Program evaluation report 2015

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1 Background information

Report from programsensor for "Bachelorprogram i kognitiv vitenskap" (KogVit), Det samfunnsvitenskapelig fakultet, Universitetet i Bergen (UiB). Evaluation period: Calendar year 2015, i.e. spring and fall 2015.

The evaulation is based on material sent to me by Liv Kristiane Bugge, and public and private web pages (I have been granted access to privileged information). This is my second assessment.

2 Evaluation of the program

The bachelor's program in cognitve science at UiB (KogVit) started 2006 and is still the only one in Norway.

The program can enrol 22 students. For the fall of 2015 73 students had cognitive science as their first choice and 40 of these were offered to study at the program, i.e. 1.8 student per admission place, making it one of the more successful programs at Bergen University. However, only 16 students showed up at the start of the semester, and were enrolled in the program. This is far less than the years before and from what I understand there is no explanation to why this happened.

There have been no changes to the Bachelor's program 2015 and all my comments from the 2014 sensor report are thus still valid. I will not repeat them in this report.

Next year, 2016, INFO232 Logikkprogrammering, 5 sp. will be replaced with INFO283 Problemløysing og søk i kunstig intelligens, 5 sp. The reason is mainly that problem solving and search is considered more modern. I think that the change is good, not only because problem solving and search are more important but also as the program in my opinion still has too much logic.

The Cognitive Science Committee has also began discussing the possibility to start a Master's program in Cognitve Science. There are a number of issues to solve, but the discussions seem to be focussed and there are certainly a number of very interesting courses that can be included in such a master's program. From the minutes of the committee meeting in November I find for instance INFO318 Advanced Topics in Cognitive Computing (15 sp) and INFO361 Advanced Topics in Human-Computer Interaction (15 sp). Both courses offer a content that is highly relevant and suitable for cognitive science students and give them one semester with more cognitive science oriented courses. Furthermore INFO371 Topics in Networks and Text Analysis (15 sp), INF283 Introduction to machine learning (10 sp), and INFO381 Advanced Topics in Artificial Intelligence (15 sp) are highly relevant for cognitive science students. Even without a master's program the courses could be offered on the fifth and sixth semester to the bachelor's students.

3 Evaluation of program courses

In this section I look at each course that cognitive science students have taken during 2015. Courses the first two years are compulsory. The final year students can choose more freely which courses to take.

3.1 Semester 1

This semester comprises three courses:

EXPHIL-PSSEM, 10 sp

This is a general course with no specific content related to cognitive science. To the exam 12 cognitive science students were registered, 8 passed the exam, 4 did not show up and the mean grade was B. No course evaluation 2015. 2014 had an extensive student course evaluation.

INF100 Grunnkurs i programmering, 10 sp

This is an introductory programming course. No content specific for cognitive science but being able to write computer programs is essential for cognitive scientists. To the exam 17 students were registered, 7 passed, and 3 did not show up. Mean grade D. No course evaluation 2015. Teacher's course evaluation from 2013 claims that all is fine.

EXFAC00SK Examen facultatum, Språk og kommunikasjon, 10 sp

This is also a general course, but to understanding language and human communication is an integral part of cognitive science. To the exam 17 students were registered, 7 passed, 3 did not show up. Mean grade D. No course evaluation found for 2015, nor for 2014, 2013, 2012 or 2011.

3.2 Semester 2

The second semester comprises four courses, as LOG110 and INFO102 are 5 sp each.

LOG110 Introduksjon til formal logikk, 5 sp

This is an introductory course and comprises propositional and predicate logic, the most common means for formal representations of human knowledge. To the exam 23 students were registered, 17 passed, and 6 did not show up. Mean grade C. This course has not been evaluated 2015. A student evaluation from 2014 where 8 students responded, and overall the course gets good scores.

LOG111 Førsteordens logikk, 10 sp

This course builds on LOG110 and seems to focus on natural deduction. It may be that LOG110 only included formalising expressions in predicate logic and this course introduces inference. It also comprises set theory. To the exam 22 students were registered, 13 passed, and, 6 did not show up. Mean grade C. The course has not been evaluated 2015, but has a student evaluation from 2014 where 2 students responded.

