

# Semester Documentation

## Semester 1 – Class of 2020

### **EduCo of 2020**

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## Introduction

This EduCo Semester Documentation consists of the evaluations of all courses and projects offered in Semester 1 for the Class of 2020.

The information presented in this document was collected in two ways. Firstly, it was delivered by the students as qualitative feedback throughout the semester, either on their initiative or in feedback sessions organized by the EduCo. Secondly, the EduCo 2020 Semester Survey, based on the “EduCo Criteria”, was filled out by students. This survey consisted of a set of statements for each topic. Students were asked to rate them on a scale from 1 to 5; with 1 being the most negative attribution (never, very poor) and 5 the most positive attribution (always, very good). At the end of each section of the questionnaire, students had the opportunity to give open feedback, which is evaluated in the Discussion section of each evaluation. There were 12 out of 50 respondents for the mid term evaluation and 18 respondents out of a possible 50 for the final evaluation.

All evaluations have a similar structure; they start with a short description of the course or project, followed by the EduCo 2020 Semester Survey results in form of their mean values and standard deviations, and a discussion based on these results as well as the open feedback and other feedback from students throughout the semester. In this discussion, strengths and weaknesses are highlighted. Then solutions to problems are suggested, and the last section describes the agreements that were made with the teacher/coordinator during a meeting.

## Mathematics

Created by: Margot Schipper, 09th February 2018, Enschede

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Semester, Year, Class: Semester 1, 2017/2018, Class of 2020

Teachers: Ruud van Damme and Martin Streng

The mathematical domain included three different courses: **ODEs**, **Linear Algebra** and **Programming**. Ruud was responsible for ODEs and Martin covered the other two courses.

### ODEs

#### *Summary of the course - ODEs*

The first course in the field of mathematics that was taught over the span of 6 weeks was ODEs. There were lectures twice a week. According to the [schedule](#) uploaded by Ruud, students were expected to read chapters in the book and prepare exercises before class. There were multiple sources for further information, extra exercises and various possibilities for asking questions. The main source for evidence were the Wizz Challenges. However, Ruud provided multiple other sources for collecting the necessary evidence. On blackboard there were extra ODE challenges and some assignments from thermodynamics were also applicable as evidence for reaching the learning goals of this course.

#### *Perception of the Topic*

According to the outcome of our questionnaire as well as other feedback requests, there are no very negative comments to be made about this course. Some students did desire a clearer connection between the theory and its application in the real world. To one student the function of the course: introduction and orientation, was not that evident which resulted in the feeling that the course covered the topic only on a superficial level.

n=12, scale: 1-5

<b>EduCo Criterion</b>	<b>Mean</b>	<b>SD</b>
1. This course sufficiently conveyed both theoretical and applied	3.5	0.7

knowledge		
2. This course featured both group and individual work	4.0	0.8
3. During this course, students were provided with a sufficient level of guidance	4.0	0.6
4. For this course, there was a variety of possibilities to prove your competence	4.0	0.5
5. This course facilitated personalization	3.4	0.9
6. This course related to the semester project and other courses	3.5	0.5
7. The course material was useful and relevant	4.1	0.7
8. This course allowed for an even distribution of the workload over time	3.7	0.8
9. The communication about learning goals, schedule, deadlines and possibilities for evidence was clear	4.0	0.7
10. Feedback given by the teacher(s) was complete, useful and timely	3.8	0.6
11. The teacher was sufficiently available for questions/feedback about the course	4.5	0.5
12. The teacher seriously took students' feedback about the course into consideration	3.8	0.8
13. Sufficient knowledge input and support was given to reach the learning goals set for this course	4.1	0.6
14. The teacher(s) taught the course in an engaging and effective way	3.7	0.8
15. The format of the course was engaging and conducive to learning the course material	3.6	0.7

Other remarks about this course:

“Besides the challenges it would've been nice if we had actual modelling assignments where the solving of the problem would be done step by step question per question, so that we understand how to apply ODEs in a real world problem and then we apply that in the challenges”

“Ruud is a cool ass guy, but you could tell this wasn't really his domain (as opposed to QM, which he rocks).”

“I like Ruud's lectures and the pace at which he teaches. The only thing I didn't like was when he would give a lecture and then present us with some problems to work on for the remainder of the time. That never worked for me.”

### *Suggestions*

- Apply ODEs to a modelling problem like the challenges but in a more guided process

### *Agreements*

A meeting was had with Ruud and options were discussed. Due to the uncertainty of how the next semester will be set up, not particular agreements were made. The more general feedback was taken into consideration.

## **Linear Algebra**

### *Summary of the course - Linear Algebra*

The Linear Algebra course was set up with six lectures. It was expected to read chapters from a book provided by Martin as well as do some exercises to prepare for class. The possibility for collecting evidence was a take home exam. After a small feedback session with Martin from the EduCo, he decided to give us two more options for examination. There was the additional possibility of a reflection report and an oral examination which would have consisted of reflection as well.

