

# Evaluatieresultaten: Data science and society

Evaluatiebeschrijving:

## Algemene informatie

Uitgenodigd:	125
Aantal reacties:	45
Opkomst:	36%
Eigenaren:	<ul style="list-style-type: none"><li>• Qahtan, A.A.A. (Hakim)</li><li>• Spruit, M.R. (Marco)</li></ul>

## Cursusinformatie Osiris

Cursuscode:	INFOMDSS
Collegejaar:	2020
Periode:	1-GS
Docenten:	<ul style="list-style-type: none"><li>• dr. A.A.A. Qahtan</li><li>• dr. M.R. Spruit</li></ul>
Ingeschreven studenten:	129
Meegedaan aan tentamen:	122 (94.6%)
Geslaagd*:	100 (82%, 77.5% van het totaal)

\* = Eindcijfer minstens een 6 of een C-.

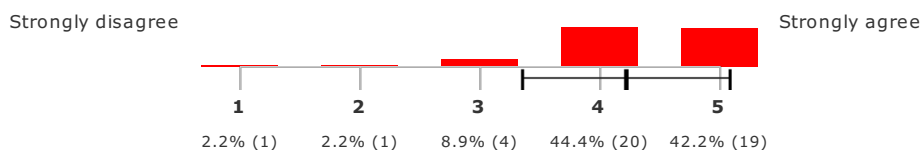
## Behaalde cijfers

10,0	0%	(0)
9,5	0.8%	(1)
9,0	4.9%	(6)
8,5	10.7%	(13)
8,0	18.9%	(23)
7,5	14.8%	(18)
7,0	16.4%	(20)
6,5	10.7%	(13)
6,0	4.9%	(6)
5,5	0%	(0)
5,0	0%	(0)
4,0	0%	(0)
3,0	0%	(0)
2,0	0%	(0)
1,0	0%	(0)
NVD	18%	(22)
Gemm.:	7.55	
Std. dev.:	0.82	

## Overzicht van vragen

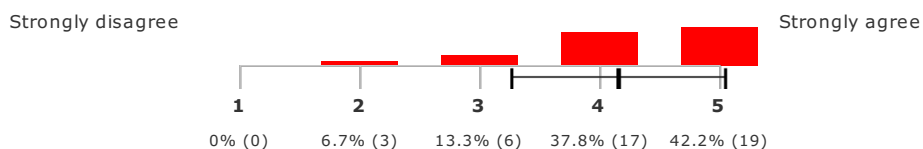
### General

#### I enjoyed the course



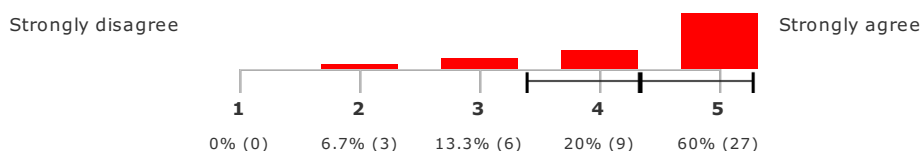
N = 45  
Avg. = 4.2  
Std. dev. = 0.9

#### The course was relevant for my programme



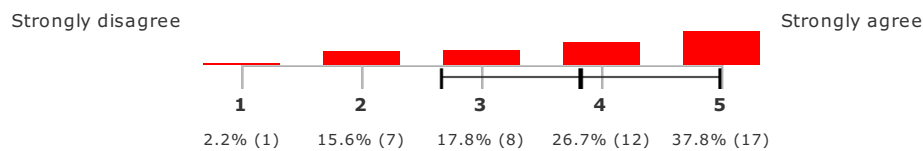
N = 45  
Avg. = 4.2  
Std. dev. = 0.9

#### I learned a lot from this course



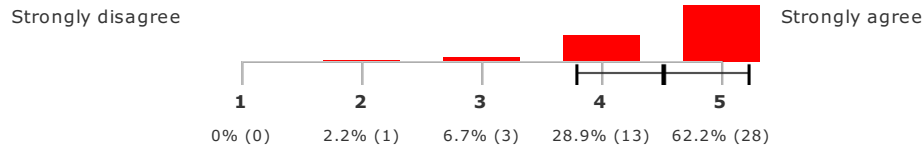
N = 45  
Avg. = 4.3  
Std. dev. = 0.9

### My prior knowledge was sufficient to take this course



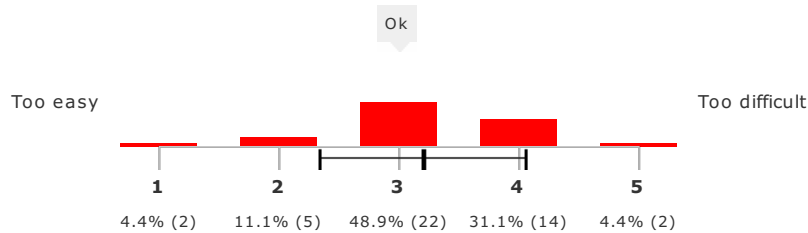
N = 45  
Avg. = 3.8  
Std. dev. = 1.2

### I know the learning goals of this course.



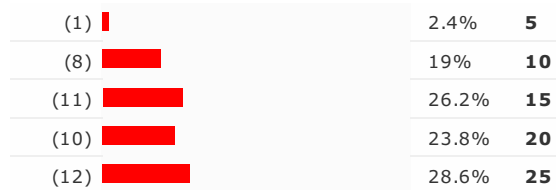
N = 45  
Avg. = 4.5  
Std. dev. = 0.7

### The degree of difficulty of this course was



N = 45  
Avg. = 3.2  
Std. dev. = 0.9

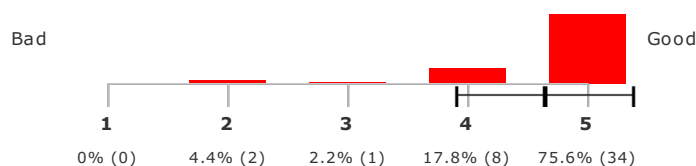
### How many hours per week did you spend on average on this course including classes?