INFO102 Formelle metodar for informasjonsvitskap, 5 sp

This course provides basic knowledge on logic, set theory, relations, graphs and functions, concepts that are important in programming. To the exam 3 students were registered, 1 passed, and 2 did not show up. Mean grade D. There is course evaluation based on seminar discussions. The course is hard, especially for those students that do not have enough mathematical background. The seminars are considered good although too few students had done the necessary preparations before.

KOGVIT101 Introduction to the Cognitive Sciences, 10 sp

This course provides an overview of cognitive science. To the exam 24 students were registered, 16 passed, and 8 did not show up. Mean grade B. This course has not been evaluated 2015. It was evaluated by the teacher 2014.

3.3 Semester 3

This is another semester with four courses.

DASPSTAT Statistikk og kognisjonsforskning, 5 sp

In this course quantitative methods are presented with a focus on statistical analysis. To the exam 11 students were registered, 10 passed, 1 did not show up. Mean grade B. No course evaluation found for 2015, nor for 2014, 2013, 2012 or 2011.

INFO282 Knowledge Representation and Reasoning, 10 sp

This seems to be a classical introduction to AI course, a topic that is one of the cornerstones of cognitive science. To the exam 9 students were registered, 5 passed, 1 did not show up. Mean grade C. There is a teacher's evaluation for 2015. This was the first time this teacher gave the course but overall it went well, minor issues that will be resolved for next year. The course had optional labs that may be compulsory for next year. I think that is a good idea. Software programming is one important skill that is useful for cognitive science students and lab assignments are often a good way to achieve that.

INFO232 Logikkprogrammering, 5 sp

A course on prolog, a programming language that is close to logic. To the exam 10 students were registered, 6 passed, 4 did not show up. Mean grade C. A teacher evaluation 2015 reports that all is fine and that the course was provided for the last time. It will be replaced by INFO283 Problemløysing og søk i kunstig intelligens, 5 sp. A course that complements INFO282 with a content that covers search algorithms in AI, and other areas where there is a need to search a state space.

LING122 Språg og kognisjon, 10 sp

In this course cognitive and psychological aspects of language is emphasised. To the exam 14 students were registered and all 14 passed. Mean grade C. No course evaluation found for 2015 nor 2014, 2013, 2012 or 2011.

3.4 Semester 4

This semester comprises three courses.

PSYK120 Biologisk og kognitiv psykologi, 10 sp

This course includes two of the most important areas of cognitive science, neuroscience and cognitive psychology. To the exam 16 students were registered, 10 passed, 3 did not show up. Mean grade D. No course evaluation found for 2015 nor for 2014, 2013, 2012 or 2011.

INF227 Innføring i logikk, 10 sp

This is an introductory course to logic. To the exam 17 students were registered, 8 passed, 6 did not show up. Mean grade D. This course has no course evaluation but had a thorough student evaluation 2014.

FIL105 Innføring i sinnsfilosofi, 10 sp

Classical course on philosophy of mind, an important topic in the understanding of human cognition. To the exam 15 students were registered, 11 passed, and, 3 did not show up. Mean grade C. No course evaluation found for 2015 nor for 2014, 2013, 2012 or 2011.

3.5 Semester 5 and 6

For the final year students are encouraged to go abroad or select courses that allow them to enter a master's program in "informationsvitenskap"[1], "informatikk", computational linguistics or philosophy. "Informationsvitenskap" allows the students to select any INFO-course, not already taken, for 50 sp; 10 sp are free. The other specialisations have more or less no free courses.

There are no courses that can be termed cognitive science the last year. For students specialising in "informationsvitenskap" where there are a number of courses to choose from, there are courses such as Interaction Design and Semantic Technologies, that can be considered as applied cognitive science, but for the other there is nothing on cognitive science.

All students decided to take courses in either informatikk or informationsvitenskap, no one took courses in computational linguistics or philosophy.

3.5.1 Informationsvitenskap

In Informationsvitenskap five courses had students from the cognitive science program.

INFO233 Avansert programmering, 10 sp

This is an advanced course on object oriented programming, data structures and algorithms. An important course for any programmer. To the exam 4 students were registered, 2 did not show up. Mean grade B. There is a teacher's course evaluation for 2015 which indicates that the course works well. The results on the exam has improved, maybe because there were compulsory lab assignments 2015.

