spain, South Korea and the USA. It is common to go abroad for one or two semesters, between the third and sixth semester. The program recommends exchanges in the fifth and/or sixth semester. The recommended exchange agreement can be found at https://www.uib.no/studier/BASV-INFO/utveksling .

Levels of learning outcome

§ 2-2 (1) Læringsutbyttet for studietilbudet skal beskrives i samsvar med Nasjonalt kvalifikasjonsrammeverk for livslang læring, og studietilbudet skal ha et dekkende navn.

National Qualifications Framework (NKR) defines the learning outcomes in terms of knowledge, skills and general competence for candidates who have completed their qualification. The mapping of learning outcomes of BASV-INFO and NKR shows that the learning outcomes of BASV-INFO is in line with the NKR. The list also includes the mapping of BASV-INFO subjects with the learning outcomes in BASV-INFO program.

Knowledge

NKR

The candidate...

- has broad knowledge of important topics, theories, issues, processes, tools and methods within the academic field
- is familiar with research and development work in the field
- can update his/her knowledge in the field
- has knowledge of the history, traditions, distinctive character and place in society of the academic field

BASV-INFO

The candidate...

- has broad theoretical and technical knowledge of the basis and principle for modelling, design, implementation and evaluation of information systems (INFO100 (Introduction to information science), INFO110 (Information Systems), INFO162 (Introduction to Human Computer Interaction), INFO263 (Interaction Design and Prototyping), INFO212 (System Development))
- has a critical understanding of information technology's role in organizations and society (INFO100 (Introduction to information science), EXPHIL-SVSEM, INFO110 (Information Systems))
- has knowledge of application development, interaction, data handling, representation and reasoning (all INFO subjects)
- has in-depth knowledge of topics within the field of information systems, human-computer interaction and artificial intelligence (INFO104 (Formal Methods in Information Science), INFO125 (Database management), INFO110 (Information Systems), INFO212 (System Development), INFO263 (Interaction Design and Prototyping), INFO180 (Methods in AI), INFO282 (Knowledge Representation and Reasoning), INFO284 (Machine Learning))
- has knowledge of ICT related societal issues (INFO100 (Introduction to information science), EXPHIL-SVSEM, INFO110 (Information Systems), INFO207 (Social Network Theory), INFO215 (Web Science))
- has knowledge of relevant and recent research results in the relevant subject areas (INFO104 (Formal Methods in Information Science), INFO180 (Methods in AI), INFO162 (Introduction to Human Computer Interaction), INFO263 (Interaction Design and Prototyping), INFO215 (Web Science), INFO207 (Social Network Theory), INFO216 (Knowledge Graphs), INFO282 (Knowledge Representation and Reasoning), INFO284 (Machine Learning))

Skills

NKR:

The candidate...

- can apply academic knowledge and relevant results of research and development work to practical and theoretical problems and make well-founded choices
- can reflect upon his/her own academic practice and adjust it under supervision
- can find, evaluate and refer to information and scholarly subject matter and present it in a manner that sheds light on the problem
- masters relevant scholarly tools, techniques and forms of communication

BASV-INFO

The candidate

- has practical experience with programming languages and tools (INFO132 (Introduction to Programming), INFO135 (Advanced Programming), INFO215 (Web Science), INFO125 (Database management))
- can use modern methods, techniques, languages and tools for modelling, designing and evaluating information systems (INFO212 (System Development), INFO110 (Information Systems), INFO162 (Introduction to Human Computer Interaction), INFO263 (Interaction Design and Prototyping), INFO207 (Social Network Theory))
- has developed good analytical skills to make practical and strategic choices regarding information technology (all INFO subjects)
- can work both independently and together with others in projects (INFO110 (Information Systems), INFO284 (Machine Learning), INFO212 (System Development))
- can write reports and documentation and give oral presentations based on reliable sources (EXPHIL-SVSEM, INFO110 (Information Systems), INFO207 (Social Network Theory))

General competence

NKR:

The candidate...

- has insight into relevant academic and professional ethical issues
- can plan and carry out varied assignments and projects over time, alone or as part of a group, and in accordance with ethical requirements and principles
- can communicate important academic subject matters such as theories, problems and solutions, both in writing and orally, as well as through other relevant forms of communication
- can exchange opinions and experiences with others with a background in the field, thereby contributing to the development of good practice
- is familiar with new thinking and innovation processes

BASV-INFO

The candidate

- can analyze various issues related to the use of information technology with regard both to technological solutions and to the business/organization that the technology will serve (all INFO subjects)
- can reflect on the relationship between the technology and the context in which it occurs (INFO100 (Introduction to information science), INFO110 (Information Systems), EXPHIL-SVSEM).
- can contribute to the entire process, from the users' and the organization's requirements to the specification, design and implementation of the information system (INFO110 (Information Systems), INFO263 (Interaction Design and Prototyping), INFO162 (Introduction to Human Computer Interaction), INFO212 (System Development)).

- have a solid basis for independently being able to further develop and expand their own expertise in the field (all INFO subjects).
- is able to understand and think creatively about development and innovation processes in the subject area (INFO162 (Introduction to Human Computer Interaction), INFO263 (Interaction Design and Prototyping), INFO212 (System Development)).

Learning outcomes and infrastructure

> ***§ 2-2.Krav til studietilbudet*** *(4) Studietilbudets innhold, oppbygging og infrastruktur skal være tilpasset læringsutbyttet for studietilbudet.*

Content and structure

BASV-INFO has information and knowledge as the central object of study, especially from an information technology perspective. The bachelor's program takes into account theoretical aspects of data, information and knowledge, as well as technologies for managing information and knowledge, in relation to individuals, groups, organizations and society. The study covers a wide range of topics related to the analysis and development of information systems, including modelling, design, programming and data handling, semantic and social technologies, as well as knowledge technology. The study provides an understanding of the basis for such technologies and experience with the use of methods and computer tools, and it provides an information technology competence that forms a solid basis for further education and work in various organizations.

