



Report - AL2115 - 2020-05-07

Respondents: 1
Answer Count: 1
Answer Frequency: 100.00%

Please note that there is only one respondent to this form: the person that performs the course analysis.

Course analysis carried out by (name, e-mail):

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DESCRIPTION OF THE COURSE EVALUATION PROCESS

Describe the course evaluation process. Describe how all students have been given the possibility to give their opinions on the course. Describe how aspects regarding gender, and disabled students are investigated.

The course evaluation process had several components. In addition to the standard KTH learning experience questionnaire (LEQ), the teachers used two paper based questionnaires (at the start and at the end of the course, respectively) to collect information about students' expectations and learning. About half way through the course, the teacher team had a meeting with three student representatives (coming from two different master programmes; 2 male and 1 female student volunteered to be in the group). The representatives have collected input from the peers prior to the meeting and shared with the teachers not only their own thoughts but of those who provided the input. At the end of the course, some ten interested students also participated in a more in-depth, co-creative workshop centred on the strengths and weaknesses of the seminar design and facilitation techniques.

The course in itself is collaborative, meaning it is taught in constant dialogue with the students. The teachers requested the students' opinions during seminars, and during the interim presentations invited the students to leave anonymous comments on post-it notes with feedback to the teachers.

The LEQ was answered by both men and women, and the student feedback groups were mixed. The students have expressed that there was mutual respect in the course.

In addition to the evaluation by the students, opinions of societal partners of the course are also regarded as a form of course evaluation. Stakeholders representatives (this year, Järfälla municipality) were invited to the final presentation within the course where they had an opportunity to give feedback regarding the outcomes achieved during the course to both students and teachers.

DESCRIPTION OF MEETINGS WITH STUDENTS

Describe which meetings that has been arranged with students during the course and after its completion. (The outcomes of these meetings should be reported under 7, below.)

First meeting with the course representatives (3 students representatives, 2 male, 1 female; from different master programmes) was organized halfway through the course. The course representatives came well prepared for the meeting - they have collected input from the classmates using a shared document and have identified key or reoccurring issues to raise during the discussion. After sharing insights and raising questions they have identified, teachers (2 teachers, both female) asked supplementary questions they found important to discuss at that point. Overall, the meeting was mainly focused on the first half of the course and particularly on the design and pace of the seminars, introduction into the project work, study visit and Interim presentations.

Another meeting with course representatives happened after the course ended. It was focused on the retrospective process analysis of the course. The meeting was attended by eight students (4 male, 4 female; coming from three different master programs) and three teachers (all female). The meeting was organised after KTH issued work-from-home policy and all educational activities were moved online due to CORONA pandemic. This resulted in a remote form of the meeting using Zoom and Miro software for collaborative work. The meeting provided an opportunity to collect reflections about the course design and build a more comprehensive picture by combining students' and teachers' perspectives.



COURSE DESIGN

Briefly describe the course design (learning activities, examinations) and any changes that have been implemented since the last course offering.

The course aims at providing students with insights about processes of transitions in complex systems and equip them with approaches for system design and steering transition for sustainability. In terms of the structure, the course includes four lectures, nine seminars and four special activities (i.e. Introduction into the project work and Study visit, Interim critique, Coaching session and Final presentations). The course is mandatory for the students taking the "Energy for Smart Cities" Master's Programme in and conditionally elective for students taking the "Sustainable Technology" Master's Programme.

In its theoretical part (four lectures), the course covers elements of theory from Transition Studies, Future Studies, Socio-Technical Systems, Complex Systems and Transdisciplinarity. One of the lectures provides an overview of the modular Participatory backcasting (mPB) framework. The lectures thereby provide background and context to the project work (3,5 er, A-F), which is the main focus of the course. The project work consists of the design and implementation of a mPB project, addressing a real-life complex transition challenge, this year focusing on the design of the future (by 2050) mobility system of Järfälla municipality. The project work is carried out in groups of five students who work together to generate a vision and pathway for a more sustainable future.

The seminars are set up to guide the students through the modular participatory backcasting (mPB) process, introducing each module in several exploratory exercises. The exercises are intentionally designed to first provide students with an opportunity to try new methods on practice and later connect developed insights to relevant theory in the concluding part of each seminar. The seminars developed in a way to enable active and collaborative learning of students. In addition, each project group is supervised in every other seminar, alternating between different supervisors.

Special events of the course include Introduction into the project work and Study visit, Interim critique, Coaching session and Final presentations and have different designs. This year, Introduction into the project work and Study visit took place both in KTH (team building and project management; preparation for data collection) and in Järfälla municipality where the students met local stakeholders who provided them with initial materials and data, as well as shared their perspectives on trends and ongoing developments in the mobility system of Järfälla. It also included a guided tour around the area.