### *Perception of the course*

The course was perceived as a bit too slow by some students. Additionally, one student came forward and noted that the assignment and the alternative assignment were not challenging

enough or up to honours level. Furthermore, students noted in a feedback session that the book was not very helpful. In their opinion it lacked further elaborations on certain aspects. It also assumed a given amount of pre knowledge which was not acquired by a decent amount of students. Martin was very approachable for questions, feedback and proved to be very helpful and understanding.

n=18, scale: 1-5

<b>EduCo Criterion</b>	<b>Mean</b>	<b>SD</b>
1. This course sufficiently conveyed both theoretical and applied knowledge	3.9	0.6
2. This course featured both group and individual work	2.9	0.9
3. During this course, students were provided with a sufficient level of guidance	4.2	0.6
4. For this course, there was a variety of possibilities to prove your competence	4.1	0.7
5. This course facilitated personalization	3.4	1.0
6. This course related to the semester project and other courses	3.5	1.0
7. The course material was useful and relevant	4.1	0.5
8. This course allowed for an even distribution of the workload over time	4.1	0.7
9. The communication about learning goals, schedule, deadlines and possibilities for evidence was clear	4.5	0.6
10. Feedback given by the teacher(s) was complete, useful and timely	3.8	0.7
11. The teacher was sufficiently available for questions/feedback about the course	4.3	0.5
12. The teacher seriously took students' feedback about the course into consideration	4.4	0.7

13. Sufficient knowledge input and support was given to reach the learning goals set for this course	4.3	0.5
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Other remarks about this course:

“The pace was too slow.”

“In my opinion, the courses from Martin Streng were sometimes a bit slow and not always that relevant if you had prepared the lecture; I think that he could speed up sometimes.”

“No real complaints. Application of the theory and the theory itself proved to be easily retrievable through the internet as well as the teacher. The assignment was quite doable and theory was provided in time.”

“Linear Algebra was a concrete and well-structured course. The provided lecture notes differed from the way Martin gave his lectures, which gave us the opportunity to learn about the topic in various ways.”

### *Suggestions*

- A different type of reading material is suggested. Alternatively, the lecture notes proved to be very helpful as well
- Keep up the open mindedness and the welcoming mindset for student feedback, as well as flexibility
- The course could be more challenging in its content and assignment

### *Agreements*

A meeting was held with Martin, but due to the uncertain future of the set up for next year, no agreements were made.

### **Programming**

### *Summary of the course - Programming*

The set up of the course was six weeks of weekly lectures. Due to project assessment and other circumstances, this did not play out as planned. Firstly, the syllabus gave the instruction that the possibility for evidence would be a take home exam. However, Martin chose to guide the students through the assignment in lectures. He then added a reflection as an additional requirement to pass the course. Students that did not attend class had to make the assignment by themselves. There was an optional challenge assignment for students that strived for excellence.

### *Perception of the course*

Overall, the course was perceived as not challenging enough. We invited the house representatives for more elaborate feedback on the 6th February 2018. It was noted that the course lacked an introduction into the syntax and semantics of programming. Furthermore, the house representatives noted that the course could have been more challenging and elaborate on the principles of programming. Additionally, students perceived the normal assignment as too easy but the challenge assignment as out of proportion difficult without the right pre knowledge. Also in this course Martin's open mindedness was perceived very well.

n=18, scale: 1-5

<b>EduCo Criterion</b>	<b>Mean</b>	<b>SD</b>
1. This course sufficiently conveyed both theoretical and applied knowledge	3.5	0.7
2. This course featured both group and individual work	2.2	0.9
3. During this course, students were provided with a sufficient level of guidance	4.2	1.0
4. For this course, there was a variety of possibilities to prove your competence	3.7	1.0
5. This course facilitated personalization	3.3	1.0
6. This course related to the semester project and other courses	3.1	1.1

7. The course material was useful and relevant	3.8	0.7
8. This course allowed for an even distribution of the workload over time	4.1	0.7
9. The communication about learning goals, schedule, deadlines and possibilities for evidence was clear	4.4	0.7
10. Feedback given by the teacher(s) was complete, useful and timely	3.9	0.9
11. The teacher was sufficiently available for questions/feedback about the course	4.3	0.5
12. The teacher seriously took students' feedback about the course into consideration	4.3	0.6
13. Sufficient knowledge input and support was given to reach the learning goals set for this course	3.7	0.8
14. The teacher(s) taught the course in an engaging and effective way	3.4	0.7
15. The format of the course was engaging and conducive to learning the course material	3.3	0.7

Other remarks:

“Too little differentiation applied, course material was very basic and low level.”

“This course could have more of a focus on the actual coding rather than including Linear Algebra concepts in it.”

