



Course analysis

Course name and course code: Selective Organic Synthesis, CE2385	When the course was conducted: HT 2022, Period 2
Course coordinator: Helena Lundberg (course coordinator, examiner, lecturer, teaching assistant)	Other teachers in the course: Peter Dinér (lecturer) Markus Kärkäs (lecturer, teaching assistant)
Number of registered students: 8 + 1 re-registered	Degree of examination after the 1st examination occasion: 7 A–E of 7 in total (two did not take the exam) = 100% of the students that wrote the exam
Explain how the students' views on the course have been obtained (course evaluation form, course evaluation board, other), as well as main views from the students: <p>The students' views were obtained through a course survey that was divided into two parts, consisting of one part that contained questions from the LEQ and another part containing more course-specific questions. 44% of the students (4 of 9) responded to the survey (43% in 2021, 42% in 2020). Overall, similar results were obtained in the course evaluation as for the 2021 and 2020 course rounds.</p> <p>2022: Overall, the LEQ-evaluation indicates that the students are satisfied with the course: “Overall, it was a very fun course. It had a clear structure and it was easy to understand what was expected of you. We worked with interesting topics and a lot of real life examples which always keeps it more interesting”, “really exciting course content! I very much appreciated how relevant it is to the organic chemistry research being conducted today, especially regarding transition metal catalysis, electrosynthesis, and photoredox.”, “I really appreciated the communication in this course. It felt like all teachers really cared about making sure that we learned in a way that was suitable for us, and that you really wanted to make the course the best it can be. We got the opportunity to approach the material in several different ways, and it felt like I got a really deep understanding about the subjects”, “Lovely course!” and “Probably my favourite course ever :-)”. Furthermore, in the specific course evaluation the students gave very high marks with respect to the content, literature, lectures, coordination between the lectures and exercises and how well the hand-in questions contributed positively to their studies. Overall, this suggests that the course content and the organization of learning activities worked well from a student perspective.</p> <p>The students agreed to a high extent (2+ on a scale from -3 to +3) with all LEQ statements except 2 (“The intended learning outcomes helped me to understand what I was expected to achieve”) that received the lowest mark in the LEQ (1.5), statement 5 “I received regular feedback that helped me to see my progress” (1.5) and statement 13 “I was able to learn from concrete examples that I could relate to” (1.75). In the course specific evaluation we note that high marks (3.75+ on a scale from 1-5) were obtained for all questions asked except for those that related to student preparation “How much did you read in the course literature?” (2.75), “How much did you prepare before the lectures?” (2.75) and “How</p>	

much did you prepare for the workshops" (2.75). The need for a higher degree of own preparation is also highlighted in the students' advice to future students "Keep up with the course work from the beginning, practise a lot!" and "Do all the exercises, they are really good for cementing the knowledge gained from the lectures! Make sure to also understand why things occur by consulting the course literature (never just blindly memorise!) as I found that this really helpful during the exam". These advices will be communicated to the new students at the outset of the 2023 course round.

With the Covid-19 pandemic being in a less acute phase during this course round, all exercises and seminars were held on campus. For next course round, the ambition is to keep the videos of the lectures available but give the lectures live on campus, which will meet student comments *e.g.* "To have recorded lectures available is always nice if you miss a lecture due to for example scheduling, but personally I missed having lectures in a classroom. I feel like it's more difficult to focus at home and I miss the interactions that you get in the classroom", "Open the course with classes on campus", "Other than not having them as only online lectures, I do not have much to add, the lectures are really good" and "The lectures were very well made and thorough! If you decide to hold the lectures live on campus, I would really recommend making the recorded lectures available during the exam period because it was very helpful to be able to go back and "plug in" any holes in my understanding."

Describe how the course has developed from the previous course offering:

2022: As the result of constructive criticism from previous course rounds, we posted a previous exam with solutions in Canvas for the students to practice.

2021: The 2020 course round received mixed opinions with respect to the literature project (PRO1) and efforts were made to further clarify the purpose and expectations for the project in 2021. As no student comments with respect to this module were obtained in the specific course evaluation, an interpretation is that these efforts were successful.

2020: This was the first course offering after the course having stayed dormant for several years and the content was extensively revised since then and completely new teaching material was produced. Therefore, comparisons to earlier course offerings cannot be made.