N = 42  
Avg. = 17.9  
Std. dev. = 5.8

## Facilities

### What is your opinion about the practical aspects of the course (communication, website, announcements, regulations, etc.)



N = 45  
Avg. = 4.6  
Std. dev. = 0.7

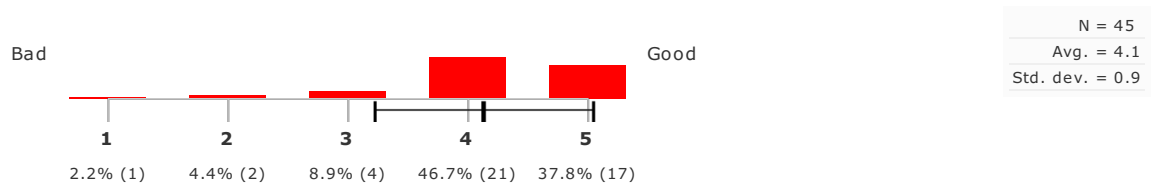
### Other remarks concerning the organisation of the course:

- The course was incredibly well organised and structured, my compliments
- The communication via Teams was really good, and I felt that I had a good overview of the course at all times so I knew what was expected!
- I think the course was very clearly organised since it was very clearly communicated where everything could be found. Additionally I liked the quick response times of the team both on assignments and general questions.
- The assignments were really nice to do and I learned a lot. The timing was also cool, nice job !
- Microsoft Team was particularly suited for this course
- Responses were delayed quite a lot. Clarification on some things much earlier would be helpful like what to prepare for the book pitch in a clearly written document. It's very easy to miss information the way it was conveyed here
- No not really, the student assistants and professors did really well regarding the organisation, announcements, communication in general, etc.
- Good communication, the teams page had a great structure so I always knew where I could find information.
- I can imagine that Corona makes things more difficult but sometimes the communication lacked organization which confused me sometimes. I would recommend to somehow grade the assignments because this will improve the involvement of students. Eventually these assignments is what really makes you learn something about data science so in terms of importance i would reverse the current grading system and make the assignments prior instead of the exam.
- Communication regarding the exams was late. I understand that you guys also have to wait announcements from the RIVM, but as a students we were uncertain for a long period before we received clear guidelines and instructions on how it all would take place.
- The support and availability on teams was superb!
- The course was very well organized and the online quizzes very helpful!
- The course adjusted quite well to the circumstances. Replacing lectures with interactive quizzes was smart. Sometimes assignments were released a little late, but everything was very clear in the end.
- The communication was very clear. Although some people would disagree, I liked it very much that all the data was centralized to the teamspage and the course overview.
- Most of the time, questions on the forum were answered really fast, also by students.
- Clear communicaton.

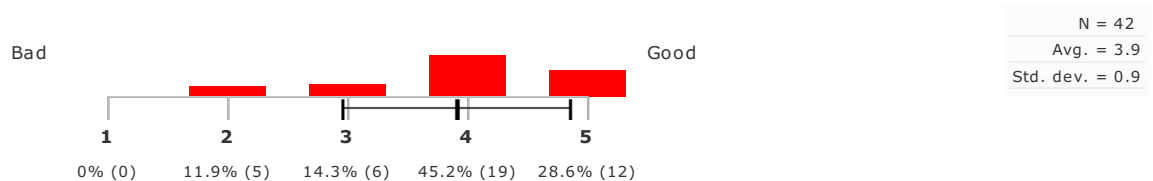
- Perfect that everything was in teams!
- - I would have liked to be announced, in advance and using multiple ways of communication, about the inspection of the midterm. I was looking all the time to see when I can ask for it and in the end I could not do it because I was told that I was too late for that, even though I have announced one day earlier before the actual exam inspection. I hope that this can improve in the future! - I would have liked to have a session dedicated for exam preparation before the final exam where we can ask more questions to the teacher;
- - I would have liked more tutorials for the assignments like the one we had at the middle of the course. - I would have liked that the exam to be focused more on the practicals and less on the theory; I would have liked the assignments to count more towards the grade, or at least, if you did all of them to be able to get some bonus to the final grade.
- The Teams channels were always interactive, Marco and the TA's were really helpful with answering questions in the chats
- Considering the situation I liked the upset of the course. I especially liked that there were assignments, that the theory was given in recorded sessions and that this knowledge was tested with live quizzes. This is because I had a little bit less knowledge than was expected (not a lot of python and statistic experience). This way I could pause the lessons to make notes. With the assignments, I learned python with more support than if it would only come on the exam. One thing that would have been really useful was tutorial lessons in Python. In the first chapter, the book explains the package panda but after that, a lot of Python code is used without explanation. With this tutorial, I mean something completely different than the tutorial that was given. This was about creative results but didn't help me as a starting python user at all.
- Compared to all other online courses I have been having so far this course has been excellent. Everything was clearly communicated through Teams, every recorded session could be found in one place, the assignments & exams and what was expected from us were clear. Great organisation.
- The teams communication was really nice! Quick responses, clear channels. Perfect!