“This course felt like I did not understand enough yet of programming. Despite the nice tutorial I feel that the alternative evidence was to easy a way out. I still do not yet feel skilled enough yet.”

“Too much guidance, could be more challenging.”

“Not my favourite course, but that is more due to my inherent disinterest in programming.”

“The setup of the course could have been more about learning the logic and basic of

programming and learning commands in programming, rather than seeing how one single code was written in the lectures. I think we were given far from enough knowledge to even get started on the challenge assignment without any prior knowledge.”

### *Suggestions*

- Cover the basics of Programming first, such as semantics, syntax and logic of programming. For this to be feasible the pace has to be picked up
- More supportive reading material instead of just the MATLAB manual
- The difficulty could be increased

### *Agreements*

See Linear Algebra.

## Physics

Created by: Juul Piket. February 10, Enschede.

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Semester, Year, Class: Semester 1, 2017/2018, Class of 2020

Teachers: Jasper Homminga, Martin van der Hoef, Ruud van Damme.

The physics course consisted of the topics [Newtonian Mechanics](#), [Fluid and Heat](#) and **Quantum Mechanics** (*no syllabus*). The semester documentation on the physics course will be based on feedback collection by the EduCo and the midterm survey. For an elaborate explanation of this semester's physics course, see the syllabi by clicking on the separate topics.

### Newtonian Mechanics

#### *Summary of the topic - Newtonian Mechanics*

The study of this topic, the lectures, the book *Young & Freedman, University Physics 14th edition*, and the Fizz challenges. These challenges were arranged on Monday afternoon, at which groups of three or four students were given a challenge, which had to be solved. Questions could be asked all afternoon. Afterwards, it was expected of each student to write a report on the challenge, which had to be handed in on Friday before 5 pm. The lectures took place on different days (depending on the group) twice a week.

#### *Perception of the topic*

This topic was perceived relevant overall. The lectures contained challenges in class, which were perceived to be very positive. The challenges were relevant to the explained theory and the course enabled the students to shape their own workload distribution over a certain period of time. It was also widely perceived that the teacher taught the topic in a very effective way, although some people thought that this course was sometimes not on the level they had hoped. The enthusiasm of the teacher was something that stood out to students and was well perceived.

#### *EduCo semester survey figures*

n=12, scale 1-5

<b>EduCo Criterion</b>	<b>Mean</b>	<b>SD</b>
1. This course sufficiently conveyed both theoretical and applied knowledge	4.4	0.5
2. This course featured both group and individual work	4.4	0.7
3. During this course, students were provided with a sufficient level of guidance	4.0	0.7
4. For this course, there was a variety of possibilities to prove your competence	3.2	0,8
5. This course facilitated personalization	3.3	1.0
6. This course related to the semester project and other courses	3.5	1.0
7. The course material was useful and relevant	4.2	0.6
8. This course allowed for an even distribution of the workload over time	4.2	0.6
9. The communication about learning goals, schedule, deadlines and possibilities for evidence was clear	4.0	0.5
10. Feedback given by the teacher(s) was complete, useful and timely	3.9	0.9
11. The teacher was sufficiently available for questions/feedback about the course	4.2	0.6
12. The teacher seriously took students' feedback about the course into consideration	3.8	0.9
13. Sufficient knowledge input and support was given to reach the learning goals set for this course	4.2	0.4
14. The teacher(s) taught the course in an engaging and effective way	4.9	0.2

15. The format of the course was engaging and conducive to learning the course material	4.6	0.5
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### *Suggestions*

- Have a lecture in which all subjects will be explained very briefly. This will provide student with an insight in their semester, but will also explain how all courses are working on different levels (macro, micro, etc.).
- Have each course have more EC, so that students and teachers get the opportunity to explore the subjects deeper.

### Fluid and Heat

#### *Summary of the topic - Fluid and Heat*

This topic was taught through lectures, which occurred twice a week, weekly assignments and the book *Young & Freedman, University Physics 14th edition*. The assignments were given on Tuesdays and were to be handed in the next Monday before 10 am. The assignments were meant to be made in pairs, which would be switched up every week. The lectures were connected to the **ODE's** course, of which the content was applied in the physics assignments.

#### *Perception of the topic*

The content of each lecture was perceived very fitting with the assignment that was connected to it. The challenges were highly appreciated, and the workload of the assignment was equally distributed. Around half of the students perceived the class as sometimes confusing, whereas the other half of the class perceived this as very clear. As can be seen, the teaching method has a divided opinion. What was missed in this topic were the challenges as presented during the Newtonian Mechanics lectures at the beginning of the lecture. Another comment was that the interactivity of the lectures could be improved. Also, feedback was given timely, which is very appreciated by the students. The only thing that was perceived as a disadvantage, was that the lecture went deeper into the theory than the book did, which made it difficult to find the needed information when making the assignments. On the other hand, this means that the lectures were important to attend.