Comments from other teachers:

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Suggestions for changes to the next course offering:

2022:

- We will consider the comment "I also think that a course summary like in previous organic chemistry courses would have been helpful to grasp which aspects were most important to remember from the examples we were given. I found the retro synthesis part to be very interesting but not used to its full potential. As the course is essentially a chemical toolbox for building molecules, I think it can be integrated in a way that makes it clearer (maybe as a recurring exercise type?)" and see whether the content can be modulated for the live lectures.

- We are re-starting the complementary course KD2390 that contains all elements of CE2385 but with the addition of a lab module of 1.5 credits. Since such a lab course has been asked for by the students in the master program for many years, we envision that more students may enroll in this course rather than the present, all theoretical, CE2385. The development of the lab course for KD2390 is currently being developed by 5 PhD students at the Division of Organic Chemistry as main drivers under the

guidance of the course coordinator (Helena Lundberg Ankner) and with 5 MSc students as a reference group.

2021:

- ”Var noga med att visa vilken nivå man kommer lägga tentamen på. Jag tyckte det var rätt så problematiskt att vi bara fick övningarna och ingen tidigare tentamen att kolla på. Jag anser att tentamen lå på en mycket högre nivå än övningarna, ta t.ex. uppgiften med ring closing metathesis. De enda uppgifterna vi hade att öva på var när det var max 4 dubbelbindingar i startmaterialet och det var väldigt lätt att se vad som skulle vara mest gynnsamt, men på uppgiften i tentan var det flera olika alternativ så man fick testa sig igenom den vilket tog otroligt lång tid. Det kanske var fel tillämpning men det är det som är problemet: vi har inte övat på hur man ska lösa det på en så stor och komplicerad molekyl. Det är okej att lägga tentamen på vilken nivå man vill men då måste man förbereda studenterna på det.”

- “I prefer having the exercise on campus and obviously this was tricky due to sickness and the covid situation.”

- “A lab course would be fun!”

- Elaborate on the format for course evaluation to get a higher response rate: perhaps take 10 min at the end of last exercise for students to fill it out, complemented with a question to be answered at the exam about the examination and its relation to the content and learning activities of the course, in addition to its availability in Canvas (as it is now)

- Continue to highlight the course in the preceding 2nd cycle course KD2310.

2020:

- Re-write the project descriptions to clarify them further and schedule time for formative project feedback during the course.

- Re-structure the exercises to enable more time for going through the highlighted examples. Consider going through the solutions using live notation on screen rather than in PowerPoint format (if next course round is digital).

- Consider having scheduled times for questions and discussions dedicated to the lectures (if next course round is digital).

Does this course have intended learning outcomes within the field of environment and sustainable development?

No

Other

Markus Kärkäs delivered 5/13 lectures, Helena Lundberg delivered 4/13 lectures plus course introduction and Peter Dinér delivered 4/13 lectures. The lectures were prerecorded and posted as videos in Canvas. At the end of each lecture, a checklist of key concepts was provided to facilitate student learning and provide an overview of the material.

All exercises but one were held by Helena Lundberg Ankner, with Peter Dinér leading one. The students had the option of uploading solutions to pre-selected problems in Canvas prior to the meeting to collect bonus points for the exam. The hand-in questions were corrected digitally, thereby enabling the students to receive feedback on their solutions and learn from potential mistakes.