There is a natural progression in the study. In the first semester, students take the Ex.phil, INFO100 (Introduction to information science) and INFO132 (Introduction to programming). The program contains 90 more credits with a specialization within information science. To begin with, students take a general introductory subject, and later on they continue with specialization within information science. They can choose specialization subjects from Information System, Human-Computer Interaction, Data analytics and Artificial Intelligence. In the 4th-6th semester the students take at least 30 credits at the 200 level in information science from the following options: INFO207/INF207 (Social Network Theory), INFO212 (System Development), INFO215 (Web Science), INFO216 (Knowledge Graphs), INFO263 (Interaction Design and Prototyping), INFO282 (Knowledge Representation and Reasoning), INFO284 (Machine Learning). For example, students who want to move on with artificial intelligence topics, can choose INFO207 (Social Network Theory), INFO282 (Knowledge Representation and Reasoning), INFO284 (Machine Learning) and INFO216 (Knowledge Graphs); students who want to become software developers or system architects, can choose INFO212 (System Development), INFO215 (Web Science) and INFO284 (Machine Learning); students who want to have a career in human computer interaction, can choose INFO263 (Interaction Design and Prototyping).

Infrastructure

The program uses auditoriums and seminar rooms at SV-bygget and Ulrike Pihls hus. The auditoriums and seminar rooms are equipped with projectors, white/black boards. Seminar rooms are ideal for hosting small seminars. A seminar coordinator is reponsible for allocating the rooms and assigning seminar instructors. The arrangments are done with great efficiency.

Students use their own laptop while working on lab exercises. They are provided with linux accounts in a server managed by the IT department. They also get access to the learning management portal to follow courses. Students are encouraged to use open source tools and cloud computing resources. The physical infrastructure at SV-bygget and Ulrike Pihls hus are sufficient for running courses upto around 200 students. In some of the BASV-INFO courses the number of students is higher than 200. In those situations, auditoriums at the Student Centre and the facility at the law faculty are used for lectures.

Due to the construction works at SV-bygget, Ulrike Pihls hus and Stein Rokkans hus in recent years, there has been significant noise pollution, and many students sufferred from it. Fortunately, the major reconstruction work at Ulrike Pihls hus has been completed. The lecture rooms, seminar rooms and reading rooms at Ulrike Pihls hus are quite modern and students get a good environment for learning.

During the covid pandemic all the lectures and seminars were conducted in digital platform. After the pandemic, students are now back to the normal teaching environment at the university.

Teaching and assessment forms

> ***§ 2-2.Krav til studietilbudet*** *(5) Undervisnings-, lærings- og vurderingsformer skal være tilpasset læringsutbyttet for studietilbudet. Det skal legges til rette for at studenten kan ta en aktiv rolle i læringsprosessen.*

The teaching activities at BASV-INFO include Lecture and participation in lab/seminar, assignments. Courses have normally 2 hours of lecture and 2-4 hours of group exercise for 11-15 weeks. Courses provide both theoretical knowledge and practical work. Lab/Seminar is used for active student participation. The students interact with the seminar leaders, and they get guidance at the lab/seminar in addition to participating in discussions with other students. In most of the courses students have compulsory participation in seminars, usually 75%. Students also get to do compulsory assignments throughout the semester, both individual and group assignments. Group assignments are used in INFO284 (Machine Learning) where students demonstrate their ability to analyze and design machine learning solutions. It consists of 30% of grade. Group assignments are also used in INFO110 (Information systems) and INFO212 (System Development) where students learn team culture and work in collaboration with other team members. In INFO132 (Introduction to programming), students are required to submit 3 main assignments that must be approved; and 7-8 theme submissions, where 80% must be approved. In INFO263 (Interaction Design and Prototyping), students have group assignments which consist of 40% of the grade. In INFO215 (Web Science) students get 6 obligatory assignments and all of them need to be approved.

Due to the large size of the classrooms, subject teachers use tools (e.g., kahoot, mentimeter, padlet) to facilitate participation/discussions among the students. While some students actively participate in such discussions, several students remain inactive. It would be beneficial if the students were able to prepare themselves beforehand to participate in a classroom discussion. Some reward could be used to motivate the students to become active in classroom discussions.

It was hard to maintain an active learning environment during the corona situation. However, we found that the students were very comfortable in using the zoom chat room. Nevertheless,

it was sometimes difficult to address all the comments from the zoom chat room, as there were too many texts to go through during the lecture.

While working on assignments students are allowed to use online resources, but they should be aware of plagiarism. Some of the BASV-INFO courses allow home exams even when the students are required to use programming tools. This is problematic if the students are not aware of ethical concerns and plagiarism. In order to educate students about ethical concerns regarding plagiarism and cheating, the administration at the Infomedia department has introduced an e-learning course. This should be useful, but we need to make sure that all the students take the course.