During the Interim critique (halfway through the course) the students presented their work, with the emphasis on the work process and interim outcomes. The students got an opportunity to receive feedback from teachers and peers both in form of a dialogue and through post-it notes. Coaching session is a longer seminar designed to help students in preparation for the Final presentations. Another aim of this seminar is connecting the insights from the project work to the relevant theories and positioning them in a broader context. After a joint discussion with elements of lecturing, teachers provide feedback to each group individually.

During the Final presentations the students presented main outcomes of their project work. Special focus was given to the communication with the use of creative presentation methods (e.g. short movies, role plays, interactive posters). The Final presentations were attended by teachers and representatives of the societal partners (Järfälla municipality). Similar to the Interim critique, it was possible to receive feedback in a form of discussions and through post-its. Each group's results were also compiled into a study report and the students conducted individual reflections about the work process and what they had learned.

The two home assignments (HA1: 1,5 er & HA2:1,0 er) aim to give the students the opportunity to familiarise and work individually with some of the key concepts presented in the course, in a way that is also meaningful in relation to the project work. The lectures and seminars count towards attendance (1,5 er). The design of HA1 was changed this year to enable better connection with the topic of the project work (i.e. transitions of mobility systems) and switching focus to the lock-in theory. The design of HA2 was the same as the year before with the only difference in the topic which was also aligned with one of the project work.

The course literature of the on-line manual (<http://mpb.urbant.org/>) and scientific papers provided via Canvas. The students are also encouraged to seek out supplementary material on their own.

The main change from previous years was the design of the seminars, which constitute a key aspect of the course. This year, the teacher team had engaged a professional facilitator (with a background in process design and design thinking) who helped redesign the seminars to make them more interactive. Each seminar, the students were guided through collaborative exercises that helped them design their project. Another intention was to increase active and collaborative learning of students during the seminars.



THE STUDENTS' WORKLOAD

Does the students' workload correspond to the expected level (40 hours/1.5 credits)? If there is a significant deviation from the expected, what can be the reason?

The course is 7,5 credits in total, taught during one study period (P3). The students' workload should thus be about 20 hours/week. Several of the weeks, there were 4 hours or more of scheduled time (seminars and lectures). The absolute majority of the students indicate that they spent less than 20 hours on average on the course, instead reported having spent 8-14 hours. Like previous years, one of the reasons for this might be difficulties to coordinate with group members to find time to meet. Many of the students being international, there are also likely to be many attractive side activities competing for attention, as well as other course commitments.

In general, the students report that the work is distributed fairly evenly, throughout the course. Several point out that the seminars offer an important opportunity to progress with the project, and/or to get inspiration for how to proceed between seminars. However, some of the students' comments imply a need to more explicitly support the process and time management by the students within the course which is rather intense and requires efficient organisation of individual and group work.

THE STUDENTS' RESULTS

How well have the students succeeded on the course? If there are significant differences compared to previous course offerings, what can be the reason?

Overall, the students succeeded well and even better in comparison with last year's experience. Both home assignments were successfully completed by the majority of the students from the first try. As for the project work, all project groups achieved rather high results in addressing the given sustainability transition challenge - the design of the future vision (by 2050) and transition pathway for the mobility system of Järfälla municipality. While the task is rather complex and requires a holistic perspective and creativity, the students managed well and successfully integrated knowledge and backgrounds of different group members as well as of societal stakeholders they have interviewed. The students also highlighted the benefits for learning of collaborative approaches and facilitation techniques introduced during the seminars. Present as guests during the Final presentations representatives of Järfälla municipality positively commented on the results presented by the students, mentioning their innovativeness and relevance for the on-going work in the municipality.

While the topic and the context of the project work were not less challenging than in previous years, higher results could be explained by a number of changes introduced in the course design and teaching. This is, first of all, the new design and approaches for the facilitation of the seminars, facilitation of collaboration and learning between the project groups, enabling more extensive feedback to be provided by teachers and peers during the Interim critique, and perhaps, a bigger focus on process and reflexivity which was stressed many times by the teachers in the joint discussions and during the supervision meetings. High motivation of the involved students and their interest in the topic of sustainability transitions also contributed to the learning-stimulating atmosphere.

STUDENTS' ANSWERS TO OPEN QUESTIONS

What does students say in response to the open questions?

Many of the answers indicate that the students are (very) satisfied with the course - they appreciate the "co-creative process", "learning by doing" and to "work with real world problems". The interactive format of the course is said to be really interesting and valuable, and several students emphasise that they appreciated the teachers being very engaged.

Some students highlight that working with system transformations is inherently complex, and that it can be difficult to know how to prioritise and to come to terms with the absence of "right and wrong answers". Most, however, also describes that it was very valuable to practice how to approach complex systems challenges. The group project is central in the course, and working in a group naturally brings both challenges and opportunities. For example, the diversity of the project groups is highly appreciated by the students and is seen as a strength, as one student commented: "Working with a diverse group of people (is the best aspect of the course). A fruitful collaboration that really changes your perspective".