## Course material

### What is your assessment of the course material (readers, books, literature)?



### What is your assessment of the literature used?

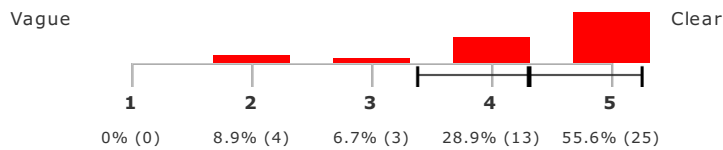


### Other remarks concerning the literature:

- Only the Clark chapter concerning linguistics was a bit too difficult and vague in context with the rest of the literature and course
- I liked the book with the python notebook structure very much, this was very straight forward incorporating relevant practical applications to the general theories. One remark, perhaps you could find a more accessible version of Hutter's chapters theories as it was written very complicated while the underlying theories are not that hard. The large amount of complex notations made it a very tough chapter to go through
- I think the book was really useful for the first chapters but I find it more shallow for the last ones.
- One assignment (A2.9 book review ) expected that we bought a book. Fortunately, I found it in pdf on the web. Otherwise, I should have bought it with my personal money.
- As someone with a background in statistics, I think that the chapters on descriptive and inferential statistics aren't that well written in the book that we're currently using. However, the other chapters were informative IMO.
- Because the course was really broad regarding topics, it did contain a lot of literature. So the course material was pretty extensive but it was worth a read.
- The main book that was used (Introduction to Data Science) was sometimes a bit unclear and had some mistakes in them, as pointed out in the teams group. Some diagrams were swapped or explanations were incomplete or incorrect. Overall the book was useful but because of these shortcomings, it was made a bit more difficult than necessary.
- No further comments
- Having one textbook for the assignments is useful. However, any other literature which was referenced in the recorded lectures or anything were not distributed by the staff. We had to look it up ourselves after the lecture. It would be beneficial if these were distributed beforehand. The literature was not mandatory, but I prefer if I know what to expect when following a lecture.
- I haven't used it.
- Book pitch was not helpful to study and we needed to buy it.
- The Igual book was a great starting point for the content that we covered. There were some errors in the book, but that wasn't really a big problem.
- The book had too little explanation in the more complex chapters. For example, there was not enough explanation given for certain pieces of code which I found confusing. I did really like the notebook version of the book though.
- Very clear what to read. I really liked the book! Also the assisting jupyter notebooks were very nice!
- The chapter on NLP was quite difficult to understand
- I really enjoyed the fact that we had an 'interactive' book including Jupyter notebooks, but the quality was bad. There was a lack of coherence between the various chapters, the random use of packages that weren't introduced was confusing, and some paragraphs seemed to be literally copied from Wikipedia.
- I liked how the book took you through the introduction of data science with python. However, the text was very difficult to understand and the number of errors in the book was quite disturbing. In the end I googled the key terms mentioned in the book to read the wikipedia page and watch some educational clips on youtube. The book went in to details very quick before explaining what the chapter was actually about.
- The main book was very interesting.
- Personally I did not use any of the literature, only the slides is sufficient. The slides and knowledge clips were fine, except for one clip about the NLP examples including Bert etc. These clips were hard to follow and the audio was really bad.
- - Some of the articles that we had to read were a bit too hard to comprehend at first glance and needed to allocate quite some time for reading; I would like the teacher to point out the most important parts from the literature, the points that will be discussed in the exams.
- Some of the chapters were really difficult to understand, but it's really good there were recorded videos.
- The book of Igual & Segui had many, many errors in it. Not only grammatically or typos, but also just completely wrong information for certain graphs or incorrect Python code.

# The lectures

## The lectures were

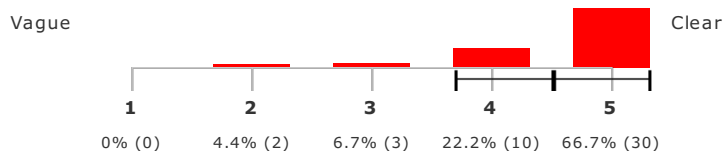


N = 45
Avg. = 4.3
Std. dev. = 0.9

## Other remarks concerning the lectures:

- Some guest lectures, especially the NLP embedding lecture were difficult to follow as sometimes the overall point was lost in case studies.
- Combining the videos and quizzes would have been a better choice. Sometimes you spend 2 hours watching the pre recorded videos before you could even join the lecture with the quiz. Not even mentioning the time spend you reading the book.
- In my opinion, the two more difficult topics to understand were the Hadoop/Spark and the web lectures about NLP
- The guest lectures sometimes had really awful sound quality. There should be at least some kind of quality assurance so students can actually understand the lectures (mostly referring to the NLP lectures). The network lecture was way out of touch with the quiz - lots of questions were transfer questions that go way too deep into the material - this is not fair for a course that touches on 2 different subjects each week
- I would like to make the biggest compliment to the whole teaching staff regarding the lectures. It is great that you've not only adapted your education to the COVID-situation, but you've actually used the opportunity to try new forms with the prerecorded lectures and quizzes. I would advise to keep it this way after COVID (with the interactive live sessions and prerecorded lectures).
- As much as I enjoyed the course, I must be honest and say that the lectures were really minimal in terms of elaborate explanation on all topics. For each "grande" topic I had to watch another 2 hours lecture on youtube in order to understand it completely. I think a lot can be gained in terms of explaining concepts in a more inspiring and elaborate way. One online lecture that I liked particularly is this lecture about NLP: <https://www.youtube.com/watch?v=xvqsFTUsOmc> Other students were really helped by this lecture as well thus maybe can be of inspiration for future lectures.
- Just having quizzes as actual lectures comes across very lazy on your part. Just think of a few questions and know what the answer is and the rhetoric behind it and just let the students do the work. As for the recorded lectures, it is nice that they are there, but if you do not understand something you cannot directly interact with the lecturer to get clarity. The lectures in this course actually felt like an overpriced streaming service with a built-in kahoot rip-off.
- I watched them at 2x the speed.
- There was too little attention for the students understanding of the course material. A menti test might sound interactive, but it did not help me understand the material better. I would way rather have a 2hr lecture with more explanation about the material than those often quizzes. The quizzes could still be offered to students as practice material, but I don't think they are that important that they take all lecture time.
- The lecture of NLP from the two guest lecturers were very unclear
- The quizzes were very helpful for actively testing your knowledge about the subject
- The format was good, content was generally clear. Some of the guest lectures were really interesting (for instance the one on networks), but some clearly didn't have their audience in mind (the ones on linguistics) or the information wasn't really relevant (autoML).
- Most of the lectures were very clear but sometimes it was difficult to get the key concepts. This was especially true for the NLP lectures.
- Some of the prerecorded lectures were really annoying to listen to due to background noises, difference in volume per slide and
- All lectures were prerecorded knowledge clips. This is fine, but by doing a quiz about each and every one of them, makes the number of quizzes a lot. This is fine, since the exams were based on these quizzes, but the time spent on the lectures is now actually doubled.
- - Most of the questions that appeared during the online quizzes were not answered very extensively by the teachers.
- The quizzes were a good and fun way to make us read the book.
- The first lecture was of lesser niveau than the other lessons. Try to make the following things clearer in the first lesson: - that all the material is recorded and can be find in MS Teams. - That the live lessons will be used to testing the knowledge of students and is the time for questions