#### *EduCo semester survey figures*

n=12, scale 1-5

<b>EduCo Criterion</b>	<b>Mean</b>	<b>SD</b>
1. This course sufficiently conveyed both theoretical and applied knowledge	4.3	0.6
2. This course featured both group and individual work	3.7	0.6
3. During this course, students were provided with a sufficient level of guidance	3.7	0.7
4. For this course, there was a variety of possibilities to prove your competence	3.4	1.0
5. This course facilitated personalization	2.3	0.6
6. This course related to the semester project and other courses	3.5	0.9
7. The course material was useful and relevant	4.0	0.7
8. This course allowed for an even distribution of the workload over time	4.1	0.8
9. The communication about learning goals, schedule, deadlines and possibilities for evidence was clear	4.4	0.6
10. Feedback given by the teacher(s) was complete, useful and timely	4.2	0.7
11. The teacher was sufficiently available for questions/feedback about the course	3.9	0.9
12. The teacher seriously took students' feedback about the course into consideration (n=11)	3.9	0.7
13. Sufficient knowledge input and support was given to reach the learning goals set for this course	4.0	0.7
14. The teacher(s) taught the course in an engaging and effective way	3.3	1.0

15. The format of the course was engaging and conducive to learning the course material	3.6	0.6
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### *Suggestions*

- Begin lectures with a check up on how people did the assignment, and give an explanation of the assignment if necessary.
- Do an exercise on the board with the students, in order for them to know how to apply the theory given in the lecture.
- Have Fluid and Heat be a course of more EC, which will provide the teacher and the student with the opportunity to dive deeper into the content.
- Have a lecture in which all subjects will be explained very briefly. This will provide student with an insight in their semester, but will also explain how all courses are working on different levels (macro, micro, etc.).
- Have each course have more EC, so that students and teachers get the opportunity to explore the subjects deeper.

### Quantum Mechanics

#### *Summary of the topic - Quantum Mechanics*

This topic was studied by means of lectures, the book *Young & Freedman, University Physics 14th edition*, and challenges/assignments. The planning said there would be 2 sessions per week, of which the first one on Monday or Tuesday would be a lecture, and the second one would be a working hour, in which the challenges were made and would be peer reviewed. This planning was changed due to several cancelled lectures. The new planning consisted of having 2 lectures in which the content was explained, and the rest of the lectures would be question hours, in which the challenges would be made. An option to follow an extra set of lectures on paradoxes was offered by the teacher, which consisted of several lectures.

#### *Perception of the topic*

This topic was perceived relevant, but mostly challenging by all peers. This was also due to the lack of available lectures in which the content was explained, but also the mathematical approach to the topic. The challenges consisted of mostly calculations and very little questioning of theory. However, the syllabus was posted late, which was not ideal. A suggestion would be to have the syllabus of the next topic on Blackboard before the former topic has ended.

*EduCo semester survey figures*

n=18, scale 1-5

<b>EduCo Criterion</b>	<b>Mean</b>	<b>SD</b>
1. This course sufficiently conveyed both theoretical and applied knowledge	3.0	0.0
2. This course featured both group and individual work	2.6	1.4
3. During this course, students were provided with a sufficient level of guidance	3.0	0.0
4. For this course, there was a variety of possibilities to prove your competence	2.8	0.7
5. This course facilitated personalization	3.0	0.7
6. This course related to the semester project and other courses	2.0	0.7
7. The course material was useful and relevant	3.3	0.7
8. This course allowed for an even distribution of the workload over time	3.2	0.0
9. The communication about learning goals, schedule, deadlines and possibilities for evidence was clear	3.8	0.7
10. Feedback given by the teacher(s) was complete, useful and timely	3.6	0.7
11. The teacher was sufficiently available for questions/feedback about the course	4.2	0.7
12. The teacher seriously took students' feedback about the course into consideration	3.5	0.7

13. Sufficient knowledge input and support was given to reach the learning goals set for this course	3.4	0.0
14. The teacher(s) taught the course in an engaging and effective way	3.6	0.0
15. The format of the course was engaging and conducive to learning the course material (n=17)	3.2	0.0

### *Suggestions*

- Make Quantum Mechanics a course of more EC.
- Make Quantum Mechanics a course for in the second semester. This is a suggestions because there were not enough EC's, and therefore also time enough, to go in depth.

### Modelling

Created by: Juul Piket. February 10, Enschede.

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Semester, Year, Class: Semester 1, 2017/2018, Class of 2020

Teachers: Martin Streng, Leonie Krab.

### *Summary of the course - Modelling*

The Modelling course consisted of a week of modelling after the Christmas break. The course was set up in a way that the students got a lecture, and a group assignment every day. Based on the progress made on that day, the assignment of the next day would be given. In this course, there was no theory given about modelling beforehand.

