



## Genetic diversity and plant breeding BI1103, 20036.2122

15 Hp

Pace of study = 100%

Education cycle = Advanced

Course leader = Adrien Sicard

### Evaluation report

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Evaluation period: 2022-01-09 - 2022-01-22

Answers 12

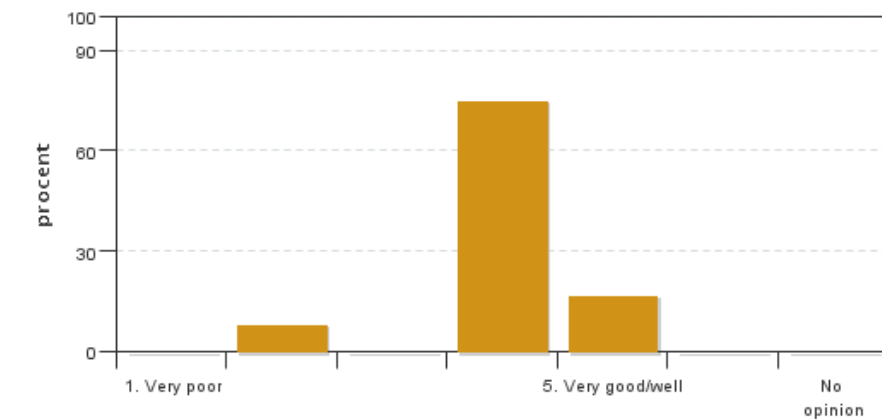
Number of students 21

Answer frequency 57 %

### Mandatory standard questions

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#### 1. My overall impression of the course is:

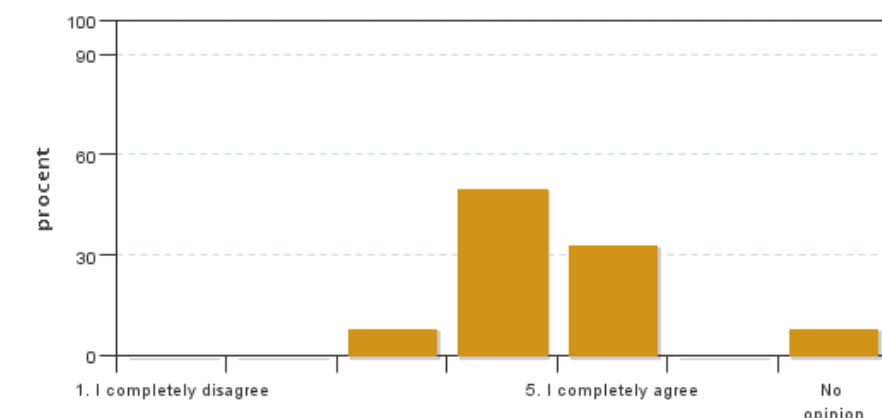


Answers: 12  
Medel: 4,0  
Median: 4

1: 0  
2: 1  
3: 0  
4: 9  
5: 2

No opinion: 0

#### 2. I found the course content to have clear links to the learning objectives of the course.

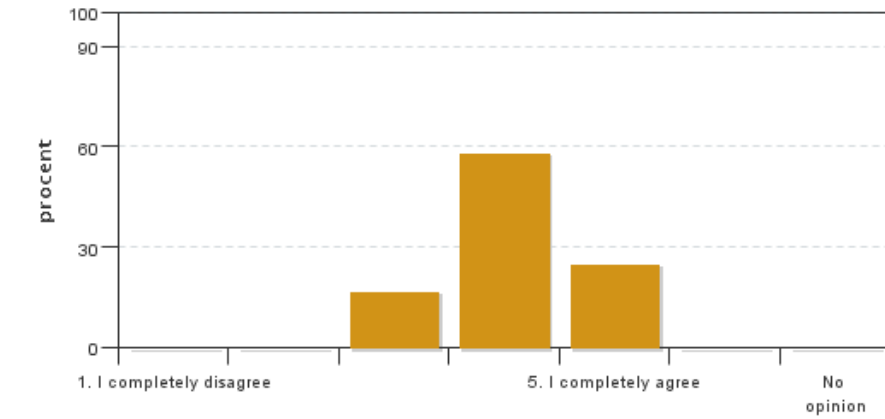


Answers: 12  
Medel: 4,3  
Median: 4

1: 0  
2: 0  
3: 1  
4: 6  
5: 4

No opinion: 1

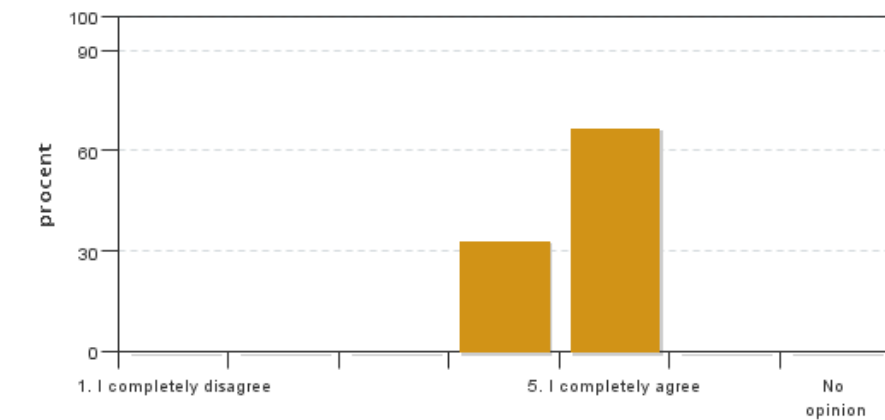
**3. My prior knowledge was sufficient for me to benefit from the course.**



Answers: 12  
 Medel: 4,1  
 Median: 4

1: 0  
 2: 0  
 3: 2  
 4: 7  
 5: 3  
 No opinion: 0

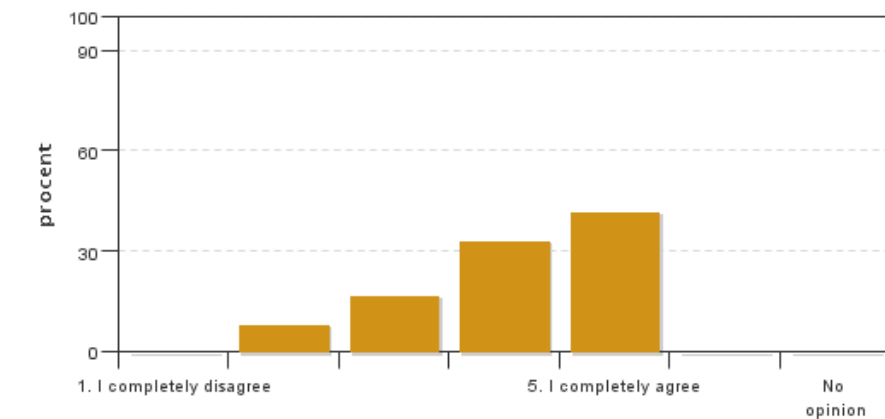
**4. The information about the course was easily accessible.**



Answers: 12  
 Medel: 4,7  
 Median: 5

1: 0  
 2: 0  
 3: 0  
 4: 4  
 5: 8  
 No opinion: 0

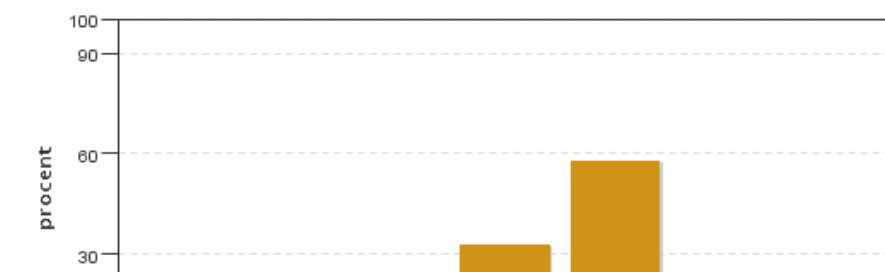
**5. The various course components (lectures, course literature, exercises etc.) have supported my learning.**



Answers: 12  
 Medel: 4,1  
 Median: 4

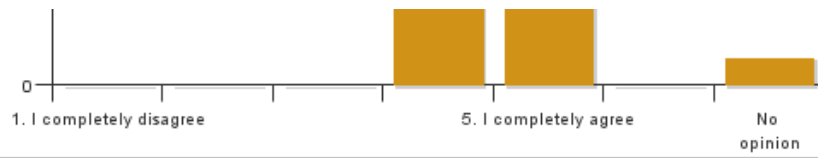
1: 0  
 2: 1  
 3: 2  
 4: 4  
 5: 5  
 No opinion: 0