## The lectures of instructor Spruit, M.R. (Marco) were...

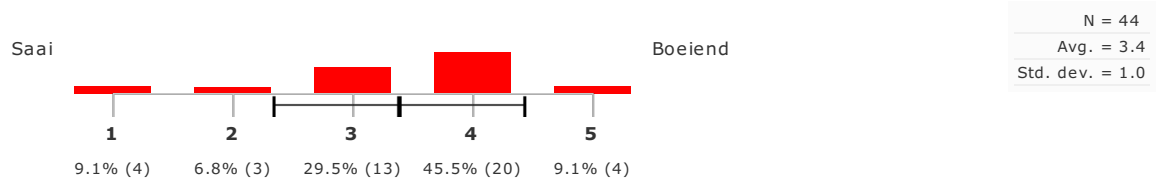


N = 45
Avg. = 4.5
Std. dev. = 0.8

## Other remarks concerning the lectures of Spruit, M.R. (Marco):

- Very clear structure, good articulation of the concepts, overall pleasant to listen to. I also liked the enthusiasm with regard to answering questions and engaging the students in the chat. This way it was enjoyable to follow the lectures even despite the Corona measures
- Love it, very enthusiastic. Marco clearly has a lot of experience both in- and outside academia.
- Not really, maybe talk slightly less during the quizzes :D. Because the quizzes were pretty competitive haha, so we need to have the full focus on it.
- Same as general lecture comments
- Thanks a lot!
- They were good.
- Great enthusiasm, but try to keep an eye on the time. Sometimes we only started the Menti quizzes after 30 minutes of really irrelevant questions by students.
- I filled it in the saai/boeiend way.
- - A different way of presentation would be nice (more interactivity) - I liked that the lectures were uploaded in the general files tab before the online quizzes so that we can prepare in advance.
- Marco explained the material really well and his recorded lectures were interesting to watch

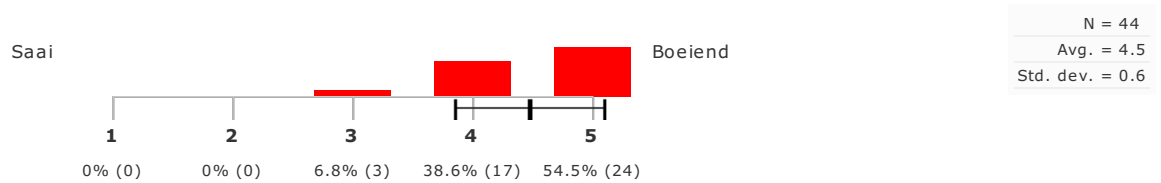
**The lectures of instructor Qahtan, A.A.A. (Hakim) were:**



**Other remarks concerning the lectures of Qahtan, A.A.A. (Hakim):**

- I found them relatively hard to follow
- I found the lectures to be clear but i think that the logical notation of some aspects, especially in the unsupervised lecture made it more complicated than it could have been if natural language was used in the slides but this is personal preference
- The lectures by Hakim were sometimes a little unclear to me. This is due the combination of a lot of mathematical notation and a somewhat heavy accent from time to time.
- Because mister Qahtan wasn't there a lot of times, due to the fact that he was probably busy with the new master program, but his material was sometimes a bit difficult to understand (not because of him, but because of the chapter(s) that he needed to explain. It could've been nice if it was possible that he could be there during the quizzes (I could only recall one time that he was there at one the quizzes about his subject).
- I think this has something to do with the tone of voice because it was all so monotone which made it very hard to pay attention on the difficult explanations that mr. Hakim mentioned.
- Hakim got the 'dry' matter of the course to teach in his recorded lectures. More specific implementations or some trading of content with others could help making the matter easier and more fun to understand
- Thanks a lot!
- They could have easily been replaced by just linking to a youtube video. It felt as an insult to have an actual assistant professor explain such elementary stuff.
- The important aspects of the lecture like the formulas and how these work where explained very rapidly. It would have been nice if there was a bit more thinking time for these formulas. Other concepts where explained very clear with accurate tempo. Thank you.
- Hakim was a little hard to understand sometimes
- - More interactive way of presentation would have been nice.
- Hakim explained the material really well but some of his lectures were with lots of texts on the slides and reading through them, making it difficult to follow especially the long recorded lectures.
- I liked Hakim's lectures as well, but opposite to Marco's, they could have been a bit longer or more extensive, as I felt that some concepts were rushed through leaving me not understanding it completely.