Different types of assessment forms are used in BASV-INFO courses:

INFO100 (Introduction to information science): 3 hours school exam (100% of grade)
INFO132 (Introduction to Programming): 4 hours school exam (100% of grade)
INFO104 (Formal Methods in Information Science): 4 hours school exam (100% of grade)
INFO110 (Information Systems): 3 hours school exam (60% of grade); Portfolio assessment (40% of grade)
INFO135 (Advanced Programming): 4 hours school exam (100% of grade)
INFO125 (Database management): 4 hours school exam (100% of grade)
INFO162 (Introduction to HCI): 4 hours school exam (60 % of grade); Group assignment (40% of grade)
INFO180 (Methods in AI): 2 hours home exam (100% of grade)
INFO207 (Social Network Theory): 2 hours school exam (100% of grade)
INFO212 (System Development): 4 hours school exam (100% of grade)
INFO215 (Web Science): 4 hours school exam (100% of grade)
INFO216 (Knowledge Graphs): 4 hours school exam (100% of grade)
INFO263 (Interaction Design and Prototyping): 3 hours school exam (60% of grade); Group assignment: (40% of grade)
INFO282 (Knowledge Representation and Reasoning): 4 hours school exam (100% of grade)
INFO284 (Machine Learning): 2 hours home exam (70% of grade); Group assignment: (30% of grade)

During the Covid lockdown, most of the courses were moved to home exams but we are now coming back to normal school exams. School exams are preferrable for most BASV-INFO courses, especially for subjects where the students' technical knowledge and skill need to be assessed on an individual basis. In school exams it is possible to do the assessment without any aid from the internet and other sources. Some courses such as INFO110 (Information Systems), INFO162 (Introduction to Human Computer Interaction) and INFO263 (Interaction Design and Prototyping), require project work where the students need to demonstrate their collaboration skills, and therefore part of the grading is based on portfolio or group assessment.

Academic content

> ***§ 2-2.Krav til studietilbudet*** *(2) Studietilbudet skal være faglig oppdatert og ha tydelig relevans for videre studier og/eller arbeidsliv.*

Academically updated study offer

The courses included in BASV-INFO bachelor program contribute to the achievement of the overall learning outcomes of the program. The program offers several basic subjects that give the background necessary to continue the bachelor program. The curriculum of the subjects is regularly updated from the input of subject teachers, program council members, program sensor, teaching assistants and students' input. The latest version of the books, other forms of

literature, programming languages and software tools are used in the courses. The courses instructors belong to different research groups where they are actively doing research in collaboration with researchers and developers from other institutes, universities and industries. Subject teachers in BASV-INFO are also very active in publishing academic papers, books and contributing to the development of industrial strength information systems. The following list provides some highlights of the topics/techniques covered in BASV-INFO.

Programming concepts and languages: Object oriented programming, UML, Programming in Python, Linux, HTML, CSS, XPath, XML, JSON, JavaScript, Web Scaping and Crawling (Beautiful Soup, Spacy, Scrapy, NetworkX)
Fundamental knowledge of computing: Algorithm, Logic and reasoning, Social network analysis, Clustering, Community detection, Ontology (OWL, RDF)
Database: Database design, Relational and No-SQL database.
Software design and development: Software architecture and design, Software quality attributes, Model based software engineering, Process modeling, Process mining, Semantic Web, Web Service, REST, SOA, Microservices, SPARQL, Wikidata, Cloud computing concepts, Test-driven development, Automated testing with Selenium.
System development methodology: Agile methodology (XP, Scrum, Kanban), Continuous Integration and development, Familiarity with GitHub, GitHub actions, Docker, Docker hub.
Artificial intelligence: Natural language processing, Machine learning, Knowledge graphs.
Human computer interaction: UX design, Interaction design, Prototyping, Evaluation of usability.

Relevance

The bachelor's program in information science gives students the opportunity to work as a developer, designer or project manager. The program is suitable for students who are interested in programming and the interface between software and the user, for example how to create applications that are easy to use. It is also suitable for those who wish to delve into the theoretical basis for information management or advanced subjects such as artificial intelligence. There is a growing demand for artificial intelligence, machine learning and data science technologies in society. These tools and techniques are used in society in a variety of sectors including healthcare, media industry, finance, marine industry, energy sector. The academic staff in Information Science is aware of the current demand from the industry as they often collaborate with industry on several national and international projects.

Scope of work

§ 2-2.*Krav til studietilbudet* (3) Studietilbudets samlede arbeidsomfang skal være på 1500–1800 timer per år for heltidsstudier.

The following table shows the results from Study Barometer regarding BASV-INFO students time used per week since 2017. The data indicates that even though *'tidsbruk organisert'* has been decreased slightly over the time, *'tidsbruk ikke organisert'* has been increased slightly. The goal would be to increase the total *tidsbruk* to a normal working week (37,5 hours) or at least to over 33.9, which is the national average.

Tidsbruk

	2017	2018	2019	2020	2021
tidsbruk ikke organisert	11.3	15.4	11.1	16.1	13.6
tidsbruk organisert	12.0	12.4	10.6	11.3	10.2
Sum tidsbruk	23.2	27.8	21.7	27.4	23.8

More detailed analysis indicates that the students spend more time on technical courses for example, the average time spent on the programming course INFO132 (Introduction to Programming) is more than 10 hours. However, non-technical courses have an average of 5-7 hours spent. Nevertheless, the non-technical subjects are important for learning about the societal perspective of information science. The course curriculum includes those aspects, but the students perhaps do not take that into account. According to some student evaluations, the students expect to get more technical content. It requires some motivation and clarification about the course's objectives to the students and what they should gain from the courses. The importance of studying the societal aspects of information science is evident in a variety of application areas. Arranging guest lectures from active research projects and from the industry may be useful.

