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## Report - AL2115 - 2018-04-25

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

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

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

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**COURSE DESIGN**

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

The course, taught for the second time in 2018, aims to provide the students with insights on socio-technical processes in system innovations and equip them with participatory methods to facilitate sustainability transitions of socio-technical systems. To this end, the course is composed of lectures, seminars, project-based work and home assignments. It is mandatory for the students taking the Energy Innovation - Smart Cities Master's Programme in and conditionally elective for students taking the Sustainable Technology Master's Programme.

The five lectures introduce the students to the socio-technical system concept, transdisciplinary approaches, future studies and human behaviour in sustainability transitions. The lectures thereby provide background and context to the project work (3,5 cr, A-F), which is the main focus of the course. The project work consists of the design and implementation of a participatory backcasting project, addressing a real-life complex socio-technical challenge, this year focusing on Hammarby Sjöstad as a sustainable city district. 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 participatory backcasting process, introducing each step of the process and then giving the students a chance to work on their study whilst having the opportunity to ask questions. Each project group is supervised every other seminar, alternating between different supervisors. The first seminar took place in Hammarby Sjöstad and provided an opportunity for data collection and to meet with local stakeholders. At two longer seminars (halfway through the course and at the end), the students presented their work, both process and results, with emphasis on creative presentation methods (e.g. short movies, role plays, interactive posters). Each group's results were also compiled into a study report and the students conduct individual reflections about the work process and what they had learned.

The two home assignments (1,5 cr + 1,0 cr) 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 the attendance (1,5 cr).

The literature mainly consists of scientific papers provided via Canvas, but the students are also encouraged to seek out supplementary material on their own.

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**THE STUDENT'S 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). Although 20% of the respondents indicate a higher than expected workload, a total of 40% of the respondents indicate that they only spend between 6 and 11 hours/week on the course, suggesting that they did not spend that much additional time working on the project outside of the classroom hours. One of the reasons for this might be difficulties to coordinate with group members and finding time to meet, as has been indicated during meetings with the course evaluation board. A possible reason why some student spent significantly more time on the project than their peers might be an uneven distribution of work load within the project groups (see more comments relating to the group dynamics below).

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### **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 in line with last year's experience. However, the home assignment submissions proved challenging and did initially not live up to the requirements. For the next course round, the scope of home assignment 1 will be reviewed and possibly updated to better align with the project work, to encourage the students to put more effort into it. The teachers will also stress the importance to read and integrate the course literature. As for the project work, the task is quite complex and student driven. The students all have different pre-knowledge and must find ways to cooperate and create something meaningful together with new people. Due to the various challenges associated with this type of work, some groups tended to do better in certain aspects whereas other groups did better in others.

### **OVERALL IMPRESSION OF THE LEARNING ENVIRONMENT**

**What is your overall impression of the learning environment in the polar diagrams, for example in terms of the students' experience of meaningfulness, comprehensibility and manageability? If there are significant differences between different groups of students, what can be the reason?**

The majority of the students indicate that they worked with interesting issues and found the course challenging in a stimulating way. They also felt togetherness with others in the course and indicate that there was an open and inclusive atmosphere. Several students express that they appreciated the real-world application and getting the chance to explore a new methodology and new concepts and ways of thinking.

There are, however, some differences between different student groups. On average, Swedish students (year 4-5) indicate a lower satisfaction than the international students. The reason for this is unknown. There is however an exception, namely that the Swedish students felt more strongly than the international students that their background knowledge was sufficient to follow the course (which, it can be noted, rules out a lack of background knowledge as the reason behind the Swedish students' lower general satisfaction). A possible explanation for this could be that all the Swedish students came from the Sustainable Technology Master's Programme in which they already had familiarised both with the concept of socio-technical systems and with Hammarby Sjöstad as an urban district in relation to other courses.

There are also some gender differences. Whilst there are only minor differences in terms of the manageability of the course (instrumental level), women indicate higher averages for the meaningfulness (emotional level) of the course, whilst men indicate a higher average for the comprehensibility (cognitive level) of the course.

As for the project work, the respondents indicate that the dynamic of the project group has a big impact on their overall experience and satisfaction.

### **ANALYSIS OF THE LEARNING ENVIRONMENT**

**Can you identify some stronger or weaker areas of the learning environment in the polar diagram - or in the response to each statement - respectively? Do they have an explanation?**

The opportunity to explore parts of the subject on your own, to collaborate and discuss with others in an open and inclusive environment and to reflect on what you learn are all indicated as stronger areas of the course's learning environment. The students also indicate that they worked with interesting issues. This is gratifying to hear since the course design emphasises these aspects.

However, the polar diagram indicates that the understanding of the subject matter, in particular the opportunity to learn from concrete examples, is somewhat weaker than other aspects of the course. The low number of examples is also highlighted in the open response questions as something to improve. One, somewhat unfortunate, reason behind the low number of examples is the challenge brought about by the limited time available in relation to the richness of the content addressed. It should also be noted that more examples were indeed available in the course literature, which some however indicate that they did not explore. In either case, it is a key area for improvement.