**The lectures of instructor Max van Haastrecht were:**

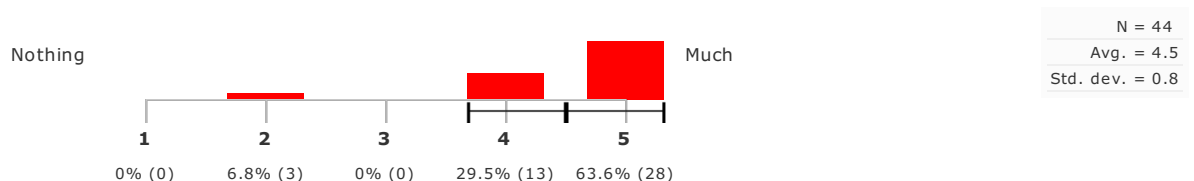


**Other remarks concerning the lectures of Max van Haastrecht:**

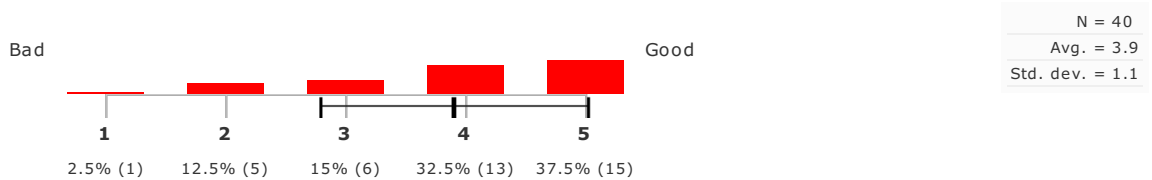
- Really liked Max ´s lectures!
- Great, enthusiastic!
- Max was clear and could explain his material really well.
- I think out of all the lectures I liked the lectures of Max the most! He made it really to understand, was enthusiastic and used practical examples of the concepts he just explained. Really liked the lectures!
- These lectures were really clear, although I sometimes felt like he assumed we know and understood way more than we actually did.
- Thanks a lot!
- Max's lectures were the clearest of the whole course, he is able to explain everything very well
- Max's presentation skills are amazing. His lectures were very entertaining, densely packed with information and well-adjusted to the audience.
- It was not my favorite topic, but Max van Haastrecht has an outstanding feeling for teaching.
- - Easy to understand and covering the basics; I liked it.
- Max explained the material really well also using examples. It was really helpful when he ended the lecture with additional recommended learning resources.
- Max's lectures were perfectly balanced between too fast or too slow, and between easy and difficult. I found it really easy to listen to him and enjoyed his lectures very much.
- Perfect! He should give more lectures :)

**Lab assignments**

**Did you learn something useful during the lab assignments?**



## The coaching of the lab assignments was...

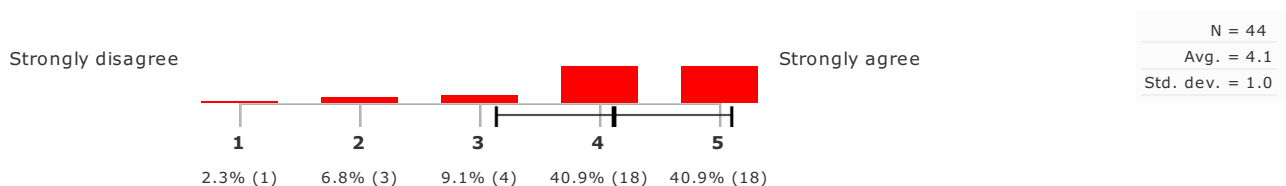


## Other remarks concerning the lab assignments:

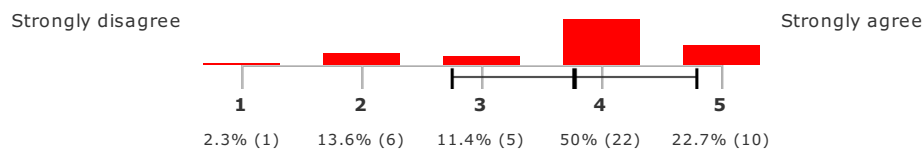
- I think there were way too many without them being graded. I spent a lot of time on trying to get things to work in Python, which is really useful, but not reflected in my grade in any way
- I would like to see this in other courses as well. I liked how well the assignments were aligned to the lectures of that week. This way i had to engage in reading the literature at a time that it was relevant. Also the notebooks made it easy to work in smaller exercises as opposed to producing a large code in one go. This way it was easier to follow. Tldr i liked the assignments and the coaching was also very good
- Thank you for answering all our questions in the channels :)
- the learning curve of the assignments was very steep. This could be be better. Besides that it was very weird that the book pitch gave you the same amount of points as a single assignment while it took almost as much time as all the assignments combined. It seemed not really a fair distribution
- The assignments work well because practical examples and experiences are the best way to learn a language program (ex. Python). On the other hand, coaching was relatively useful .
- For me it was the first time using Python. It was very nice that we got a gentle introduction in the first assignments. However, I sometimes missed some information on the Python structure (e.g. difference between methods and functions). On the other hand I understand that the majority of the students have worked in Python so I get why not much attention is spend on this. My advise would be to state a little more strongly in the course description that it is highly advisable to do some introduction to Python course before starting this course.
- Great work on the assignments and guidance via teams!
- Most coaching came from fellow students, which was useful. The lack feedback in the course was dramatic. We received a pass or a fail, without any explanation what we did well or wrong. Sometimes, in the quizzes, a common failure was addressed, but this was rather exceptional. I think the lab assignments were corrected by Max and the three Student-Assistants. You should employ more SA's if the workload does not allow for feedback to be provided.
- As a computer science bachelor student it was too easy. I haven't looked at the coaching.
- Lab assignments were a little long sometimes. Also, I did like that you had the possibility to ask questions via teams, although I would rather have the possibility to do this anonymously or in private conversation.
- The quizzes were very informative! Greatly helped to test my knowledge and to see if I missed something. Also very much helped in summarizing all the important topics
- I really liked the teams group!
- They were really helpful for studying the subjects, using the pass/fail system took away the pressure to get a good grade for each assignment, but still motivated enough to take your time for the assignment and really trying to understand the concepts
- I really enjoyed the assignments, even the ones that were very vague. Figuring out how stuff works and working with bad code from others is something we'll probably encounter in our professional lives as well. What I really disliked is the role it played within the course. It was quite a lot of work, but not always the 'right kind' of work. Time was often spent troubleshooting problems not relevant to the course, but just to working with python in general. It also felt bad that this work was not valued by means of a grade or something like that. We could now skip three assignments without consequences and hand in low-quality work, since it was just a pass. I didn't like doing that, but putting even more time in it would simply be a waste.
- It would have been nice if there where on campus oppertunities (in small groups of course) to ask questions about the assignments. It could take a few hours before someone responded in the teamchat which affected the continuity of making the assignments. Another solution would be working in teams so that you could directly respond with your fellow students. The assignments took most of the part of the course now because of the lack of direct answers for problems that arise with programming (appr. 20hours or more per week).
- I really likes the assignments and I was very happy that I was able to finish all of them. However, sometimes I spend a lot of time on them (1.5 day). This was probably due to my non-existent programming background. If this was not be the only course I had during this period, I could not finish the course successfully.
- I am not sure how the lab assignments helped me during the course. This is party due to it was more a task of copying than understanding.
- I hoped the assignments would have been a bit more challenging.
- Perfect to just add questions in the teams! Now it is useful for everyone, not for only you, as happens in a usual lab assignment setting on campus. I really enjoyed how the assignments were set-up. Personally, I think it was quite easy to do, but having no prior python experience it was hard I guess for some.
- - We did not have any coaching provided by the teacher so maybe next time try to assign some workgroups so that people who are not as good at coding can get some help from other fellow students.
- Max and the other TA's did really well with helping us and answering our questions. However, having to do these assignments individually remotely was really difficult and time-consuming
- I'm assuming the 'lab assignments' are the Python assignments. I liked doing them, they taught me about both data science and Python coding itself. One thing that was a bit strange though is that often, they could just be completed by copy and pasting (and making minor changes to) the code from the Igual & Segui chapter, which meant that sometimes we didn't have to think some things through but just apply them. Not that I'm complaining, as I think the difficulty level would have shot up drastically if this were different, but some parts didn't really teach us anything.