	SB_arstall				
Spørsmålstekst (group)	2017	2018	2019	2020	2021
Indeks Eget engasjement	3.2	3.5	3.6	3.3	3.3
Indeks Eksamen og andre vurderingsformer	3.8	3.9	3.7	3.6	3.5
Indeks faglig og sosialt læringsmiljø	3.2	3.8	3.5	3.0	2.8
Indeks Faglig og sosialt læringsmiljø + fysisk læringsmiljø ..		3.3	3.3		3.0
Indeks fysisk læringsmiljø og infrastruktur	3.3	2.9	3.1		3.1
Indeks Inspirasjon	3.7	3.5	3.7	3.5	3.2
Indeks Medvirkning	2.6	3.0	3.0		
Indeks organisering	3.5	3.3	3.3	3.3	2.9
Indeks Relevans	4.0	3.0			
Indeks Tilbakemelding og veiledning		3.2	3.2	3.3	2.6
Indeks undervisning	3.3	3.0	3.2	3.4	3.1
Indeks forventninger fra faglig ansatte	3.1	3.0	3.2	3.2	2.5
Indeks læringsmiljø	3.2				

The barometer shows a very low score for the program on *'Indeks faglig og sosialt læringsmiljø'*, *'Indeks undervisning'*, 'indeks *Tilbakemelding og veiledning'* in 2020 and 2021. Due to the corona situation several students felt that they are not very connected with the program.

The barometer also shows low a score for the program on *'Indeks Relevans'* which is in fact very strange, as many of our students get a job offer even before completing their bachelor's degree. One of the reasons for this poor score could be the structure of the program. In BASV-INFO, fundamental subjects are taught in first few semesters. Extensive practical subjects are taught later in the program. The students who were participating in the survey were students who had only taken basic courses of information science and had yet to take the advanced technical subjects. The survey was conducted among the 3rd semester students who have taken

mostly the basics subjects of information science. These basic subjects are the building blocks of learning practice-oriented subjects. The basics are also required for their future research career. It is often the case that graduates get jobs based on their skills that match with the technological requirements from the job offering company. Some of the initial courses which are basic theory might be demotivating for the students if they do not see the relevance of the theory in their future professional career. Some efforts would be necessary to make some changes in the initial basic courses so that the students can find relevance of them in the work life. Facilitating guest lectures from experts in the industry would be useful because the students will then get an understanding of the relevance of the fundamental concepts in practice.

The BASV-INFO program does not have any internship (placement of students in companies) as some other programs have. This may have been the reason for the low score on *'Indeks Relevans'*, but it would be difficult to arrange internship for the students in BASV-INFO, as it has such a large number of students. This would however be something to look at for the master's program. Some of the students from BASV-INFO acquire internship in the industry through the student association *Sammen*. However, since there is a good job market for IT graduates, the index should be high. All subjects should have the ambition to show examples of how the knowledge is relevant to working life. One of the most important improvements would be to explain and show the dependency of early courses to the whole program; and to other courses and to their future career. The program council should follow up on this through *egenevaluaring* and *emnerapporter*.

The index for inspiration has also decreased from 3.7 to 3.2. During the covid lockdown, students did not have much interaction with the teachers. This could be a reason. Another reason could be the lack of challenges given to the students for reaching out excellence. Maintaining the academic level of the lab/seminar has been a difficult task at several courses, as the students have different backgrounds. However, the ambition for the BASV-INFO program should be to inspire students to pursue challenging tasks. Students need to be given challenges to achieve excellence from their educational programs. Another source of inspiration could be the consciousness of the positive influence each individual student could have on society. They should not only aim to become a developer but also try to contribute to the society, by applying ethical concerns into their practices.

Most of the students in the BASV-INFO look forward to getting a position in the industry. However, we would also want them to be motivated for a career in academia. One idea could be to introduce some components in the program which may inspire students towards higher studies and an academic career. The inclusion of a bachelor thesis could be a useful addition to the program. This could motivate students to achieve excellence by utilizing information system development and research.

Although we think some of the scores were affected by the covid situation, in the future we will keep a close eye on the survey reports from the Study Barometer.

Link to research and development

§ 2-2.Krav til studietilbudet (6) Studietilbudet skal ha relevant kobling til forskning og/eller kunstnerisk utviklingsarbeid og faglig utviklingsarbeid.

Students get a basic understanding of individual information science issues and research very early in the program. Information science related research methods are taught in INFO100 (Introduction to information science). In INFO215 (Web Science) students learn about cutting edge technologies and have a good understanding of web science as a research discipline. In INFO216 (Knowledge Graphs) students learn about knowledge representations and learn to develop advanced information models. In INFO207 (Social Network Theory) students apply their theoretical knowledge for conducting research. Students can choose an appropriate mathematical model to create an abstraction of a given type of phenomenon in a given social network and be able to use concepts and techniques to analyze such models. In INFO162 (Introduction to Human Computer Interaction) and INFO263 (Interaction Design and Prototyping) students get the knowledge and skills to design and evaluate prototypes that can be applied for HCI related research. In INFO104 (Formal methods in Information Science), in INFO180 (Methods in AI), in INFO282 (Knowledge Representation and Reasoning) and in INFO284 (Machine learning) students gain both theoretical and practical knowledge in order to conduct research and development in various fields of society. Students learn about the most recent techniques of system development and get practical knowledge about the system development life cycle in INFO212 (System Development).

Internationalization

§ 2-2.Krav til studietilbudet *(7) Studietilbudet skal ha ordninger for internasjonalisering som er tilpasset studietilbudets nivå, omfang og egenart.*
§ 2-2.Krav til studietilbudet *(8) Studietilbud som fører fram til en grad, skal ha ordninger for internasjonal studentutveksling. Innholdet i utvekslingen skal være faglig relevant.*

The study plan facilitates exchange in the 4-6th semester. The students have 60 free credits, and they can take them from any institute where we have exchange agreements. Students can either go on bilateral agreements between UiB and a university outside Europe, or they can go on Erasmus agreements in Europe. The following table shows the flow of students since 2017. During the covid the number was low, but the number of students going on exchange has increased in 2022.

