

Periodical evaluation of the Bachelor Program in Geosciences, for the Faculty of Mathematics and Natural Sciences, University of Oslo

This documents reports on the evaluation, analyses, and conclusions reached by the committee that has undertaken the periodical evaluation of the Bachelor Program in Geosciences, for the Faculty of Mathematics and Natural Sciences, University of Oslo. This evaluation covers the scholar year of autumn 2011 - spring 2012, with a deadline for reporting of October 1st, 2012.

The following committee has been appointed by the Faculty of Mathematics and Natural Sciences to undertake the evaluation;

Dr. Alvar Braathen, Professor, University Centre in Svalbard (chairman)

Dr. Geir Vatne, Associate Professor, NTNU (member)

Dr. Thomas Spengler, Associate Professor, University of Bergen (member)

Background for report:

The appointed committee holds expertise in Geoscience education, with background from three Norwegian universities. The task at hand is outlined in a letter by Professor Ole Humlum of June 1st 2012, including information on the mandate for the committee. The mandate is found under the web-link:

<http://www.mn.uio.no/for-ansatte/arbeidsstotte/studiekvalitet/kvalitetssikring-av-studieprogram/periodisk-programevaluering/dokumenter/Periodisk-programevaluering-prosedyreMN.pdf>

Other information around the Bachelor Program is available on web: <http://www.mn.uio.no/geo/>
In addition, the committee has used the evaluation by students on the program, summarized the 15.05.2012, in which 47 students have given their views through a questionnaire.

Goals of the Program as described in the program description:

The evaluation of the program description is mainly based on the information provided on the UiO webpages. In general, the web-layout is clear and logically structured and the Bachelor Program in Geoscience is easy to find. As with almost all universities, there is a set layout given by the university that all faculties and departments have to oblige to. Within this framework each department has to try to make the best use of it. Overall, the presentation of the Bachelor Program in Geoscience makes good use of the given layout. However, some descriptions, in particular about the respective study programs, could be stated more clearly. As a rather large fraction of students (52%) receives their information on the program via the Internet, it is of great importance to convey the pertinent information on this platform for incoming students. Most of the students state that their motivation is driven by interest when they embark on this Bachelor Program. Clearly stating the topics covered in the program and outlining the progression through the entire program are key to inform and recruit prospective students. While the page "Hvorfor velge dette programmet?" is a comprehensive and illustrative introduction to the entire program, the individual specializations lack this completeness and make not full use of their respective

webpages. However, for students interested in determining their potential specializations, it is key for them to identify the content, intentions, and goals of the respective specializations in order for them to make an educated choice for their future directions. It is also commonly commented by students that they experienced difficulties to obtain the necessary information for the study program. This comment was not only raised by incoming new students, but also by students further along in the program. The fact that most of the students embark in Geoscience on an interest basis should be considered here, as the specializations, by clearly outlining their foci, could guide students better in their, often interest based, made choices. I find it a good idea to have student interviews on the webpage as this helps prospective students to relate to the university experience. However, I find one interview not very representative, hence maybe the webpage could feature more examples, also featuring different experiences. The learning outcomes could be stated more specifically. Also, there appears to be no special learning outcomes for hydrology in contrast to the other specializations.

How are program descriptions formulated and planned:

The comments on the program descriptions are mainly based on the information given on the webpage of the respective programs. In general a good introductory outline is given about each specialization, apart from hydrology, which is lacking a more detailed program description. The buildup of courses throughout the Bachelor program appears meaningful. However, some sequences of courses could be improved, in particular with respect to the first semester course on programming, GEO1040. A fair amount of students raised their concern about this course, and some of these concerns could in fact be alleviated by moving this course into a later semester. The course could be exchanged with a more descriptive course from the second or third semester. The more descriptive course would not only be suitable for the first semester, but it could also act as a motivation for the more programming and mathematical oriented course GEO1040. Some of the students' confusion about the programs might stem from the fact that there is such a high degree of differences among the different specializations. It is not easy to identify similarities and differences between the different specializations and it might in fact be advisable to make the first couple of semesters more coherent among the different programs to strive on commonalities between the programs and thus strengthen the shared background in the overall Bachelor Program. There is also a large variety in freedom of choice of courses later in the curriculum between the different specializations. While some freedom is certainly desirable and acts to enable the students to go abroad or make own choices, it makes it more difficult to assess the pertinent courses. Certainly, more given freedom demands a higher degree of course description quality, as well as an outline of potential avenues to pursue for the students. The program outlines could make significant improvements with respect to the latter issue and there improvements might in fact act to alleviate some of the issues raised by students about a lack of information given about the program.

Some of the sequences in the courses could be improved as well including a thorough revision of how the course contents of the individual courses could be built together. Based on the students comments there are also several courses that lack structure and a lecturing plan.

Overall, the Bachelor program including its different specializations might benefit from some rearrangement in the sequence of the courses as well as a thorough revision of course contents with a focus on how the different modules build on each other.