## Assessment

### The exam represented the content of the course well

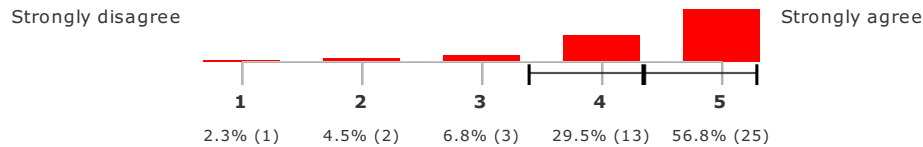


### The level of difficulty of the exam was in accordance with the level of difficulty of the course



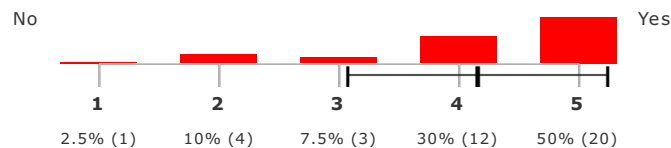
N = 44  
Avg. = 3.8  
Std. dev. = 1.0

### All aspects of the examination such as form of assessment, content to be learned, grading, etc, were clear to me



N = 44  
Avg. = 4.3  
Std. dev. = 1.0

### Was the final exam in accordance with your expectations?



N = 40  
Avg. = 4.2  
Std. dev. = 1.1

### Other remarks concerning the final exam:

- I think a balance of 30/70 for the midterm/end exam would be a better evaluation of what we've know and have learned from the course.
- I think it's difficult for students during these corona times and I feel like you have taken that in account for the exam, so thank you.
- It was not clear whether the final exam would be about everything or only the second part of the course. During the lecture and on teams there was mentioned that it would be but even at the start of the final exam the introduction said that the exam would only be about the second part of the course (which was not true)
- I found the exam quite easy, especially in relation to the more difficult topic we dealt with at the end of the course.
- Nope
- Most questions were just questions from the quizzes.
- This lecture was great. I really learned a lot from this lecture.
- The final exam was very fair, maybe even a little bit too easy...
- The exam was quite easy as most questions were already shown to us during the course, however, as I learned most from the assignments and spend a lot of time on those, it was balanced nicely
- It is already pretty bad to have 100% multiple choice examination, and it was way too easy. About 80% of the questions were known beforehand, which is a joke. Questions were badly formulated and sometimes vague (although I do appreciate that the extremely vague questions from the quizzes were not included). I did not felt taken seriously as a master's student with this kind of examination. I could easily manage the course with just 10 hours of work per week, which should not be possible.
- 100 multiple choice questions, of which most of them have already been asked, do not motivate me to study at all. I would, especially since it was an on-campus exam, try to put more open questions in it to keep it positively challenging.
- I didn't expect the final exam to almost only consist of questions from the quizzes that we already made. Therefore if you don't study at all and just learn the quiz questions, you will get a sufficient grade as well. That doesn't feel very fair or representing the course.
- The midterm was I think 50% about the quizzes, the final for about 75% I think. Really learning the quiz questions by heart paid off well. Even though I am happy with the grade, this type of examination felt weird and a bit too easy, since most questions were available.
- - Overall, I was prepared for the final exam but I would have gotten a better grade if I was allowed to see my midterm.
- The final exams were both really easy if you participated in the quizzes, as more than half of all questions were just copy-pasted from those quizzes. I'm not complaining, they do measure what we've learned from the course, and grading exams from 100+ students with open questions is impossible - but I do not completely feel like these were exams from a Masters course. We didn't have to 'learn' anything besides just repeating all quiz questions the day before the exam. Also, as a side note, things could be improved around the Corona-measures during the exam. I liked that we had a physical exam, it was great we could be there. However, especially before the first exam, there was no 'corona-coordinator' to be seen anywhere and a lot of students did not socially distance. I also do not understand why we all had to be in the same room; there were two rooms booked, why not do it 50-50 instead of us all 100 in the same room!?

## Finally

### If the course were changed, what should be kept the same?

- I really enjoyed the quizzes and made me understand what was expected from me to know for the exam. I also liked the assignments.
- The Q&A sessions were great
- Definitely the python book along with the notebook assignments, this helped to put the learned concepts into perspective
- The structure, the lectures, the quizzes were really usefull and nice to do !
- the assignments were hard but usefull
- The online version of this course was quite well organized. I would not change this aspect. For example, the Microsoft team platform worked well.
- Most of it, especially: pre-recorded lectures, quizzes, active teams-page, the lectures, the enthusiasm.
- It is difficult to predict if the course structure remains the same regarding next year, due to the fact that it is maybe possible for new students to physically attend the course. But if the situation remains the same, which I hope it would not be the case, then it should be the same as how it is organised now.
- I really liked the popular data science books we had to read. It might have cost me quite some extra time, especially when also keeping up with the assignments. However, the books put the course into perspective and showed the relevance of data science.
- Content of the course