Utreisende utvekslingsstudenter med avtale

Studieprogram	Årstall fra	Årstall ..	Land	Utvekslingsopphold over 3 mnd	Utvekslingsopphold under 3 mnd
BASV-INFO Bachelorprogram i informasjonsvitenskap	2017	2017	US USA	2	
	2018	2018	AU Australia	2	
			GR Hellas		1
			IT Italia		
		2019	HK Hong Kong	1	
	2019	2019	AU Australia	2	
			GR Hellas	1	
			HK Hong Kong	1	
			KR Sør-Korea	1	
	2020	2020	CA Canada	1	
			DE Tyskland	1	
		2021	ES Spania	1	
	2021	2021	ES Spania	3	
	2022	2022	ES Spania	5	
			AU Australia	1	
			AT Østerrike	1	
			IT Italia	3	
			CA Canada	1	
			NL Nederland	1	
			US USA	2	

Practice

§ 2-2.Krav til studietilbudet *(9) For studietilbud med praksis skal det foreligge praksisavtale mellom institusjon og praksissted.*
§ 2-3.Krav til fagmiljø *(7) For studietilbud med obligatorisk praksis skal fagmiljøet tilknyttet studietilbudet ha relevant og oppdatert kunnskap fra praksisfeltet. Institusjonen må sikre at praksisveilederne har relevant kompetanse og erfaring fra praksisfeltet.*

In general, our studies are very practical, and they include a lot of practical training. However, we do not offer any placement in the study program. It would be very difficult to arrange anything for BASV-INFO because the number of students is very high. After completing the bachelor's degree, students get the opportunity to work as teaching assistant/seminar leader at the department. They also work as research assistants in many of the research projects where the academic staff at Infomedia is involved.

Requirements for academic environment in the Study Supervision Regulations

The size of the professional community

§ 2-3 Krav til fagmiljø (1): Fagmiljøet tilknyttet studietilbudet skal ha en størrelse som står i forhold til antall studenter og studiets egenart, være kompetansemessig stabilt over tid og ha en sammensetning som dekker de fag og emner som inngår i studietilbudet.
§ 2-3 Krav til fagmiljø (4): Minst 50 prosent av årsverkene tilknyttet studietilbudet skal utgjøres av ansatte i hovedstilling ved institusjonen. Av disse skal det være ansatte med førstestillingskompetanse i de sentrale delene av studietilbudet. I tillegg gjelder følgende krav til fagmiljøets kompetansenivå:

a. *For studietilbud på bachelorgradsnivå skal fagmiljøet tilknyttet studiet bestå av minst 20 prosent ansatte med førstestillingskompetanse.*
b. *For studietilbud på mastergradsnivå skal 50 prosent av fagmiljøet tilknyttet studiet bestå av ansatte med førstestillingskompetanse, hvorav minst 10 prosent med professor- eller dosentkompetanse.*
c. *For studietilbud på doktorgradsnivå skal fagmiljøet tilknyttet studiet bestå av ansatte med førstestillingskompetanse, hvorav minst 50 prosent med professor- eller dosentkompetanse.*

For mastergradsstudier: § 3-2 Akkreditering av mastergradsstudier i Forskrift om kvalitetssikring og kvalitetsutvikling i høyere utdanning og fagskoleutdanning
(2) Mastergradsstudiet skal ha et bredt og stabilt fagmiljø som består av tilstrekkelig antall ansatte med høy faglig kompetanse innenfor utdanning, forskning eller kunstnerisk utviklingsarbeid og faglig utviklingsarbeid innenfor studietilbudet. Fagmiljøet skal dekke fag og emner som studietilbudet består av. De ansatte i fagmiljøet skal ha relevant kompetanse.
(3) *Fagmiljøet skal kunne vise til dokumenterte resultater på høyt nivå og resultater fra samarbeid med andre fagmiljøer nasjonalt og internasjonalt. Institusjonens vurderinger skal dokumenteres slik at NOKUT kan bruke dem i arbeidet sitt.*

The academic staff at Infomedia follows the Faculty of Social Sciences' budget model, which is designed so that the academic environments can provide teaching at all levels. All the members of the permanent academic staff have a doctoral degree, and they are either full professor or associate professor. There are a total of 7 full professors and 6 associate professors who teach Information Science courses. In addition, there are 2 full professors from the MIX programs who are involved in teaching BASV-INFO courses. Three full professors from Information Science have not been teaching recently: Professor Marija Slavkovik, who is the head of the Infomedia; Professor Christoph Trattner, who is leading the SFI MediaFuture (https://mediafutures.no/); and Professor Barbara Wasson, who is the center leader SLATE (Center for the Science of Learning and Technology, https://slate.uib.no/).

Sometimes PhD-candidates and Post-doc researchers are also involved in teaching, but in principle PhD-candidates are not given the full responsibility of a course.

The professional environment's educational expertise

§ 2-3.Krav til fagmiljø (2) Fagmiljøet tilknyttet studietilbudet skal ha relevant utdanningsfaglig kompetanse.

Infomedia uses UiB's regulations on academic competence as a basis for academic appointments. All the members of the permanent staff have a doctoral degree, and they are hired on the condition that they take a pedagogy course offered by UiB.

Seminar leaders take a pedagogy course offered by the psychology faculty before every semester. It is a 2 day's intensive course. They are then followed up by the seminar coordinator during the semester.