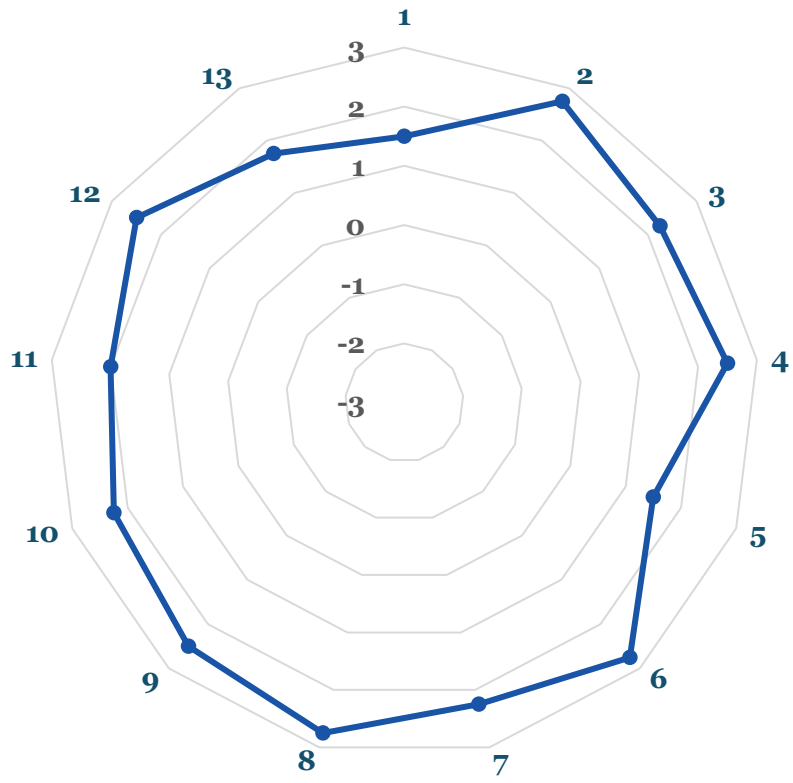
Course evaluation

Learning experience questionnaire (LEQ)

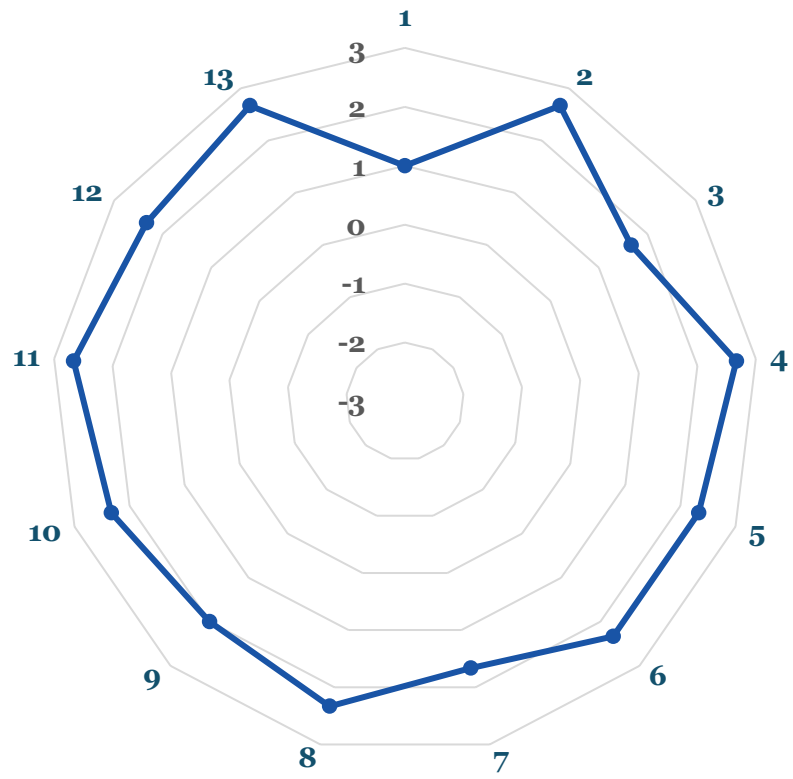
(Scale: -3: completely disagree with the statement... 0: neutral to the statement... +3: completely agree with the statement)

- 1** The intended learning outcomes helped me to understand what I was expected to achieve
- 2** I worked with interesting and engaging issues
- 3** I regularly spent time to reflect on what I learned
- 4** My background knowledge was sufficient to follow the course
- 5** I received regular feedback that helped me to see my progress
- 6** The course was challenging in a stimulating way
- 7** I understood what the teachers were talking about
- 8** Understanding of key concepts had high priority
- 9** The course activities helped me to achieve the intended learning outcomes efficiently
- 10** I was able to learn by collaborating and discussing with others
- 11** I was able to learn in a way that suited me
- 12** I understood how the course was organized and what I was expected to do
- 13** I was able to learn from concrete examples that I could relate to