- The support and availability in teams, the buildup in assignments, showing the connection to the learning goals, the book assignment
- I would definitely keep the quiz and the coding assignments.
- The assignment was useful to learn the topic deeply.
- The structure and the quizzes
- Great course. I think the concept of watching the video at your own pace/time and doing the quizzes at the set times was great.
- I really liked the course! I liked that you could ask every question in the teams.
- The assignments
- Using videos instead of lectures is good and very efficient.
- the assignments
- The aspect of lectures that were available beforehand combined with the interactive lectures was nice.
- The assignments, the mantimeter, the specified educational clips (not the 45 min clips or break them up in specific topics). I really liked the dynamics that there were several ways to get acquainted with the course materials.
- The structure of (well) prerecorded lectures and the menti quizzes
- The weekly quizzesz.
- The assignments
- The python notebooks, just easy to work with, having the chapters available, makes the assignments quite fun.
- - the online quizzes - the knowledge clips - the books
- The course covered a broad range of subjects regarding data science, and all subjects were treated equally deep. Of course it is not possible to delve deep into either subject, but the broad range kept it engaging throughout the whole course.
- In my opinion, even though the course material was difficult, the interactivity and willingness of the teaching staff to help the students made it possible to achieve this course
- The setup
- The quiz sessions were very nice and tested us on our knowledge of that week's content. The content itself was also pretty interesting. I learned a lot of Python through the weekly assignments, which is also very nice.
- The teams communication was perfect. Really involved lecturers, who helped out. Assignments were good. Nice that you don't get a grade. This helps to keep you mkticafes

### What can be improved on the course?

- I think a minor point of improvement could be related to the book review and pitch. I think it would be clearer to state the exact format from the start. So either a book review -> in which you can be critical or a pitch to try to sell the book. Now it seemed a bit vague what was expected in what type of format.
- The workload is fine, but it is not that flexible. Because there are so many deadlines it can be really hard to work on this course and other courses at the same time. I needed to prioritise this course almost every time because I had a deadline, which dictated my schedule
- Remove the random bonus points please, they feel unfair to students doing every other aspect of the course but maybe not end up having their pitches chosen (as this was very subjectively decided and is not really reflecting what they've learned from this course). I do like the idea of reading a popular data science book along with the rest of the course material, and I get that the other assignments are not graded/rewarded as doing them will likely end up giving you a better grade as you are better prepared. But I don't see why someone should receive a bonus for a pitch compared to fex. handing in the other assignment in a really good way. What if a student hands in really good assignments with beautiful graphs for all the coding assignments? I think they would have deserved some extra points as well then. I think it would have been interesting to make the assignments fewer, but bigger and not just following a book. It would have been cool to do a small data science project into something with a societal impact and follow the crispsdm model.
- No real big improvement to the course but perhaps test the assignments notebooks a bit more extensive before publishing as there were some troubles with for instance the embedding where memory ran out and libraries were not always easy to install but this is only a minor problem
- Maybe make a part of the grade for the assignments. Maybe something like +0.5 if you have done all assignments.
- better way of implementing the book pitch or skip it
- The submitting deadlines. They could have been organized in a better way in order to avoid that the students rush to complete the assignments. (In some cases they were changed)
- I think some more time could be spend on discussing the assignments. Also I found the book review assignment a bit vague, which came back in the reviewing (e.g. people saying you shouldn't criticize in a pitch). Especially because the book review was part of the (bonus)grade, this felt a little unfair.
- Sometimes the assignments were dropped from the list, but it was still provided for the student to try it yourself. Maybe provide some demos about the more advanced version of MapReduce for example.
- Grading system of the assignments and the lectures. Make the lectures more attractive in terms of explaining the difficult concepts.
- It is a busy course (100+ students), and I have the feeling that the staff was not prepared to this (even when this course is mandatory for MBI-students). I understand the convenience of recorded lectures for both lecturer and student, but I think it should be in addition to actual lectures. A lecture should be a teacher explaining new content, and students having the option to ask questions to foster interaction. This was absolutely not the case. As for the book report, the contents of the pitch were vague and it should be presented as a clear assignment with assignment instructions.
- The book assignment should be either a pitch or a book review, or should be defined much better.
- Some lectures had too much literature. For example the Natural Language Processing lecture had 2 chapters from 2 different books, 8 videos + 1 nlp evaluation from Mosteiro + 2 Assignments. Although very helpful, the workload to do everything exceeded the normal.
- Book pitch was not useful to understand the topic.
- No two lectures a week spend on boring quizzes. I would have really enjoyed more explanation during these lectures. Not just the short knowledge clips.
- Not sure if possible to change but the videos uploaded were very large mp4 files. A short video of 10 minutes sometimes already was 700 mb. This was not always very practical
- I think the lecture of NLP was very long and complicated and the two lecturers were very difficult to hear.
- The level. It was way to easy, and the hardest part (assignments) weren't graded. 100% multiple choice examinations should be illegal in a 'research master', and recycling questions like this is indeed an efficient way to run a course, but absolutely ridiculous. Any smart high school student could have passed this course in half the time that it should take according to the ECTS.
- More tutorials before assignments
- Make the assignments more interactive. Now it felt like you had to solve it on your own (especially with lack of profound programming experience).
- May be communicate better when and for what you can get bonus, sometimes it felt a bit like Oprah (and you get a bonus and you get a bonus). Also the NLP guest lectures were not very clear and difficult to follow. Another point as i mentioned earlier, since I had no background whatsoever in maths, statistics or programming it was quite tough to follow, especially with a book which is not very clear. In the end I spend almost 40+ hours a week on the course, which was fine because I enjoy learning new things, but was quite tough. It was manegable because it was my only course that period, but may be a heads-up for newbies would be nice.
- The quality of some lectures, trying to make some moments more Q&A en the multiple choice exam.
- The final exam.
- Labs
- - I think incorporating the assignments and the knowledge clips would make this course so good! Seeing a clip and then immediately applying the technique in the assignments afterwards makes the course easier to do at your own pace and since all was at home, having multiple shorter videos in between the exercises would be great. Instead of a long video and then a long assignment. This would result more in a sort of MOOC-course, but this suits this course I think.
- - more attractive way of presentation -more practical knowledge sources to be provided
- That the grading is mostly based on two MC exams, some recognition for above-average performance on the weekly assignments in the grading scheme would have been fair.
- Grading of the assignments, it took a lot of hours and effort to do the assignment especially since we're studying remotely and everyone works on their own more or less. It'll be good to grade the assignments for the effort put into it
- The tutorials and explanation about the course setup



- The grading around the book-assignment. I thought it was pretty weird that you can only get points subtracted (0.3) if you actually have one of the best pitches. I myself wasn't selected, which also made the whole thing feel a bit pointless - that would be less so if the pitch grade would count for 5% of the final grade or something like that. (also this has been said in the Teams chat I believe, but if you seriously copy-paste a book review from the internet in a Masters course you should definitely get in trouble with the University)
- Give a grade for the pitch. It was quite some work, and I would like to get rewarded with a grade.