It would be useful to facilitate peer guidance on teaching to ensure that knowledge and experience is shared among the staff. Peer guidance would be particularly useful when we have a new member of staff, or if the course leader changes. It would be useful to have a one-day workshop among the teaching staff in Information Science, similar to what the MIX program, has.

Professional management

§ 2-3.Krav til fagmiljø (3) Studietilbudet skal ha en tydelig faglig ledelse med et definert ansvar for kvalitetssikring og -utvikling av studiet.

One member of the Information Science scientific staff is head of the Program Council of BASV-INFO. The program council includes 2 more academic staff from Information Science and a student representative. In addition, the council includes a seminar coordinator, an exam coordinator, a study advisor and a study leader as observers. The Program Council is an advisory and case-preparatory body for the Department Council and the management team for all matters involving teaching, course development, evaluation, learning environment and study quality. The program council meets approx. 2 times per semester

The professional environment's subject-specific expertise

§ 2-3.Krav til fagmiljø (5) Fagmiljøet tilknyttet studietilbudet skal drive forskning og/eller kunstnerisk utviklingsarbeid og faglig utviklingsarbeid og skal kunne vise til dokumenterte resultater med en kvalitet og et omfang som er tilfredsstillende for studietilbudets innhold og nivå.

The academic staff has a strong research profile in information science related research areas.

The Logic and AI Research Group (https://www.uib.no/en/rg/lai) has competence in logic and AI related subjects, and they are involved in teaching INFO104 (Formal Methods in Information Science), DATA110 (Introduction to programming), Databases subjects: DATA120, DATA130, DATA140, INFO282 (Knowledge Representation and Reasoning), AIKI100/DIGI114 (Introduction to AI), DIGI115 (Data and Democracy) and Artificial Agents (AIKI110).

The DARS (Behavioral Data Analytics & Recommender Systems Research Group) (https://dars.uib.no/) has competence in data analysis, and they are involved in teaching INFO135 (Advanced programming) and INFO125 (Database management).

The Intelligent Information System, I2S (https://www.uib.no/en/rg/i2s) and the Medical Informatics Research Group (https://www.uib.no/en/rg/medinfo) have competence in information systems and data science, and they are involved in teaching INFO132 (Introduction to programming), INFO180 (Methods in AI), INFO284 (Machine learning), INFO212 (System Development), INFO215 (Web Science), INFO216 (Knowledge Graphs), INFO100 (Introduction to Information Science) and INFO110 (Information Systems).

The Interaction Research Group (https://www.uib.no/en/fg/interaction) has competence in HCI and the members are involved in teaching INFO162 (Introduction to Human Computer Interaction) and INFO263 (Interaction Design and Prototyping).

The program also facilitates guest lectures from the industry.

International and national cooperation

§ 2-3 (6) Fagmiljøet tilknyttet studietilbud som fører fram til en grad skal delta aktivt i nasjonale og internasjonale samarbeid og nettverk som er relevante for studietilbudet.

Inside the university we are collaborating with other departments both inside and outside the SV faculty. Students from the Bachelor's Program in Media and Interaction (BASV-MIX), the Bachelor's Program in Cognitive Science (BASV-KOGNI), the Bachelor's Program in Artificial Intelligence (BASV-AIKI), the Bachelor's Program in Information and Communication Technology (BASV-IKT) and the Information Technology and Economics Integrated master's program (ITØK) take BASV-INFO courses. Several students who graduate from BASV-INFO, go on to a master's degree in Information Science (MASV-INFO). Masters' students are involved in research projects and collaborate with researchers from academia, in addition to domain experts from industry.

The academic staff at Information Science is involved in various research projects both nationally and internationally. Academic staff at Information Science acts as principal investigators, center leaders, work package leaders, researchers in research projects and centers for innovations.

INTROMAT (Intromat.no) was a project funded by the Norwegian research council to improve public mental health with innovative technologies and psychological treatments. Professor Frode Guribye is the leader of one of the work packages in INTROMAT. Several masters students have been involved in that project. They have collaborated with researchers from the Helse Bergen, psychology department at UiB, informatikk department at UiO and Institutt for datateknologi, elektroteknologi og realfag at HVL.

Professor Barbara Wasson from Information Science is the leader of Slate (Center for the science of learning and technology, https://slate.uib.no/). Professor Christoph Trattner is the center director of MediaFutures (Research Centre for Responsible Media Technology & Innovation, https://mediafutures.no/). Prof. Marija Slavkovik, Prof. Bjørnar Tessem, Prof. Andreas L Opdahl, Prof. Morten Fjeld, Assoc. Prof. Mehedi Elahi and Assoc. Prof. Fazle Rabbi from the department of Information Science have had the leadership role (work package leaders) of MediaFutures SFI. The MediaFutures SFI is located in MediaCity Bergen, which provides a unique opportunity for the students at Information Science and Media Studies to collaborate with several media companies.

Prof. Morten Fjeld is the WP-leader on Media Content Interaction & Accessibility at the Research Centre for Responsible Media Technology & Innovation. He is also the WP-leader for Wearables and Application Development in a project recently granted by Research Council of Norway: Collaborative Project "ANeED Joint Effort 21: eHealth and a PPI-program in Dementia with Lewybodies (DLB)", directed by Prof. Arvid Rongve. He is a co-PIs of a project "Enhancing collaboration and shared understanding through implementing AR features in bridge design", funded by the UiB area of Marine Research.

Professor Andreas L Opdahl from Information Science has the PI role of the News Angler project, which was funded by the Norwegian Research Council under the IKTPLUSS program. Many masters students from Information Science have worked on the News Angler project.