**6. The social learning environment has been inclusive, respecting differences of opinion.**



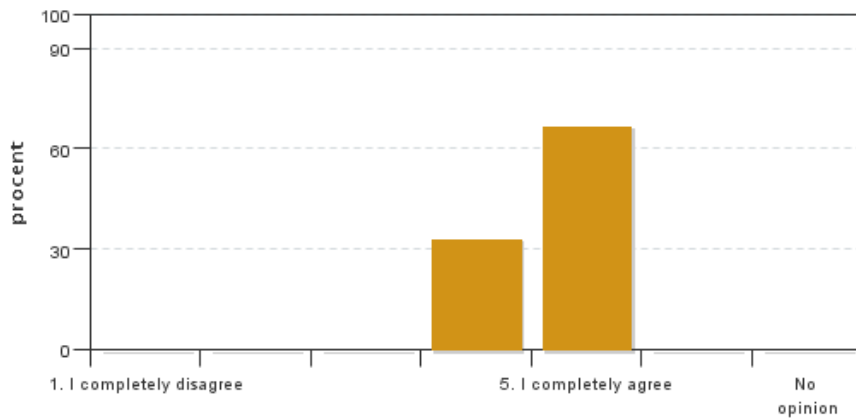
Answers: 12  
 Medel: 4,6  
 Median: 5

1: 0  
 2: 0  
 3: 0  
 4: 4  
 5: 7



No opinion: 1

**7. The physical learning environment (facilities, equipment etc.) has been satisfactory.**

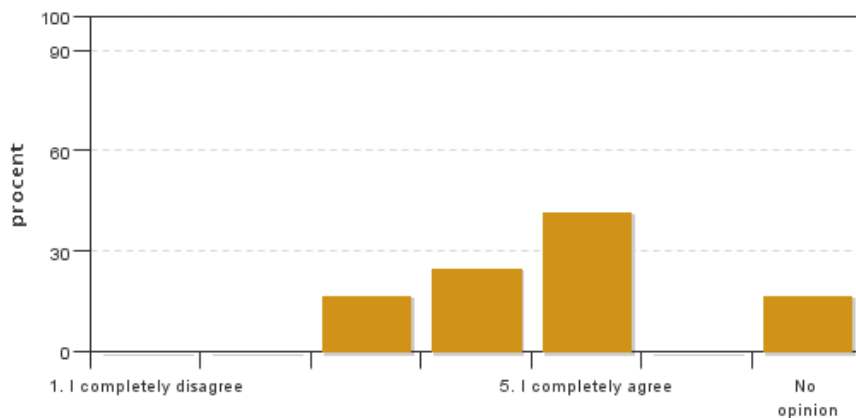


Answers: 12  
Medel: 4,7  
Median: 5

1: 0  
2: 0  
3: 0  
4: 4  
5: 8

No opinion: 0

**8. The examination(s) provided opportunity to demonstrate what I had learnt during the course (see the learning objectives).**