INFO262 Interaction design, 10 sp

This is an introductory course to interaction design, an important area for many cognitive science students. To the exam 6 students were registered. All showed up and the mean grade was B There is a rather thorough teacher's course evaluation for

[1] I will use the Norwegian terms here as the use of these subjects varies between universities.

2015 which indicates that the course works well. The teacher also suggest some minor improvements for next year.

INFO125 Datahantering, 10 sp

This is an introductory data base course. Data bases can be useful cognitive science students, especially those with an interest in programming, or those developing web services. To the exam 5 students were registered, 4 passed, and the mean grade was C. There is an extensive course evaluation by the teacher 2015. The course seems to run smoothly. Some comments on low attendance and the exam that was open book. It is unclear if this regards the cognitive science students as the teacher also comments upon online courses. The literature was mostly ok, but for the XML part new course material is needed. A final comment is that the course may be to vast and suggest maybe split it in two. It is hard to assess this from a cognitive student perspective.

INFO207/INF207 Sosial nettverksteori, 10 sp

This course teaches theoretical frameworks for modelling and analysing social networks. For cognitive science students it may be an interesting course, especially as it can connect to their knowledge on human behaviour. To the exam 2 students were registered, both passed with a mean grade of B. No course evaluation 2015.

INFO212 Systemutvikling, 10 sp

An introductory course to systems development. Important for cognitive science students with an interest in programming, but may also give tools for those cognitive science students that only write small programs for their own purposes. To the exam 4 students were registered and all passed with A. No course evaluation 2015.

3.5.2 Informatik

In Informatik six courses had students from the cognitive science program.

INF102 Algoritmar, datastrukturar og programmering, 10 sp

This is an introductory course in algorithms and data structures. Cognitive science students benefit from such a course as it gives them tools for complexity analysis and means for data modelling. To the exam 3 students were registered, 1 passed, 2 did not show up. Mean grade D. No course evaluation 2015.

MAT111 Grunnkurs i matematikk I, 10 sp

This is a traditional calculus course. Can be interesting for some cognitive science students. To the exam 4 students were registered, 1 passed, 2 did not show up and mean grade was E. No course evaluation 2015.

INF121 Programmeringsparadigmer, 10 sp

This course teaches programming paradigms, It seems that functional programming is emphasised. To the exam 4 students were registered, 2 passed and 2 did not show up. Mean grade was B. No course evaluation 2015.

MAT121 Lineær algebra, 10 sp

A traditional linear algebra course. Often more useful for cognitive science students than calculus, especially since many modern machine learning techniques are based on vector models. To the exam 3 students were registered, 2 passed, 1 did not show up and mean grade was C. There is a student course evaluation for 2015 based on a questionnaire. Few, if any, cognitve science student have responded (the category other program with 9% of the respondents) but overall the course is considered good with very few negative grades on the questionnaire items.

INF112 Systemkonstruksjon, 10 sp

A project oriented course on systems development. Content similar to INFO212 and similar importance for cognitive science students. To the exam 3 students were registered and all three passed with a mean grade of B. No course evaluation 2015.

INF223 Kategoriteori, 10 sp

This is a Category theory course which covers theoretical concepts of, for instance, data bases and is equally important for cognitive science students as data bases. To the exam 2 students were registered, 1 passed and 1 did not show up. The student that passed had an A. No course evaluation 2015.

4 Evaluation of assessments

The courses have a variety of assessments and I am confident that each teacher has chosen the appropriate type of assessment for their course and also that the gradings are appropriate and that markings are correct.

The program has a policy that every course shall be evaluated each year by the teacher and every third year by students.

I have looked for course evaluations in "kvalitetsdatabasen" for all 29 courses that cognitive science students have taken 2015. I found course evaluations for five courses, INFO232, INFO233, INFO 262, INFO 282 and MAT121. I also received course evaluations from Liv Kristiane Bugge for two more courses, INFO125 and INFO102.

I still think that course evaluations are an important instrument to know if a course has appropriate content, is useful for the students and if the teaching works. It may be that this information is provided otherwise, but if not, I think that those involved in the program should try to get information on students' assessment of the courses; one way or the other.

5 Summary

My impression is that the cognitive science program in Bergen is a program that works well with enthusiastic teachers and motivated students. In my previous report I raised some issues that I still believe would improve the program.

The initiative to start a master's program looks very promising, with many interesting courses and the ability to include more individual in-depth studies.