Prof. Enrico Motta serves as Prof II in the Information Science department. He leads the Intelligent Systems and Data Science research group in KMi, which carries out research in a variety of areas relevant to the development of user-centric, intelligent, data-intensive solutions. He is involved in the Intelligent Information Systems (I2S) research group at Information Science and he has supervised many masters students from the department.

Professor Bjørnar Tessem has collaboration with FinTech, Fiskedirektoratet and Media industries. He serves as the research leader of Information Science. Several masters students have been working with those collaboration partners.

There are many other national and international projects where the academic staff and the students from Information Science are involved.

Vedlegg 1: Lenke til 3-årig emneevalueringer, egenvurderinger og eksterne fagfellevurderinger

Lenke til Institutt for Informasjons- og medievitenskap i studiekvalitetsbasen:
https://kvalitetsbasen.app.uib.no/?year=2022&faknr=15&instnr=17

3-årige emneevalueringer og egenvurderinger finnes under «Emne» på Institutt for Informasjons- og medievitenskap i studiekvalitetsbasen.

Eksterne fagfellevurderinger finnes under «Studieprogram» på Institutt for Informasjons- og medievitenskap i studiekvalitetsbasen.

Det kreves innlogging for å se egenvurderingene. Årstall velges øverst i venstre hjørnet.

Vedlegg 2: Studieplan

Studieplan for BASV-INFO Informasjonsvitskap, bachelor, 3 år, haust 2022

Namn på grad

Bachelorprogrammet i informasjonsvitskap fører fram til graden bachelor i informasjonsvitskap. Studiet er treårig (180 studiepoeng).

Omfang og studiepoeng

Bachelorprogrammet i informasjonsvitskap er 3-årig (180 studiepoeng). Graden er sett saman av fag og emne etter følgjande mønster:

- 20 studiepoeng innføringsemne (Ex.phil og INFO100)
- 100 studiepoeng spesialisering i informasjonsvitskaplege emne
- 60 studiepoeng valfrie emne, eventuelt ved utanlandske universitet

Undervisningsspråk

Norsk

Studiestart - semester

Haust

Mål og innhald

Informasjonsvitskap har informasjon og kunnskap som sentrale studieobjekt, særleg med eit informasjonsteknologisk perspektiv. Bachelorprogrammet tar føre seg teoretiske aspekt ved data, informasjon og kunnskap, samt teknologiar for å forvalte informasjon og kunnskap, i høve til individ, grupper, organisasjonar og samfunn. Studiet omfattar eit breitt spekter av tema knytt til analyse og utvikling av informasjonssystem, deriblant / inkludert modellering, utforming, programmering og datahandsaming, semantiske og sosiale teknologiar, samt kunnskapsteknologi. Studiet gir ei forståing av grunnlaget for slike teknologiar og erfaring med bruk av metodar og dataverktøy, og gir ein informasjonsteknologisk kompetanse som dannar eit solid grunnlag for vidare utdanning og arbeid i næringsliv og forvalting.

Læringsutbyte

Ein kandidat med fullført program skal ha følgjande totale læringsutbyte definert i kunnskap, dugleikar og generell kompetanse:

Kunnskap

Kandidaten

- har brei teoretisk og teknisk kunnskap om grunnlaget og prinsippa for modellering, utforming, implementering og evaluering av informasjonssystem
- har kritisk forståing av informasjonsteknologien si rolle i organisasjonar og samfunn
- har kunnskap om applikasjonsutvikling, samhandling, datahandsaming, representasjon og resonnering
- har inngåande kunnskap om tema innan felta informasjonssystem, menneske-maskin interaksjon eller kunstig intelligens
- har kunnskap om samfunnsmessige problemstillingar rundt IKT
- har kunnskap om relevante og nyare forskingsresultat i dei aktuelle fagområda

Dugleikar

Kandidaten

- har praktisk erfaring med programmeringsspråk og -verktøy
- kan bruke moderne metodar, teknikkar, språk og verktøy for modellering, utforming og evaluering av informasjonssystem
- har utvikla gode analytiske evne for å gjere praktiske og strategiske val som gjeld informasjonsteknologi
- kan både arbeide sjølvstendig og saman med andre i prosjekt
- kan skrive rapportar og dokumentasjon og halde munnlege presentasjonar basert på pålitelege kjelder

Generell kompetanse

Kandidaten

- kan analysere ulike problemstillingar knytt til bruken av informasjonsteknologi med omsyn både til teknologiske løysingar og til den verksemda/organisasjonen som teknologien skal tene.
- kan reflektere over tilhøvet mellom teknologien og konteksten den opptrer i
- kan bidra til hele prosessen, frå brukarane- og organisasjonen sine krav til spesifisering, utforming og implementering av informasjonssystem
- har eit solid grunnlag for sjølvstendig å kunne vidareutvikle og utvide eigen kompetanse i fagfeltet.
- er i stand til å forstå og tenke kreativt om utvikling og innovasjonsprosessar i fagområdet

Opptakskrav

Det vert ikkje stilt formelle krav til forkunnskapar utover generell studiekompetanse. Opptak følgjer vanlege reglar, jfr. Samordna opptak.

Merk at det er obligatorisk oppmøte på orienteringsmøtet for nye studentar på dette studieprogrammet.

Innføringsemne

Ex.phil og INFO100 Innføring i informasjonsvitskap er obligatorisk for studieprogrammet.