#### Which subjects did you expect from the course, but turned out not to be part of it?

- At first I thought there would be a tad more focus and guidance on programming in Python. Which in fact I didn't miss at all. In other words, it's not meant as a suggestion for improvement, I really liked the current format.
- Maybe a very short crash course on informatics 101 like what is in a processor, the RAM, etc for students who don't have a computing science background. It could help them to have the right vocabulary from the start.
- None
- I expected a little bit more on the actual impact of all those developments in datascience in practice (e.g. the STRIPA example)
- NA
- Everything I hoped for was in the course
- Data scraping from word/PDF-files and website
- I never have many expectations, hence my assumptions on that it was going to cover basic things in datascience were met.
- I thought that DNNs would be a part of the course, but that's fine I guess.
- I expected to learn python and yes I could learn python a lot.
- More details about neural networks
- -
- More challenging exercises.
- None actually.
- n/a
- A bit more statistics and how/when to use them (such as Chi-2, ANOVA, etc.), now they were briefly mentioned but not really used/applied.

#### Other remarks and suggestions:

- Having taken DAV last semester, it feels very similar but only using python. I would have liked these courses to work together a bit more, and not just feel like repeats of one another.
- Overall I enjoyed the course, i feel it is very well structured and it made me genuinely interested in data science. This course made me decide to go for the Data Science profile of business informatics
- The focus on NLP and linguistics is way too much. I also wrote my bachelor thesis on these topics, have a background in theoretical computer science that touches upon things like pumping lemma, context-free grammars and all that stuff but this seems super irrelevant for the course. Why do we only take such a deep dive on this topic?
- Loved the course, thank you all very much!
- No remarks and suggestions from my side. Maybe provide the solution of the assignments more in an active way. Because after the exam we had plenty of time to maybe discuss the results of the assignments.
- Overall I really liked the course, thank you for all the effort!
- I feel like the staff was very busy, and perhaps even overworked. Don't hesitate to ask for additional SA's.
- The course exceeded my expectations, so far it is the best course that I have attended in Utrecht University by far.
- Very good lectures.
- Enjoyed the course a lot and learned lots of new things. There was clearly a lot of effort put in to make it interesting and accessible and everyone involved was very enthusiastic which made it more satisfying to study for.
- It was a really good course which I enjoyed very much and I definitely do not regret starting the ADS profile.
- Having the same questions in midterm and endterm exams is in my opinion not beneficial since being tested twice on the same thing is unnecessary, especially since we were not shown the correct answers of the midterm.
- Thanks for teaching a useful course and good luck with organising the resit and teaching it next year!
- I really enjoyed the course despite the level of difficulty, I learnt a lot from it as well.
- Thank you for the great course! (Also, I know the old adage 'there are no stupid questions', but during this course I sometimes doubted that when looking at the chat. Thank you for the patience to answer all of them and repeat the same information 100 times, I can only respect that)

#### How would you evaluate the overall quality of this course on a scale of 1 to 10?

(0)	0%	<b>1</b>
(1) 	2.7%	<b>2</b>
(0)	0%	<b>3</b>
(1) 	2.7%	<b>4</b>
(1) 	2.7%	<b>5</b>
(1) 	2.7%	<b>6</b>
(5) 	13.5%	<b>7</b>
(14) 	37.8%	<b>8</b>
(13) 	35.1%	<b>9</b>
(1) 	2.7%	<b>10</b>

N = 37
Avg. = 7.9
Std. dev. = 1.5

## Reacties

**Maree, J. (Hans)**

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Thank you for taking the time to fill out this Caracal evaluation! We are obviously really happy to see that you liked this all-new online edition of the Data Science & Society course so much! Thank you in particular for adding the many textual remarks, both positive and critical. Many of you enjoyed the combination of prerecorded lectures and interactive quiz-based sessions, as was also apparent from the number of students participating in the quizzes throughout the course. I do agree with the remark that it would even be better to mix the live quizzes up with more explanatory slides on the key theoretical concepts. And indeed, the recording quality of a few prerecorded lectures were not as good as they should be. On a final note, every year it is interesting to read about your thoughts regarding the assignment submission setup without grades. Personally, I think it helps reduce stress for the "typical" students (and for the SAs!), but I agree that we could rather easily integrate the opportunity for the most ambitious students to get bonus participation points as well, so this suggestion could be implemented in the 2021 edition IMHO. All in all, again some valuable feedback on things to tweak or to leave as-is for the next edition!

As the teaching team we also felt that the course design worked and that the execution went pretty smoothly as well, which is a solid sign that this year's student/teaching assistants (Mehrad, Floris, Thomas) as coordinated by Max did a truly remarkable job! We also note that you, the active students, did laudibly well; although some assignments were really easy, others were also really tough, but we could tell that most of you tried hard to get satisfactory results, and even helped out your fellow students in Teams if you could.

Concludingly, on a personal note, thank you for engaging so actively in this very satisfying edition of this Data Science & Society course! You have been my final cohort of master students at Utrecht University, in whom I hope to have awakened a Spark of Data Science Joy. I am now continuing my data science work at Leiden University. All the best in completing your master programme and pursuing your dreams!

Marco, also on behalf of Hakim, Max, Floris, Mehrad and Thomas.