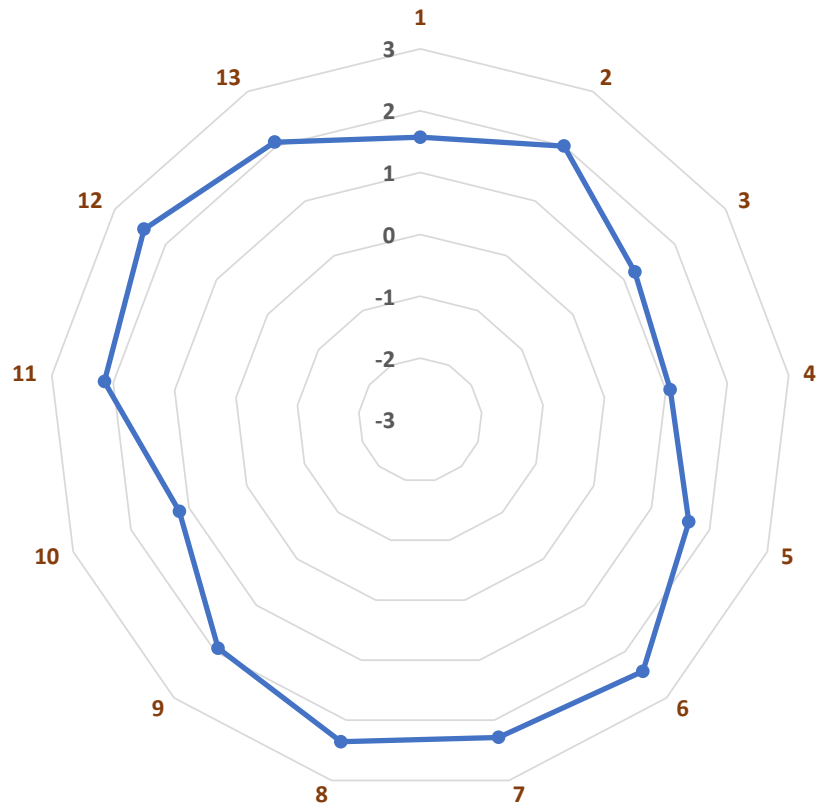
2022



2021



2020



2019
Not available

223706:

What was the best aspect of the course?

Overall, it was a very fun course. It had a clear structure and it was easy to understand what was expected of you. We worked with interesting topics and a lot of real life examples which always keeps it more interesting

I enjoyed the scope of the course and the literature project.

The upmost state of art organic chemistry researches and knowledge

The really exciting course content! I very much appreciated how relevant it is to the organic chemistry research being conducted today, especially regarding transition metal catalysis, electrosynthesis, and photoredox.

223707:

What would you suggest to improve?

To have recorded lectures available is always nice if you miss a lecture due to for example scheduling, but personally I missed having lectures in a classroom. I feel like its more difficult to focus at home and I miss the interactions that you get in the classroom

I would have liked a heads up that the recorded lectures took twice as long as the video length to get through if one took notes simultaneously. I also think that a course summary like in previous organic chemistry courses would have been helpful to grasp which aspects were most important to remember from the examples we were given.

I found the retro synthesis part to be very interesting but not used to its full potential. As the course is essentially a chemical toolbox for building molecules, I think it can be integrated in a way that makes it clearer (maybe as a recurring exercise type?).

Open the course with classes on campus

I found it difficult to find the time to prepare for the workshops, so it was a little daunting to attend as I hadn't been able to try to solve the questions on my own yet as suggested on the "Exercises"-canvas page.

223708:

What advice would you like to give to future participants?

Keep up with the course work from the beginning, practise a lot!

Anticipate that the recorded lectures take a lot longer than the video length. Boil down reactions into what molecular modifications they create.

Work hard

Do all the exercises, they are really good for cementing the knowledge gained from the lectures! Make sure to also understand why things occur by consulting the course literature (never just blindly memorise!) as I found that this really helpful during the exam.

223709:

Is there anything else you would like to add?