The whole assignment was based on an imaginary city (called Atlantia). Every day, a few specifics were given about the city, with which we were supposed to make models or to give already existing models more detail (depending on the day). At the end of the day, every group was expected to present their progress of that day on a flipchart in a presentation of 5 minutes. The goals of the modelling course are described in the syllabus. At the end of the week, a reflection was written by every student, and the feedback on that reflection, together with the feedback on the presentations, would suffice as evidence for the modelling course.

### *Perception of the course*

The Modelling course was perceived as positive. The idea of the crash-course over one week was positive, the content was decent over the whole week and the presentations were a nice recap of the progress made on the same day. However, the presentations and the reflection report didn't provide the opportunity to show everything that was done in one week, which affected the assessment, and there was a slight need for more theoretical background about modelling itself. Furthermore, the situation of this assignment was not realistic, which complicated some assumptions and predictions that had to be made.

### *EduCo semester survey figures*

n=18, scale 1-5

<b>EduCo Criterion</b>	<b>Mean</b>	<b>SD</b>
1. This course sufficiently conveyed both theoretical and applied knowledge	3.8	0.7
2. This course featured both group and individual work	3.2	1.4
3. During this course, students were provided with a sufficient level of guidance	3.6	0.7
4. For this course, there was a variety of possibilities to prove your competence	3.2	0.7
5. This course facilitated personalization	4.1	0.7
6. This course related to the semester project and other courses	4.0	0.7
7. The course material was useful and relevant	3.9	0.7
8. This course allowed for an even distribution of the workload over time	4.3	0.0

9. The communication about learning goals, schedule, deadlines and possibilities for evidence was clear	3.7	0.0
10. Feedback given by the teacher(s) was complete, useful and timely	3.9	0.0
11. The teacher was sufficiently available for questions/feedback about the course	4.1	1.4
12. The teacher seriously took students' feedback about the course into consideration	4.0	0.7
13. Sufficient knowledge input and support was given to reach the learning goals set for this course	3.6	0.0
14. The teacher(s) taught the course in an engaging and effective way	3.8	0.7
15. The format of the course was engaging and conducive to learning the course material	4.1	0.7

### *Suggestions*

- To provide some background information beforehand and design the assignment in a way that it is more realistic.

## Learning line: Semester Project

Created by: Julia Hogestijn

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Semester 1, 2017/2018, Class of 2020

Teacher: Ingrid Nota

### *Summary of the Project*

The assignment was to design a tangible product for a relevant socio-technical problem of a specific target group. The product needed to be tangible, should change human behavior and include the motion of bodies/fluids/particles/waves. The latter could be either part of the problem or the solution. The main aim is that we were able to apply knowledge you have learned within the domains to the project. The project started at the beginning of the semester and ended in the beginning of December. Almost every week we held a update session for the rest of the class, in which we told what we did since the last presentation and which was feedbacked by peers. In the end we were assessed via the analysis-, the justification report and the defense session. Second years came to great use for the latter with feedbacking a mock defense session.

### *EduCo Semester Survey: Semester Project*

n=12, scale: 1-5

<b>EduCo Criterion</b>	<b>Mean</b>	<b>SD</b>
1. In the project non-Dutch students were not put at a disadvantage	4.0	1.0
2. All ATLAS domains/courses that were taught in this semester could be integrated in this project	3.2	1.2
3. Tutors/consultants were informed about the project, and had relevant knowledge	3.4	1.2
4. Tutors/consultants were readily available/accessible for students.	4.3	0.8
5. This project had a well-communicated and logical set-up	3.1	1.2

6. The students were provided with relevant information/knowledge that could be readily applied within the project	3.3	1.0
7. The project was based on a problem that includes both social and technical aspects	4.1	0.7
8. This project clearly stated which assumptions may be made by the students	2.5	0.8
9. The procedure for project assessment was clear in advance	2.6	1.3

### *Discussion*

In general the semester project is perceived as a useful project that makes us more able to combine subjects with different perspectives. However some adjustments have to be made to the semester project because the implementation was not as good as it can be.

For example in a lot of cases teachers told students different things than other teachers, for consistency it would be nice if teachers communicate more about the students/groups before approaching them with the content of the course. Often students didn't receive timely feedback from tutors after asking them to do so or they got inconsistencies in the feedback that they received which led to confusion. Some were also confused on how the semester project is evaluated in the MTE, on what is it based. Another point of improvement would be the communication between tutors and semester coordinators. The general feeling is also that the students want to be informed earlier on how deadlines will be assessed and when. This is perceived as unclear at the beginning of the project and the information reached the students very late. Also the deadline of the semester project was changed to way earlier than the semester ended, this made the end of the project for a lot of groups very rushed and maybe not as well executed as they would have liked to.