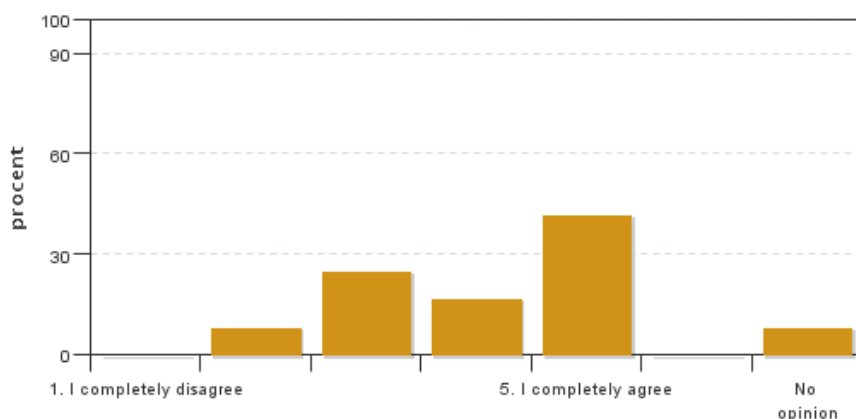


Answers: 12  
Medel: 4,3  
Median: 4

1: 0  
2: 0  
3: 2  
4: 3  
5: 5

No opinion: 2

**9. The course covered the sustainable development aspect (environmental, social and/or financial sustainability).**

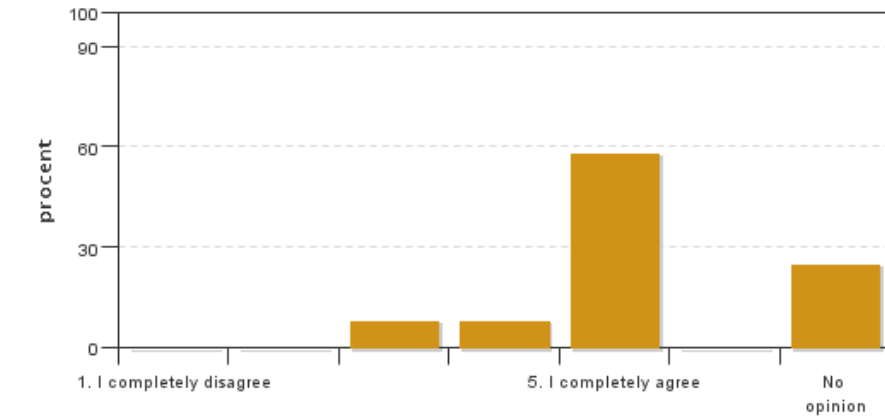


Answers: 12  
Medel: 4,0  
Median: 4

1: 0  
2: 1  
3: 3  
4: 2  
5: 5

No opinion: 1

**10. I believe the course has included a gender and equality aspect, regarding content as well as teaching practices (e.g. perspective on the subject, reading list, allocation of speaking time and the use of master suppression techniques).**