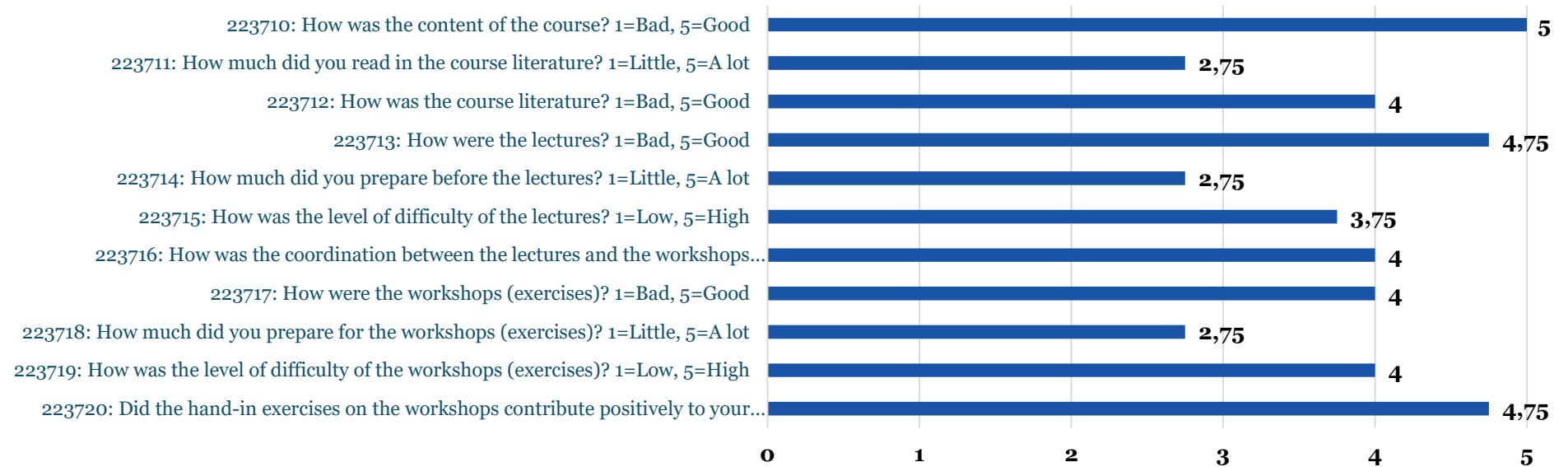
I really appreciated the communication in this course. It felt like all teachers really cared about making sure that we learned in a way that was suitable for us, and that you really wanted to make the course the best it can be. We got the opportunity to approach the material in several different ways, and it felt like I got a really deep understanding about the subjects.Â

Lovely course!

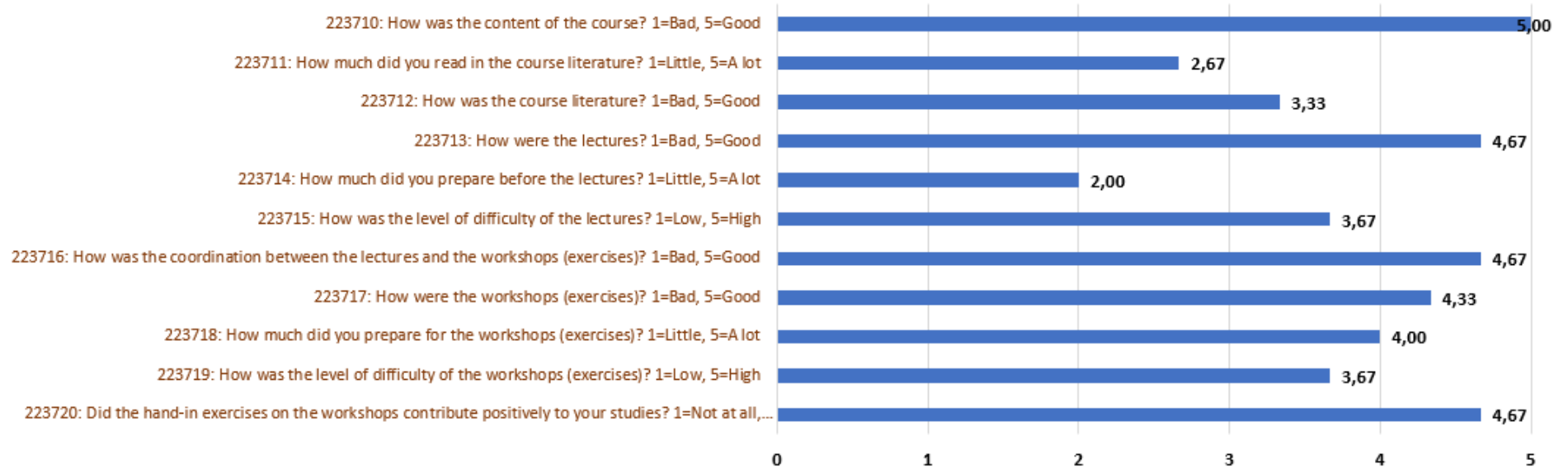
Probably my favourite course ever :-)