Quality of study in the Program:

Totally 47 (of 144) students have expressed their views in a questionnaire named “Programevaluering av Bachelorprogrammet i Geofag”. Of the answers, there is a broad distribution of students in the first, second and third year of study. The majority of the students are, however, studying Geology and Geophysics, which makes the information somewhat biased towards this discipline. Most students express that they have found their information related to the program on the Internet.

On the question on why they study Geosciences, many answers that they developed an interest during High-school education, or that the subject overall seems interesting. As they started in the program, the students find the information overall satisfying, however, a negative tint suggests there is room for improvement. Returning comments include - (i) Poor presentation of the Program, and (ii) Student administration struggles with the large student groups. There is for example a clear negative trend for information around required mathematics, of which many students choose a less mathematic direction. This choice is by many based in limited knowledge in math's. As to the negative feedback around information on the Program, the questionnaire shows that the students starting in 2009 and earlier have a similar negatively tinted impression, suggesting that little has changed since 2009.

On the positive side, a clear majority of the students seem satisfied with the program and the learning outcome, which clearly fulfills their expectations. Positive elements include (i) enthusiastic and good teachers, (ii) excursions, and (iii) small student groups in many courses.

Little is said by the students around International openings; however, the program as presented on the web shows this opportunity in parallel with studies at UNIS. Since little feedback is given on this subject, this information is likely sufficient. But we speculate that this is a subject that the student councilors are often faced with, causing some of the mentioned friction.

Some negative aspects are voiced when the students are specifically asked about negative experiences, basically following two lines: (i) The student councilors clearly struggle to communicate well, and (ii) some courses have given a poor learning outcome. The students clearly find the work load considerable. There is a high percentage that finds the lectures of good quality, with some negative feedback towards how some courses were organized.

On questions around which course that gave the better outcome, on the introduction level Geo-1020 (general geology) clearly scores well. The remaining courses on this level (Geo-1010, 1030 and 1040) are all suggested could become better. Especially Geo-1040 (Programming) is by several suggested to be taught later in the program, when this type of knowledge is more required. There is overall limited input on the 2000-level course, probably reflecting a higher degree of satisfaction for these more specialized courses. Hence, there seems to be more room for improvements during the first year than later in the Program.

One message from the students should be taken home: The students are clearly satisfied with the social environment in the Department of Geosciences, praising the good spirit and friendly teachers.

General suggestions for adjustments and improvements:

The material provided for the evaluation committee limits the evaluation committee from putting forward suggestions for adjustments and improvements for many of the bullet points listed in the mandate. However, within some areas we have some recommendations.

A relative high percentage of the students ($\approx 40\%$) are not entirely satisfied with the information given as they entered the study program and/or information given regarding choice of line of study. This is clearly an area that could be improved, and we suggest both the administrative and scientific staff emphasize this issue. The majority of the students (52%) received their initial information about the BSc study from the web pages. We find the web pages presenting the BSc study program informative and appealing. However, the web pages presenting the different sub-disciplines and individual courses vary both in quality and extent. As an example the expected learning outcome of the sub-discipline hydrology is presented as:

“I denne studieretningen får du kunnskap om jordas naturmiljø, landformer og landformdannende prosesser. Metodeutvikling, f.eks. gjennom bruk av forskjellige geofysiske målemetoder for innhenting av digitale data. Grunnlag for jobb i forvaltning og skole»

This presentation does not reflect the content of the individual in-depth study courses of the discipline, and fits as such better for “Naturgeografi”. The web pages presenting the different sub-disciplines (studieretninger) would benefit from a more uniform extent and focused content.

Some web-pages presenting individual courses, especially on the 1000-level, could benefit from a more extensive content under the headings “Kort om emnet” and “Hva lærer du?”. All of this may encourage a higher percentage than the present 60% of the BSc students to stay at UiO, and not transfer to another university, or another study direction.

In general the students are happy with the quality of the lectures. However, the course Geo1040 has received a fair amount of criticism; hence efforts should be given to improve this, based on the feedback given by the students.

Excursions and exercises are in general given a positive evaluation by the students. Although resource-demanding, we suggest that these activities should be maintained at the present level, or even increased.

The number of students abandoning the BSc Program (50% or more most years) should be a major concern for the department. It is difficult for the evaluation committee to point out causes for this, but it would be of interest to get input from the students leaving the Program why they are leaving.

Conclusions:

We recommend that the Bachelor Program in Geosciences is maintained. However, some adjustments could improve the quality of the program and its presentation;

- An update to the webpage with a focus on the program outline and learning outcomes would be beneficial for prospective and enrolled students
- Highlight the pertinent information at the beginning start of the Program more strongly
- Further develop the student councilor services
- Consider some adjustments and rearrangements in the sequence of the 1000-level courses including an assessment of how the courses build on each other throughout the program

Signature,

October 1st, 2012



Geir Vatne



Thomas Spengler



Alvar Braathen