

Master's Programme in Computational Science (TBV2M)

Assessment panel's report - executive summary

2021-03-30

Background

The evaluation was carried out in the form of an assessment panel. The panel's mission is based on the Guidelines for Uppsala University's Model for Review of Study Programmes (UFV 2015/475), including eleven evaluation aspects. The material used by the panel include: the department's self-evaluation report; student, teacher and alumni surveys referred to in the aforementioned report; notes from meetings with current and former programme coordinator and subject representative; information gathered at a meeting with students (5) from different semesters; information gathered at a meeting with teachers (5). In addition, the panel met with representatives of the Faculty of Science and Technology.

The strengths of the programme

The assessment panel concludes that the Master Programme in Computational Science offers an education of high quality with regard to the eleven evaluation aspects. The main strengths of the programme include:

1. A strong scientific foundation upheld by the high research qualifications of the core teaching staff.
2. A very committed and pedagogically trained teaching staff and the general employment of adequate and varied teaching methods.
3. An underlying idea of progression between successive courses in the recommended tracks.
4. Attentiveness to students' needs and their varying academic backgrounds.

Furthermore, the programme's self-evaluation identifies several weaknesses and how they can be addressed, which itself indicates the existence of a quality culture within the programme.

The weaknesses of the programme

Although the panel finds the quality of the programme to be high, the panel has nevertheless identified the following main weaknesses:

- 1) While most of the learning outcomes and perspectives stated in the Higher Education Act and Higher Education Ordinance are addressed in the programme, there is a need for a more explicit communication, among teachers and to students, concerning *where*

and *how* these outcomes and perspectives are translated into concrete and assessable course work. This is all the more important given that there are many optional courses and tracks, making it difficult to identify if and where all objectives are covered.

- 2) The programme has seen several changes of coordinators in a relatively short period of time, which gives rise to vulnerability in the coordination of courses and the development of the programme.
- 3) There is a continued need to address the generally low student participation in course and programme evaluations (surveys), and to enhance students' awareness of the formal channels for influence.
- 4) Although not necessarily a quality related aspect, the programme's relationship to some other educational programmes is unclear. Currently, there is at least one study track (data engineering) which appears to have similarities to a new programme carrying that name; while the overlap between the two may in reality be small and justified, the difference may nevertheless be unclear to potential applicants.

Recommendations

- 1) The panel recommends that the programme constructs a learning outcome matrix (overview), indicating not only where but also how specific learning outcomes are translated into concrete and assessable course work. This matrix should also address the integration and promotion of the three perspectives (international perspective, gender equality, and sustainability) included in Uppsala University's model for the review of study programmes. If the table is elaborated as suggested (see detailed report), it is easier for teachers, students, programme directors, as well as external evaluators, to identify the relationship between the specific components of the courses, and the learning outcomes and perspectives of the programme as a whole. This overview will possibly decrease the vulnerability potentially caused by frequent changes of coordinators.
- 2) The panel also recommends that student evaluations in the form of questionnaires (which tend to have a low response rate) be complemented by other forms of evaluation, e.g. focus group discussions. Experience shows that the information gathered is often both richer and more nuanced than the information obtained from structured surveys. It may also contribute to the improvement of students' understanding of the purpose of (student) evaluations.

- 3) The panel recommends a systematic comparison between the study track “data engineering” and the Master’s Programme in Data Engineering, if nothing else so as to make sure that the similarities and differences are clearly communicated to potential students. However, it is the panel’s view that data engineering as such has its place in the Computational Science programme.

The evaluation panel’s composition

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Michael Hanke, associate professor (docent), KTH

Robin Bernstähle, student, Lund University

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