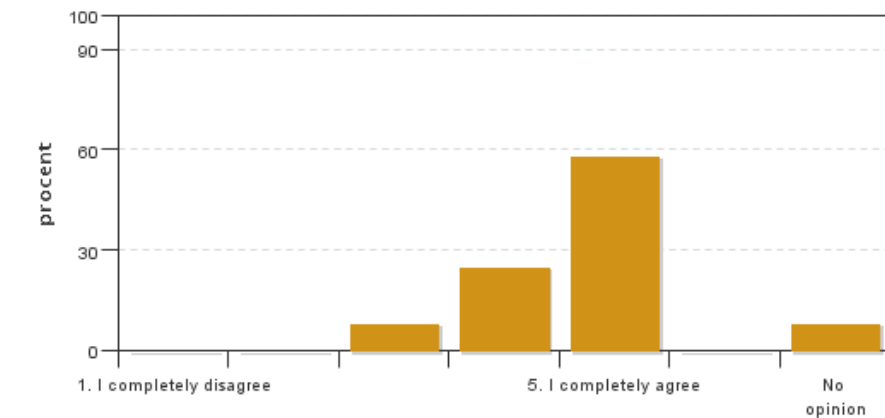


Answers: 12  
 Medel: 4,7  
 Median: 5

1: 0  
 2: 0  
 3: 1  
 4: 1  
 5: 7

No opinion: 3

**11. The course covered international perspectives.**

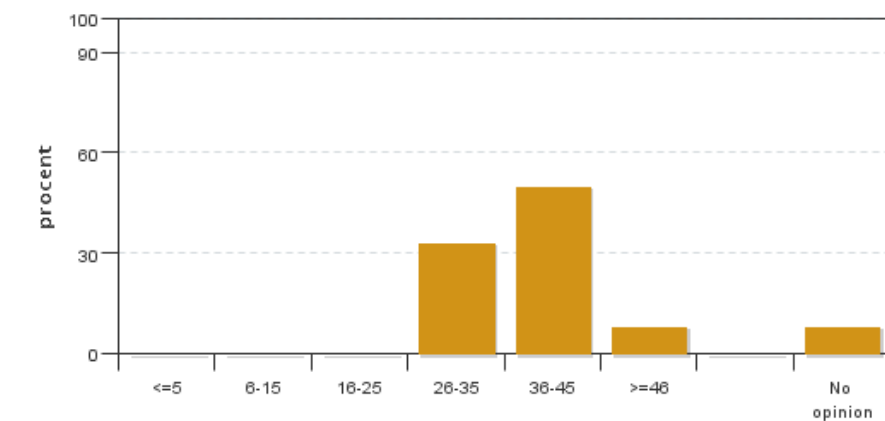


Answers: 12  
 Medel: 4,5  
 Median: 5

1: 0  
 2: 0  
 3: 1  
 4: 3  
 5: 7

No opinion: 1

**12. On average, I have spent ... hours/week on the course (including timetabled hours).**

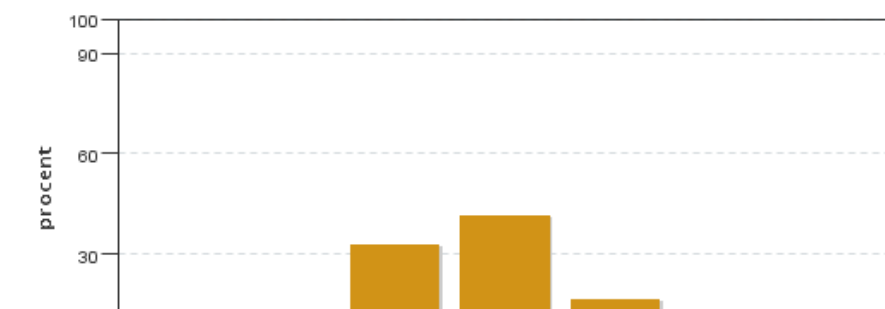


Answers: 12  
 Medel: 36,9  
 Median: 36-45

≤5: 0  
 6-15: 0  
 16-25: 0  
 26-35: 4  
 36-45: 6  
 ≥46: 1

No opinion: 1

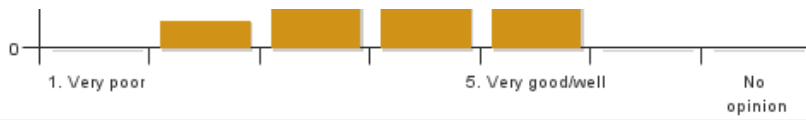
**13. What is your overall experience of participating in all or part of your course online?**



Answers: 12  
 Medel: 3,7  
 Median: 4

1: 0  
 2: 1  
 3: 4  
 4: 5  
 5: 2

No opinion: 0



**14. Please share what worked well when participating in teaching on distance**

**15. Please share what worked less well when participating in teaching on distance**

## Course leaders comments

The BI1103 course is a Master's level course introducing advanced concepts in plant genetics and plant breeding. This year, 21 students registered for the courses, of which about 75% came from the agricultural program and the remaining students from the plant biology sustainable production program. The course involved lectures, in-class exercises, a literature project, computer labs and a laboratory practical. Due to the covid-19 pandemic, only parts of the lectures and seminars (70 %) occurred on campus. Students' learning was evaluated through two written exams (5hp), a literature report (5hp) and a lab report (5hp).

### Changes in the course compared to previous years.

Following SLU and national guidelines, we reintroduced on-campus teaching activities to provide high teaching standards but kept part of the teaching activities in distant learning to limit infection rates. Although the course structure and contents were very similar to previous years, the students' feedback was also taken into account to improve the course quality. Based on student's recommendations, we :

- reorganized the course contents to ensure a better flow of information: This year, the course first introduced basic concepts and methodological aspects before demonstrating how these methodologies can be applied to specific plant biological fields. The guest lectures given by breeding companies were moved to the end of the course to make it easier for the students to visualize how the concepts learned can be implemented to resolve concrete industrial challenges.
- extended the introductory lecture to include a reminder of the basic genetic concepts required to follow the course and to better illustrate the connection between the topics addressed during the courses.
- included an additional lecture on statistical genetics to facilitate the understanding of quantitative genetic methodologies.
- provided two additional lectures on plant genomics and its application to plant breeding. This was done to make the lecture more accessible (by reducing the amount of information given per lecture) and introduce recent advances in this topic.
- introduced flipped classrooms in the curriculum to improve the quality of online teaching.

The students evaluated the course by answering questionnaires, one at half-time and another one at the end of the course period.

### Half-time evaluation:

Seventeen out of 21 students answered the half time course evaluation.

Globally, the students' comments were positive. They considered the course accessible, well-organized, and presenting clear learning objectives. The students appreciated the course content, lab practicals and the balance between theory and practical. They nevertheless noted that the teachers could better use the time during the laboratory practical to avoid long waiting times. They also considered that the statistic lecture could be improved and had mixed opinions on the flipped classroom format (47.1 % liked it, 35.3 % did not and 17.6 % had no opinion). To improve the course, the students suggested to:

- provide additional background at the beginning of the laboratory practical to facilitate its understanding and improve its organization.
- break the lectures into shorter sessions and include short exercises illustrating the concepts discussed in between.
- clarify the instructions in some of the exercise seminars.
- Modify the schedule to include an academic quarter, avoid on-campus days with only a few teaching activities and better accommodate literature project deadlines.