The students report that they have used the online manual for participatory backcasting (<http://mpb.urbant.org/>), as well as additional reading provided by the teachers. Even so, the course vocabulary is said to be a bit difficult to understand at times, and several students would appreciate more examples.

SUMMARY OF STUDENTS' OPINIONS

Summarize the outcome of the questionnaire, as well as opinions emerging at meetings with students.

The answers to the open questions, given above, reflect the overall impression of the course well. Most students appreciate the interactive and, to them, novel way of working, but describes that it can be challenging to know what to do and how - but also see that it is unavoidable with such issues when working with complex systems and therefore appreciate getting to practice.



OVERALL IMPRESSION

Summarize the teachers' overall impressions of the course offering in relation to students' results and their evaluation of the course, as well as in relation to the changes implemented since last course offering.

The teachers' are very content with this year's course offering. The quality of the students' results was generally high, and it was also rewarding to witness how the students got to practice skills that go beyond the intended learning outcomes of the course (e.g. project management, dealing with uncertainty, "soft skills").

The exercises during the seminars activated students on different levels (individual - group - class) which seemed beneficial for learning. In particular, the new seminar design provided more opportunities for sharing and collaboration on the level of the entire class (not only within project groups). The atmosphere during the course activities was very engaging with students eager to share and provide feedback to peers. From this, the teachers feel that the course did well in highlighting the non-linearity of the problem solving process. The students sometimes need to go back to previous steps to elaborate and improve them, and the students are encouraged to be reflexive in relation to their work and the achieved outcomes. The online mPB manual (available for the second year in a row) was useful, although additional examples would be great.

ANALYSIS

Is it possible to identify stronger and weaker areas in the learning environment based on the information you have gathered during the evaluation and analysis process? What can the reason for these be? Are there significant difference in experience between:

- students identifying as female and male?
- international and national students?
- students with or without disabilities?

From the analysis of the learning environment, it follows that the strongest aspect were connected to the collaboration within the course, possibility to get support when needed and meaningfulness of the topic to work with, as well as feedback and security in terms of the possibility to practice and receive feedback without being graded and fairly assessed at the end of the course, understanding of subject matter, and variation and participation with opportunity to learn in different ways.

The weaker areas (still graded rather high) are related to the clarity of goals and organization. This might be understandable considering the exploratory approach promoted by the course when students are encouraged to explore given concepts and methods in a rather open way without much limitations imposed. Such freedom can be uncomfortable for some and perhaps, controversial with the previous experience of courses with well defined or even formalised learning goals.

Some differences can be observed among the answers of male and female students. The most striking difference is observed along the dimensions related to the understanding of subject matter, constructive alignment and feedback and security in terms of the possibility to practice and receive feedback without being graded, which were ranked higher by the female students. The only dimension which was slightly higher ranked by male students is related to another component of feedback and security related to the fair and honest assessment.

This year, the course is rather well balanced in terms of national and international students. In terms of the evaluation of the learning environment there are a number of differences, most noticeable along the dimensions of understanding of subject matter, feedback and security in terms of the possibility to practice and receive feedback without being graded and sufficient background knowledge - all three were ranked higher by national students. At the same time, international students gave higher ranks to the dimensions of challenge, feedback and security in terms of fair assessment and variation and participation in terms of the possibility to learn in different ways. Based on the comments, students appreciated the international environment of the course and possibility to learn from a diverse group of peers.

No students reported disabilities this year.



PRIORITIZED COURSE DEVELOPMENT

What aspects of the course should be developed primarily? How can these aspects be developed in short and long term?

A main priority is to further develop the grading criteria used in the course, making sure they are well-aligned with the intended learning outcomes and communicated with the students in a manner conducive to learning (outcomes based criterion-referenced grading criteria). Teachers find it important to preserve the exploratory nature of the course and will try to ensure that new criteria will only strengthen this beneficial for learning approach.

From a long-term perspective, the online mPB manual should be developed to reflect specific facilitation techniques for each of the modules. This could also help increase time-efficiency of the preparation ahead of the seminars. Related to this is the integration of stakeholder role play to bring in additional perspectives. The use of such role play (or similar) should be better integrated.

From a more short-term perspective, the teachers will review how to better introduce process documentation, which would facilitate the students' report writing and the sharing of results across project groups as well as improving the possibility for teachers to provide good quality feedback.

The teachers will consider changing the duration of (some of) the seminars from two hours to three hours. This could affect the pace of the course.

OTHER INFORMATION

Is there anything else you would like to add?

The students recommend future participants to be open-minded, trust the process, take notes, stay organised and enjoy the ride.
