



Report - AK2036 - 2019-01-11

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):

Johan Berg, jgberg@kth.se

COURSE DESIGN

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

Note: In this course analysis answers from all connected course rounds (AK2030, AK2032, AK2036, AK2038, FAK3012, FAK20314, FAK3024, F1N5112 and F1N5113) have been taken in to account due to the high similarity between the courses. The courses share the same or almost the same lectures, seminars and exam and in reviewing the answers we have found no reason to believe that the answers are not valid for the other course rounds, except when it comes to those seminars and lectures not shared. "TaMoS" is will be used as an abbreviation for Theory and

Methodology of Science, and then refers to all course variants.

The main version course consists of lectures, seminars and an exam. The longer versions on a master level also do an assignment related to articles in their field and on the PhD level, the longer versions write an essay. There is also a shorter PhD version, only taking three seminars, and a version only taking the PhD level essay part. Since the last course round three more video lectures have been introduced, along with quizzes giving bonus points. Lecture preparation readings to the lectures "Philosophy of Technology" have been changed, and quizzes changed. One more "flipped classroom" has been added, treating submitted student questions based on the video lectures and working with an

in-class assignment. The AK2036/AK2038 project part has been changed from two oral presentations and two preparation meetings to a three step written group assignment.

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?

Students of the 7,5 credits version of the course are expected to work 20 hours a week, students of the 4,5 credit version are expected to work 12 hours a week. A large portion of the students reported working less than this. For instance 21,8 % of the AK2036 students reported working 9-11 hours a week, which half of what is to be expected. Given this, it is not surprising that the text comments described the workload as intense, since this means doing the same work in fewer hours. The workload was also described as higher than many other courses. To some extent this disparity between expected and reported work load might be explained by KTH-students generally not used to text and lecture centered courses, and that the workload perhaps is not heavier, but different.

Other reasons for why the course is perceived as intense, other than that students are not spending the appropriate time on it, could be: 1) lectures are only given in the beginning of the course, which creates an uneven workload. 2) Course literature consists of a large collection of articles and texts, and students have trouble getting an overview, creating stress. 3) The bonus point system, implemented to increase the time spend on the course, leads to a large amount of deadlines on varying dates. Since the bonus points might not be perceived by all students as optional, this also creates stress.



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?

(2018-10-24)
A B C D E/P FX F
11 11 11 15 10 16 23 (%)
(2017-05-30 -- 2018-05-30)
A B C D E/P FX F
15 12 12 8 8 13 31 (%)

Given that 64 % of students self-reported a working at least 2 hours below the expected workload given the number of credits of the respective course, a certain percentage of failed students is to be expected. In general, there are no significant differences between the students' result in period 1 compared to previous periods. There has been a small improvement in the number of students failing the exam. Analyzing the results showed that half of those who received F did so by not passing the minimum requirement on the multiple choice part of the exam. About a third of the students receiving an F were from previous periods.

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 general impression of the teaching environment based on the course surveys is that students generally perceive the learning environment as good. Given the different number of respondents for the different course codes, it is hard to aggregate averages, but a reasonable assessment is that the ranking is at least neutral for all parts of the learning environment, and positive for a majority. International students ranked, in general, all parts of the learning environment higher than the Swedish students. None of the course analysis meetings found any plausible explanation for this that would be interesting from a course development perspective.

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?

Those parts of the learning environment that ranked lowest were related to meaningfulness and comprehensibility. Some commentators remarked that the topic of this course was far removed from their general field of study, some implying that this was a negative aspect of the course, while others saw this as something positive. Several commentators remarked that the language used in the course was complicated and hard to understand. One reason for scoring low on "the course was challenging in a stimulating way" was in the course analysis meetings suggested to be the distribution of workload, in combination with the number of optional deadlines perceived as mandatory - as discussed above.

Another aspect brought out was the number of concepts taught in the course, which led some in the course analysis meetings to interpret the high ranking on the question "Understanding of key concepts had high priority" as something which is not necessarily positive. While a large number of concepts is inherent in the nature of the course, since it aims to cover the entirety of scientific methodology, we could improve the way we point out the central concepts and how the concepts relate to each other. We should also better motivate the use of our terminology, and make sure that all teachers define and use the concepts in the same way.

Stronger points expressed in the polar diagrams were the opportunity to learn in different ways, collaborating and discussing with others and that they were able to get support when needed it. Although some of the text comments were critical of the grading scheme, the rankings showed that the students perceived the exam as being fair and honest.

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?

Students are very positive to the video lectures, and the seminars, and generally positive to the flipped classrooms. The latter could be improved by making sure that students commenting in the lecture hall are heard. Students perceived that the quizzes associated with the video lectures forced them to put in an unnecessary effort, since one making one error in the quiz required students to re-do the entire task to get bonus points. Some comments brought up that the different seminar teachers had different teaching styles and taught in different ways, and that this was something negative.



PRIORITY COURSE DEVELOPMENT

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

Some changes have already been implemented, between period 1 and the writing of this analysis. The course structure has been changed, distributing the lectures and seminars more evenly over the entire lecture period. This will be the case for period 3 and onward. The content for seminar 3, which one of the course analysis meetings criticized, has been changed. The amount of deadlines for the project part for the 7,5 ECTS versions - something which was criticized in the open text answers - has been reduced. We have also changed the rules for bonus points

for the video lectures, allowing for one mistake.

For upcoming periods, we will have meetings for the seminar teachers before the each period to go through and synchronize the content of the seminars and the definitions of concepts. We are planning to expand on the video lectures, by recording more of the campus lectures during the

spring. We will work on creating a more comprehensive compendium of course texts. We will investigate the possibility of using a "catch-box microphone" for the lectures, to make asking questions easier. Finally, we will work on providing concrete examples for why the contents of the course is relevant for the students. This will be made by creating a database of the PhD student essays (written for the 4,5 credit version) where PhD students successfully identified important methodological issues in their own research, and these examples can then be used in teaching.

Course data 2019-04-23

AK2036 - Theory and Methodology of Science with Applications (Natural and Technological Science), HT 2018

Course facts

Course start:	2018 w.35
Course end:	2018 w.43
Credits:	7,5
Examination:	PRO1 - Project, 3.0, Grading scale: P, F SEM1 - Seminars, 1.5, Grading scale: P, F TENA - Examination, 3.0, Grading scale: A, B, C, D, E, FX, F
Grading scale:	A, B, C, D, E, FX, F

Staff

Examiner:	Till Grüne-Yanoff <gryne@kth.se>
Course responsible teacher:	Johan Berg <jgberg@kth.se>
Teachers:	Hana Möller Kalpak <hanamk@kth.se>
Assistants:	

Number of students on the course offering

Registered	0
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Achievements (only registered students)

Pass rate ¹ [%]	<i>There are no course results reported</i>
Performance rate ² [%]	<i>There are no course results reported</i>
Grade distribution ³ [%, number]	<i>There are no course results reported</i>

1 Percentage approved students

2 Percentage achieved credits

3 Distribution of grades among the approved students