### *Suggestions to improve the project*

To make the semester project clearer, more useful and of greater quality students suggested a planning of the deadlines at the beginning. This document could also contain how and on what the students will be assessed. Furthermore an improvement in communication between tutors/co-tutors etc. would be of great value to the students.

## *Agreements*

Due to the pregnancy of Ingrid Nota the outcomes of the survey and last semester have not yet been discussed. However, a meeting with Pascal and Klaasjan about the outcomes was scheduled. In this meeting they agreed upon the workload and the internal communication issues. Nonetheless there are some questions that you should ask the right person, and not the person that has nothing to do with it. For example, do not ask a cotutor something that only the tutor knows. Although they made this point, they also approved of the fact that every teacher should be on the same level of knowledge about the project. A document providing deadlines and what and how the assessment is done in semester one would be considered by them, but sounded like a good idea, semester two also has such a document so semester one also should have one.

## Learning line: Self-Directed Learning / Learning Capacity

Created by: Guido van der Heijden

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Semester 1, 2017/2018, Class of 2020

Teacher: Pascal Wilhelm and Ans Netjes

### *Summary of the Course - Self-Directed Learning*

Learning Capacity (also referred to as *Self-Directed Learning*, abbreviated *SDL*) introduced the class of 2020 to the ATLAS style of learning. The PDP and SER are the foundation of the learning in ATLAS. Pascal and Ans presented the basic idea of the PDP and SER without spoon feeding the students with exact instructions. They used presentations, workshops and Question and Answer sessions to do so. There were workshops on stress and (lack of) motivation.

SDL helped the students find their (academic) direction in a long-term timeframe. The goal of SDL was to make it possible for the students of the class of 2020 to, with as little outside help as possible, create concrete academic plans using the PDP and SER. This helps the student in taking control over his/her own learning.

### *EduCo semester survey: Learning Capacity*

n=12, scale: 1-5

<b>EduCo Criterion</b>	<b>Mean</b>	<b>SD</b>
1. This course sufficiently conveyed both theoretical and applied knowledge	3.6	1.2
2. This course featured both group and individual work	3.1	1.1
3. During this course, students were provided with a sufficient level of guidance	3.5	1.2
4. For this course, there was a variety of possibilities to prove your competence	3.3	1.4
5. This course facilitated personalization	3.8	1.2

6. This course related to the semester project and other courses	3.8	1.1
7. The course material was useful and relevant	3.4	1.1
8. This course allowed for an even distribution of the workload over time	4.1	0.8
9. The communication about learning goals, schedule, deadlines and possibilities for evidence was clear	3.4	1.3
10. Feedback given by the teacher(s) was complete, useful and timely	3.3	0.9
11. The teacher was sufficiently available for questions/feedback about the course	4.1	0.8
12. The teacher seriously took students' feedback about the course into consideration	3.3	0.6
13. Sufficient knowledge input and support was given to reach the learning goals set for this course	3.5	0.8
14. The teacher(s) taught the course in an engaging and effective way	3.7	1.4
15. The format of the course was engaging and conducive to learning the course material	3.8	1.1

### *Discussion*

SDL definitely helped students with getting used the ATLAS way of academic development and assessment. The course was overall seen as helpful in getting used to the concepts PDP and SER. The questionnaire also shows positive results, though it is filled in by only a quarter of the students. Especially the working sessions and question hours were appreciated, because those helped in clearing up unclarities from the presentations. It was therefore very nice that the ATLAS teachers were available during the SER working sessions.

There was also some negative feedback on SDL. The most concerning feedback is the vagueness of the PDP/SER system, which was also mentioned in the semester 1 documentation of the class of 2019. The EduCo 2019 then suggested to look at PDPs and

SERs of previous years, which was picked up by the teachers. Though less efforts seem to be taken for making the PDP a “working document”. It seems that the remaining vagueness of the PDP/SER system is not a result of neglection, but a result of agreements that weren’t adequate enough. The EduCo therefore still suggests to have SDL session that focus on making the PDP a “working document” and reduce vagueness by presenting clear definitions (e.g. for what learning goals are).

Furthermore there are some more suggestions. The SER working sessions were this year given, because the EduCo urged to have them, while last year they were already in the schedule. The EduCo suggests to make the working sessions for both the PDP and SER a part of the SDL course. Another suggestion is to create some kind of syllabus or schedule for the SDL sessions. The time and date was clear to students, but the topic was often announced a couple of days before the actual session. It can be very helpful for the students’ planning to know when they get introduced to concepts such as the PDP and SER.

### *Agreements*

The feedback and questionnaire results were received by Pascal and will be taken into account for Semester 1 of the class of 2021.