Understanding what was expected to obtain a certain grade and the assessment of the course were also given a somewhat lower average score. In relation to this, it is important to note that the students had not yet received the, extensive, written feedback on the project report at the time of the survey.



## **ANSWERS TO OPEN QUESTIONS**

### **What emerges in the students' answers to the open questions? Is there any good advice to future course participants that you want to pass on?**

The students indicate that the for them new concepts and the real-world application of the participatory backcasting methodology were the best aspects of the course. The project work is described as relevant, interesting and challenging in a good way, and the students expect their new skills and experiences to be useful in their future work.

As previously mentioned, the respondents highlight that the group dynamics had a significant impact on their overall experience of the course. From this, an important recommendation to future participants is to invest some time and effort in getting to know each other, and to plan and structure the work process with regular meetings. One practical suggestion is for each project group to write a group contract to ensure everyone understands what will be expected from them. Future participants are also recommended to use the information provided and the time to work during the seminars wisely, aiming to stay in phase with the methodological steps introduced and directly apply them within the own project. Moreover, to make the most of the times scheduled for supervision, it is important for all members to be prepared and engaged, to read the literature and to focus on key terminology. That said, future participants are also recommended to be patient and trust that things will become clearer with time, as well as to allow for creativity and enjoy the course!

## **PRIORITY COURSE DEVELOPMENT**

### **What aspects of the course should primarily be developed? How could these aspects be developed in the short or long term?**

One of the main priorities for course development is to provide a better overview of the project (the methodological steps) and integrate more examples. Long term, the aim is to develop a participatory backcasting manual that could be used within the course. Short term, the plan is to provide more examples during the seminar presentations and to clarify that the students should explore the course literature to get a richer understanding. However, on a related note, it will also be clarified that the provided literature should be thought of as recommended but not mandatory readings, and that it is up to the students themselves to create their own understanding of what will be meaningful for them to read in greater detail.

Although the polar diagram indicates that the students felt that they could get support if needed, the answers to the open questions suggest that the supervision could be confusing at times. Some students also found it problematic that different supervisors sometimes provided different feedback and would have preferred for each group to have one designated supervisor. For the next course round, the teachers (supervisors) will clarify that the rotation of supervisors is intentional and done in order to provide different perspectives, thereby better reflecting real life situations (with no ultimately right answer). This organisational structure also increases transparency and facilitates a fair and consistent grading as all teachers are familiar with each group's work.

The course includes relatively extensive written feedback on home assignments, project presentations and project reports. However, a main point for development is the timing of this feedback. Due to the time required to construct the feedback, it was sometimes delivered to the students a bit later what would have been ideal. A prerequisite for an earlier delivery is that the process is less time consuming for the teachers. Fortunately, this is expected to be the case if no major changes are implemented, since the process for how to frame the written feedback has now been established.

The question around supervision also relates to the constructive alignment of the course and whether students understand what they are expected to learn in order to obtain a certain grade. About one third of the students indicate that they did not sufficiently understand the expectations, some report to be neutral and half the students that they indeed felt that they understood. It is likely that the nature of the course (a relatively open and creative task) fits some better than others, but there is also room for improvement from the course management side. Developing and implementing outcomes based criterion-referenced grading criteria will commence during next year. Additionally, as mentioned above, the timing of the feedback will be reviewed.

As for the group work, the teachers will contemplate the implementation of "group contracts" to facilitate well-functioning group dynamics, as suggested by some students. The teachers will also investigate whether it would be possible to schedule more (non-mandatory) hours in TimeEdit, to increase the chances for the group members to find time to work together.

The first home assignment will be reviewed and possibly updated to better align with and contribute towards the project work.

## **OTHER INFORMATION**

### **Is there anything else you would like to add?**

Some students state that the course literature was good and the fact that it was provided "little by little" (i.e. recommended readings published in relation to each lecture/seminar) was also said to be helpful since it decreased the risk of the students feeling overwhelmed.

Canvas was said to work very well.

# Course data 2018-05-18

## AL2115 - Transdisciplinary Approaches for System Innovations, VT 2018

### Course facts

Course start:	2018 w.3
Course end:	2018 w.11
Credits:	7,5
Examination:	ASS1 - Assignment, 1.5, Grading scale: P, F ASS2 - Assignment, 1.0, Grading scale: P, F ATT1 - Attendance, 1.5, Grading scale: P, F PRO1 - Project, 3.5, Grading scale: A, B, C, D, E, FX, F
Grading scale:	A, B, C, D, E, FX, F

### Staff

Examiner:	Miguel Brandao <miguelb@kth.se>
Course responsible teacher:	Olga Kordas <olga@kth.se>
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Assistants:

### Number of students on the course offering

First-time registered:	40
Total number of registered:	40

### Achievements (only first-time registered students)

Pass rate <sup>1</sup> [%]	97.50%
Performance rate <sup>2</sup> [%]	98.80%
Grade distribution <sup>3</sup> [%, number]	A 18% (7) B 18% (7) C 31% (12) D 33% (13)

1 Percentage approved students

2 Percentage achieved credits

3 Distribution of grades among the approved students