Obligatoriske emne

- INFO100 Innføring i informasjonsvitenskap
- INFO104 Formelle metodar for informasjonsvitskap
- INFO110 Informasjonssystem
- INFO125 Datahandtering
- INFO132 Introduksjon til programmering
- INFO135 Vidarekommande programmering
- INFO162 Innføring i HCI
- INFO180 Innføring i kunstig intelligens

Spesialisering

Vel 30 studiepoeng av føljande fordupingsemne:

- INFO207/INF207 Sosial nettverksteori
- INFO212 Systemutvikling
- INFO215 Web Science
- INFO216 Semantic Technologies
- INFO263 Interaction Design and Prototyping
- INFO282 Knowledge Representation and Reasoning
- INFO284 Machine Learning

Rekkefølgje for emne i studiet

Det første semesteret tek studentane Ex.phil, grunnkurs i informasjonsvitskap (INFO100) og grunnkurs i programmering (INFO132). Programmet inneheld 100 studiepoeng til (1½ års studium i tillegg til INFO132) med spesialisering innanfor informasjonsvitskap eller ein godkjend fagkombinasjon. Du kan velje alle eller delar av dei siste 60 studiepoenga frå andre fag.

Til å begynne med tek du allmenne innføringsemne, og seinare byggjer du på med spesialiseringsemne. Alle emna i informasjonsvitskap har obligatoriske øvingar og/eller oppgåver.

- I 1. semester gjennomfører studentane eit introduksjonskurs - INFO100 Innføring i informasjonsvitskap. Kurset gir 10 studiepoeng. I tillegg tar studentane Innføring i programmering (INFO132, 10 sp) og ex.phil. (10 sp).
- I 2. semester tar studentane INFO104, INFO110 og INFO135
- I 3. semester tar studentane normalt INFO125, INFO162 og INFO180
- I 4.-6. semester vel studentane fordjuping minst 30 studiepoeng på 200-nivå i informasjonsvitskap. Dei vel mellom alternativa INFO215 (vår),INFO216 (vår), INFO263 (vår), INFO284 (vår), INFO207/INF207 (haust), INFO212 (haust) og INFO282 (haust).
- I 4.- 6. semester skal studentane også ta 60 studiepoeng valfrie emne, i tillegg til fordjupningsemna. Desse kan nyttast til ytterlegare fordjuping i informasjonsvitskaplege emne eller til emne i andre fag. Du kan t.d. ta inn språkemne, naturvitskaplege emne, studium frå utanlandske universitet eller andre samfunnsvitskaplege fag. Du kan også ta inn inntil eitt års utdanning frå tidlegare studium så lenge desse emna ikkje overlappar med emna i spesialiseringa di. Eit eventuelt delstudium i utlandet vert tilrådd lagt til desse semestra.

Delstudium i utlandet

Det finst i dag mange alternativ for deg som ønskjer å ta delar av utdanninga di i eit anna land. Universitetet i Bergen har samarbeidsavtaler med universitet, institusjonar og organisasjonar i mange land og regionar. Institutt for informasjons- og medievitskap vil utvikle tilbod om utanlandsopphald som ein integrert del av bachelorgraden. Eit eventuelt delstudium i utlandet vert tilrådd lagt til dei siste semestra av studiet.

Arbeids- og undervisningsformer

Undervisninga vil normalt bestå av førelesingar, seminarundervisning og undervisning/rettleiing på datalab.

Vurderingsformer

Emna som inngår i det tilrådde studieløpet nyttar hovudsakleg ulike kombinasjonar av følgjande eksamensformer: skriftleg skuleksamen, munnleg eksamen, karaktersette oppgåver og mappeevaluering.

Karakterskala

Emna som inngår i det tilrådde studieløpet blir karaktersett med bokstavkarakterar (A-F).

Grunnlag for vidare studium

Bachelorprogrammet i informasjonsvitskap kvalifiserer for opptak til eit toårig masterprogram i informasjonsvitskap.

Følgjande emne inngår i opptaksgrunnlaget til master for de som ble tatt opp før 2019:

INFO102, INFO103, INFO110, INFO115, INFO116, INFO125, INFO132, INFO134

30 studiepoeng fordjuping på 200-nivå, der studentane vel tre av følgjande alternativ: INFO207 / INF207, INFO212, INFO216, INFO233, INFO262, INFO282, INFO284. Studentane med gamal studieplan kan søkje om at INFO135 kan vere et fordjupingsfag. Søknad til studierettleiar.

Følgjande emne inngår i opptaksgrunnlaget til master for de som ble tatt opp i 2019 eller seinare:

INFO104, INFO110, INFO125, INFO132, INFO135, INFO162, INFO180.

30 studiepoeng fordjuping på 200-nivå, der studentane vel tre av følgjande
alternativ: INFO207 / INF207, INFO212, INFO215, INFO216, INFO263, INFO282, INFO284.

Relevans for arbeidsliv

Som ferdigutdanna informasjonsvitar arbeider du gjerne som konsulent i IT-bransjen eller med utvikling og drift i IT-avdelingar i private og offentlege verksemder. Arbeidsoppgåvene dine kan t.d. omfatte utvikling og evaluering av nye informasjonssystem, opplæring og brukarstøtte, vedlikehald av eksisterande system, og planlegging og oppfølging av korleis ei verksemd best kan gjere nytte av IKT. Ein del informasjonsvitarar etablerer også eigne verksemder, mens andre arbeider med forsking og undervisning på universitet eller høgskular. Med rett samansetjing av fagemne blir du kvalifisert til å undervise i skuleverket.

Evaluering

Alle studieprogram og emne blir evaluert i tråd med UiBs kvalitetssystem for utdanning.

Administrativt ansvarleg

studieveileder@ifi.uib.no