## Learning line: Communication

Created by: Elena Dalova

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Semester, Year: Semester 1, 2017/2018, Class of 2020

Teacher(s): Ardion Beldad

### *Summary of the course - Communication*

This course consisted of weekly lectures in which students were acquainted with the fundamentals of academic writing. It was complementary to the social science research project, as it covered the techniques and material necessary to write a research paper. Additionally, the course went over topics such as formulating research questions, critically evaluating scientific papers, and APA style referencing.

### *EduCo semester survey: Communication*

n=11, scale: 1-5

<b>EduCo Criterion</b>	<b>Mean</b>	<b>SD</b>
1. This course sufficiently conveyed both theoretical and applied knowledge	4.0	1.0
2. This course featured both group and individual work	2.8	1.0
3. During this course students were provided with a sufficient level of guidance	3.6	0.9
4. For this course, there was a variety of possibilities to prove your competence	3.4	1.0
5. This course facilitated personalization	3.4	1.2
6. This course related to the semester project and other courses	4.7	0.5
7. The course material was useful and relevant	4.1	1.1

8. This course allowed for an even distribution of the workload over time	3.9	0.9
9. The communication about learning goals, schedule, deadlines and possibilities for evidence was clear	3.5	0.9
10. Feedback given by the teacher(s) was complete, useful and timely	4.1	1.0
11. The teacher was sufficiently available for questions/feedback about the course	4.0	0.9
12. The teacher seriously took students' feedback about the course into consideration	3.7	0.8
13. Sufficient knowledge input and support was given to reach the learning goals set for this course	3.8	0.6
14. The teacher(s) taught the course in an engaging and effective way	3.6	1.0
15. The format of the course was engaging and conducive to learning the course material	3.7	0.8

### *Discussion*

Based on the survey results, the majority of students found the material taught in the course to be useful and relevant to the research project. Ardion's feedback was considered complete and useful, and he was open to questions and feedback. The course scored comparatively low on its individual- vs group-work distribution. While the research papers were written in groups, the course primarily offered opportunities for individual writing practice.

### Learning line: Design

Created by: Elena Dalova

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Semester, Year: Semester 1, 2017/2018, Class of 2020

Teacher(s): Marcus Pessoa, Ingrid Nota

### Summary of the course - Design

The goal of the Design course is to provide students with a general understanding of the ATLAS socio-technical design model. Students are taught about the various stages of a product design process, including problem and stakeholder analysis. The course is complementary to the semester project, where the theoretical knowledge is applied in practice. It was delivered in almost weekly lectures, some of which included practical exercises. Study material was provided in the form of PowerPoint presentations.

### EduCo semester survey: Design

n=12 (n=11 for question 14), scale: 1-5

<b>EduCo Criterion</b>	<b>Mean</b>	<b>SD</b>
1. This course sufficiently conveyed both theoretical and applied knowledge	3.3	1.2
2. This course featured both group and individual work	3.3	1.3
3. During this course students were provided with a sufficient level of guidance	2.8	1.5
4. For this course, there was a variety of possibilities to prove your competence	2.7	0.9
5. This course facilitated personalization	2.7	1.3
6. This course related to the semester project and other courses	4.8	0.6
7. The course material was useful and relevant	3.4	1.2
8. This course allowed for an even distribution of the workload over time	3.5	1.4
9. The communication about learning goals, schedule, deadlines and possibilities for evidence was clear	3.0	1.0
10. Feedback given by the teacher(s) was complete, useful and timely	3.0	1.3
11. The teacher was sufficiently available for questions/feedback about	3.8	1.2

the course		
12. The teacher seriously took students' feedback about the course into consideration	3.6	0.9
13. Sufficient knowledge input and support was given to reach the learning goals set for this course	3.1	1.1
14. The teacher(s) taught the course in an engaging and effective way	2.9	0.7
15. The format of the course was engaging and conducive to learning the course material	2.7	1.1

### *Discussion*

**Positive Feedback:** Generally, students agree on the usefulness of the in-class exercises in making the material more understandable. They also appreciated the opportunity for additional Design evidence (camera exercise). Students found the teachers very helpful in answering questions and being readily available to do so.

**Negative Feedback:** The most predominant feedback point was on the design model itself: it was too narrow for the semester project and therefore could only be of limited use.

Some students found the definitions for values, requirements and functions unclear or confusing, making it difficult to differentiate between them. Similar difficulties occurred regarding the purpose and structure of the morphological chart. In particular, the PowerPoint slides on morphological chart did not provide enough necessary information, which slowed down the progress of several groups.

A minor feedback point was the lack of connection between the course and the DesignLab. Students were not informed in advance that they need a safety tour and a “pass” to use DesignLab facilities, which had a negative impact on the embodiment phase of some groups.

This feedback was reflected in the survey results for the course. It is important to note that they are relatively low compared to other courses, especially the questions concerning the level of

guidance and opportunities for personalization. The Design course naturally scored high on relevance to the semester project and other courses.