These comments were passed on to all teachers in the course. We improved the schedule as much as possible and considered these remarks to further improve the course (see below).

## Final evaluation

Twelve students out of 21 answered the final evaluation questionnaire giving a response rate of about 57 %, which is similar to the response rate obtained in the previous years but could still be improved.

The overall impression was also positive (4.0 / 5 score), which improved from the previous years (3.7 and 3.6 / 5 scores in 2020 and 2019, respectively). Based on the student comments, it seems that the changes have:

- made the course more accessible to the students:

Question 3, 5 and 6 obtained better scores than the previous years. This was most likely the result of the reorganization of the course curriculum and the introduction of additional introductory lectures. It probably facilitated the connection between the different course topics and ensured that the students had the necessary background to advance during the course.

- made the examination more in line with the concepts learned in class.

Question 8 was scored 4.3 compared to 3.7 in 2020 and 2019. This was likely due to additional exercise and discussion sessions within and around the theoretical teaching which may have helped to emphasize the main concepts. Nevertheless, a student commented that this could still be improved by systematically mentioning the main take-home messages after each lecture.

No questions obtained a lower score than the previous years. However, distant learning activities were considered as not ideal by many students either because this teaching format makes it more difficult to stay focused and participate or because technical difficulties have, in some instances, impeded the teaching quality. The students also had a few suggestions to improve the course. Those included:

- Keep the online teaching to a minimum. The number of students in the breakout room should be reduced to 2 to 3 to ensure efficient communication.
- include more time for the seed certification exercises
- provide additional background at the start of the QTL lab
- improve the mentoring during the computer lab.
- Provide more structured lecture handouts to facilitate learning.
- Update some of the literature materials

## Course leader's comments

There have been minimal changes to the course organization this year. Nevertheless, this year student's evaluations suggest that these changes have benefited the course teaching quality. The overall impression of the course was positive and followed the improvement trend seen in the previous years. This was the first year, I was the course leader for this course. I felt the course provided a positive learning environment and stimulated student interactions.

Providing high-quality distant learning remains a challenge, and the students provided useful feedback to improve further the organization and teaching quality of this course. Based on these recommendations, I plan to:

- Further, increase on-campus teaching in compliance with future SLU and national regulations
- Clarify the course schedule
- Consider updating the literature materials
- Improve the schedule organization to avoid having assignment deadlines close to the exam dates and ensure sufficient time for the different assignments. Give additional background information at the beginning of the QTL lab and provide a clearer link between this lab and the lectures.
- Revise the computer lab organization to ensure sufficient mentoring.
- Modify the lectures to improve their structure and include a reminder of the main take-home messages.
- Continue to promote the inclusion of exercise seminars within the different topics addressed during the course.

Adrien Sicard

## Student representatives comments

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The general impression of the course was given a high score with an average of 4 and the general comments were positive. Course information was easily accessible (4,6) and the social (4,6) as well as the physical (4,7) learning environment was also given positive feedback. Some communication between students and teachers in the classroom was done in Swedish which was not appreciated by students not speaking Swedish. The labs were given good feedback although the computer labs were given less positive comments. One student points out that they didn't get sufficient help from the teachers at the computer lab (but which computer lab they're thinking of is not mentioned).

One student points out that the exam didn't reflect what they had thought of as the key points for the lectures and describes some questions as "wild cards".

Regarding parts of the course being online many students were happy with how the teaching was solved. The guest lectures received many positive comments, and the flipped classroom lecture was appreciated. Some students point out that group work didn't work as good over zoom as it is hard to have open discussions. The size of the groups for discussions should also not be too large as it makes discussion harder. Also, the academic quarter was requested.

The literature was also given positive feedback, but some students thought the papers recommended for the lectures always didn't reflect on the topic. Less messy PowerPoints were also requested.

The most criticised part of the course was the international seed certification exercise that some students thought of as "irrelevant". One student said that the time we had to do research for the exercise was insufficient.

The course evaluation is only based on the opinions of half of the students as only 12/21 (57%) of the students answered the evaluation. This was despite multiple reminders from the course leader and the student representative.

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