Course specific evaluation

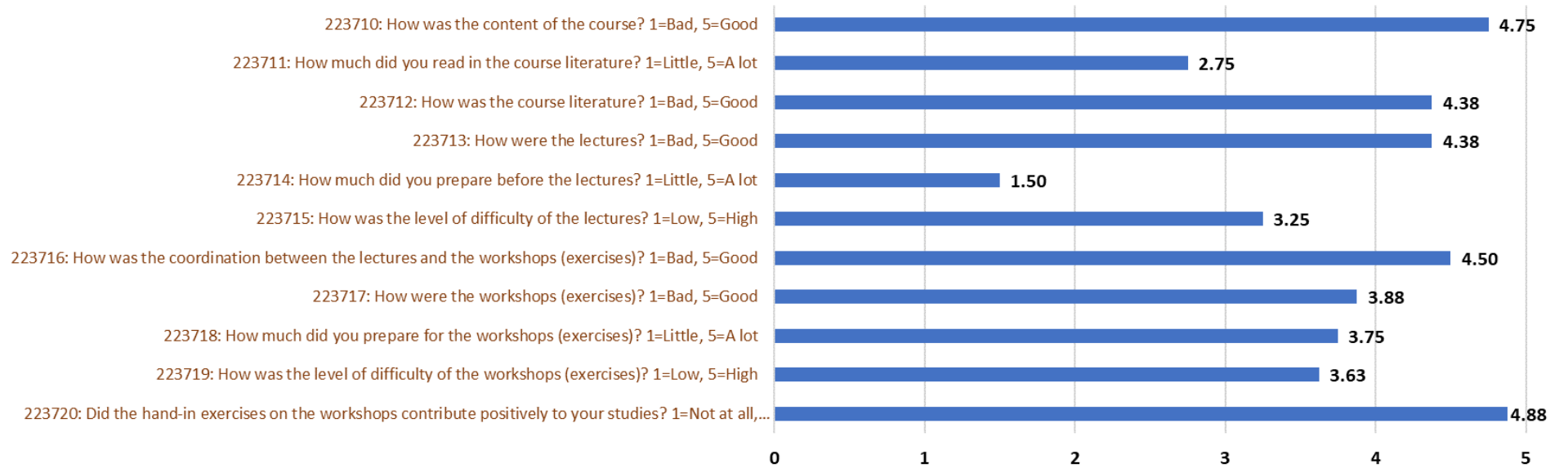
2022



2021



2020



2019

Not available

223721:

Other comments and suggestions for improvement of the course are welcomed!

Lectures

Other than not having them as only online lectures, I do not have much to add, the lectures are really good.Â

The lectures were very well made and thorough! If you decide to hold the lectures live on campus, I would really recommend making the recorded lectures available during the exam period because it was very helpful to be able to go back and "plug in" any holes in my understanding.

223722:

Other comments and suggestions for improvement of the course are welcomed!

Workshops (Exercises)

The workshops are a really good way to practise the material. Personally, I prefer when the teacher goes through solutions quite a lot on the workshops, as I prefer to work on my own at home with the problems and then see how they are supposed to be solved at the exercises, but a bit of both is also very good.

223723:

Other comments and suggestions for improvement of the course are welcomed!

Literature Project

I feel like this was the most unclear part of the course, as it was a bit difficult to understand what we were supposed to present. It also took a bit more time than I would have wanted to. You learned quite a bit from the literature project, but it doesn't really help with studying for the exam

I really enjoyed this project! Â It was interesting to take a broad approach and focus on the field as a whole; something which I haven't really done previously in my studies. I learned a lot during the seminar. Also, the literature retrieval seminar was really useful.

223724:

Other comments and suggestions for improvement of the course are welcomed!

Anything else