### *Suggestions to improve the course*

To make the design concepts clearer, students suggested as overview sheet with all necessary definitions, as well as more in-class exercises, preferably starting from the first workshop. Other suggestions included adjusting the design model to the semester project or vice versa, or allowing students to follow a different design path if they so wish. Finally, students would like to have a safety tour integrated into the general DesignLab tour, so they can directly get access to the facilities.

### *Agreements*

This feedback was discussed with Marcus Pessoa. He agreed on the importance of integrating more practical exercises into the workshops and providing students with a clear overview of all definitions for functions, requirements, values etc. His plan for the next Semester 1 project is to narrow it down and make it more focused on the product design rather than the analysis. In a more tangible project like this, the purpose of a morphological chart will also become clear. The safety tour will most likely be integrated into the general DesignLab tour.

## Introduction to Social Sciences

Created by: Daphne Nelissen

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Semester, Year: Semester 1, 2017/2018, Class of 2020

Teacher(s): Ardion Beldad, Ingrid Nota, Pascal Wilhelm and Elze Ufkes

### *Summary of the course*

This semester the introduction to social sciences consisted of 3 parts. There were proof of concept, lectures with discussions and the research project. During the lectures we got introduced in a certain topic and got theories and examples. After a lecture of about 1 hour, we had a 30 minute student organised discussion about the same topic, but more in depth. The proof of concept was a four hour working session in which students were to write an essay or research proposal about a topic that was discussed in the lectures the week before. The

research project was about one of the 9 topics covered in the lectures, and in a group of 6, students conducted research and wrote a paper about it.

*EduCo semester survey: Introduction to Social Sciences*

n=12, scale: 1-5

<b>EduCo Criterion</b>	<b>Mean</b>	<b>SD</b>
1. This course sufficiently conveyed both theoretical and applied knowledge	3.8	1.0
2. This course featured both group and individual work	4.3	0.7
3. During this course students were provided with a sufficient level of guidance	3.8	0.8
4. For this course, there was a variety of possibilities to prove your competence	3.9	1.0
5. This course facilitated personalization	3.7	0.9
6. This course related to the semester project and other courses	4.4	0.7
7. The course material was useful and relevant	4.1	0.9
8. This course allowed for an even distribution of the workload over time	3.8	0.9
9. The communication about learning goals, schedule, deadlines and possibilities for evidence was clear	3.8	1.0
10. Feedback given by the teacher(s) was complete, useful and timely	3.2	1.1

11. The teacher was sufficiently available for questions/feedback about the course	3.6	0.7
12. The teacher seriously took students' feedback about the course into consideration	3.8	0.8
13. Sufficient knowledge input and support was given to reach the learning goals set for this course	3.8	0.9
14. The teacher(s) taught the course in an engaging and effective way	4.1	0.5
15. The format of the course was engaging and conducive to learning the course material	3.9	0.7

### *Discussion*

In general, the course was perceived positively, as can be seen by most of the scores. A few things stood out, such as that there were some problems with the feedback given by teachers. Additional feedback given about this topic was that the feedback about the POC's was not given in a timely manner. There were also some differences in the amount of guidance people got during their research project. Other subjects that were mentioned were the perceived lack of knowledge for the research project, such as data-analysis, and time management during class.

### *Suggestions to improve the course*

Regarding the peer review, the suggestion was made to either make sure peers have the necessary knowledge to be able to peer review, or let the expert assess the paper. It is also good if the peer review process is made more simple, to improve the general delivered quality. In regard to the peer review process in connection with the editorial board, a transition document was set up by Emily Bankert, Fabian Peri and Margot Schipper. This document has been made accessible to Ans. Ans will then make them accessible to next year's responsible social science teacher. Furthermore, Margot will remain a contact person for the first year students.

Regarding the research project itself, it was strongly emphasized that the research should keep being part of the curriculum, however the tools to do the research should be delivered differently, for example by more supervision on the different groups.

The POC's could be improved regarding timely feedback from teachers. A suggestion was made to start earlier in the semester with the POC's and finish a little later in the semester, to manage the workload for the teachers better. Another suggestion is to improve the POC feedback form, to tackle the dissatisfaction of people receiving feedback from the same teacher on all POC's, and the dissatisfaction of people having their work checked by different teachers. This could be solved by having 2 teachers checking one student in such a way that one teacher checks the first and third POC, and the other checks the second and fourth POC. On top of this, it was suggested to have a consistent feedback form that is being used by each feedback delivery.

The last suggestion was about the lectures. The time division during class was often weirdly distributed and that left either the teachers or the discussions with very little time. To improve this, it was suggested to discuss how to distribute the time for each lecture with the students that would present that week.

### *Agreements*

None of the suggestions were agreed upon yet, since only two out of the four teachers could be available and there were plans to change the course for next year. However, all suggestions will be kept in mind while redesigning the course for next year and the teachers saw the value of them.