Environmental geochemistry
MV0218, 20205.2324

15 Hp
Pace of study = 100%
Education cycle = Advanced
Course leader = Geert Cornelis

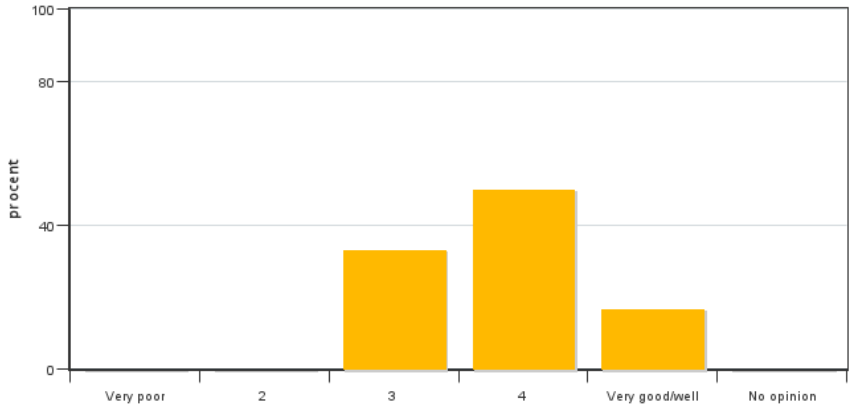
Evaluation report

Evaluation period: 2024-01-07 - 2024-01-28

Answers	12
Number of students	19
Answer frequency	63 %

Mandatory standard questions

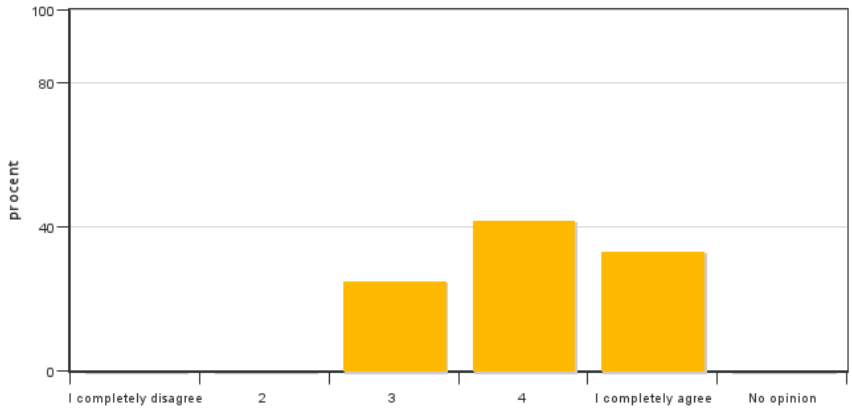
1. My overall impression of the course is:



Number of answers: 12
Average: 3,8
Median: 4

Very poor : 0
2: 0
3: 4
4: 6
Very good/well: 2
No opinion: 0

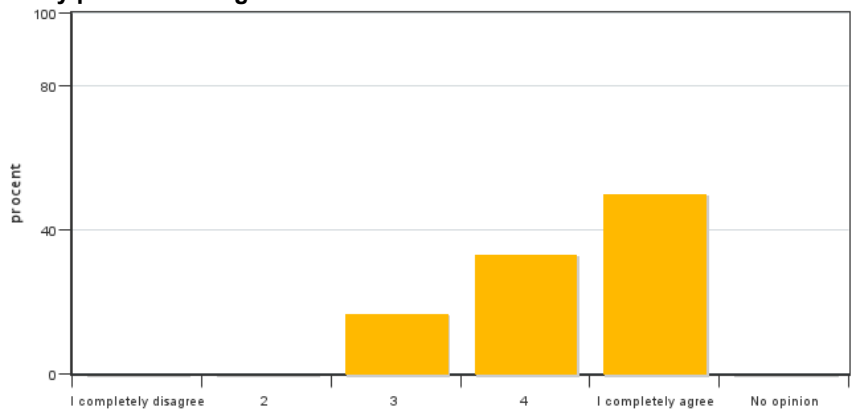
2. I found the course content to have clear links to the learning objectives of the course.



Number of answers: 12
Average: 4,1
Median: 4

I completely disagree: 0
2: 0
3: 3
4: 5
I completely agree: 4
No opinion: 0

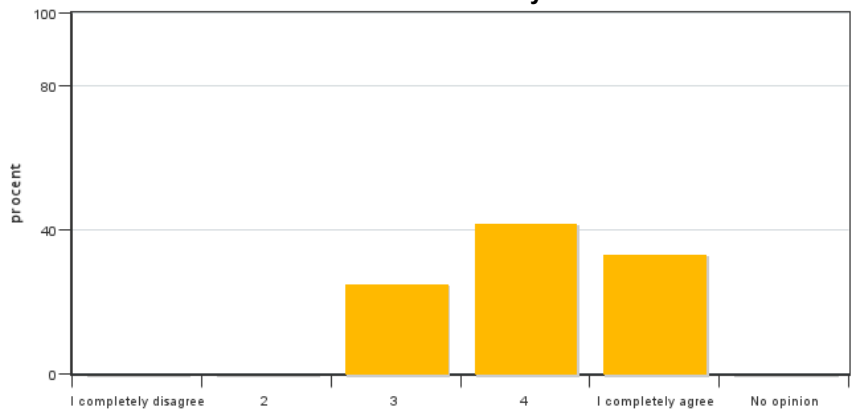
3. My prior knowledge was sufficient for me to benefit from the course.



Number of answers: 12
Average: 4,3
Median: 4

I completely disagree: 0
2: 0
3: 2
4: 4
I completely agree: 6
No opinion: 0

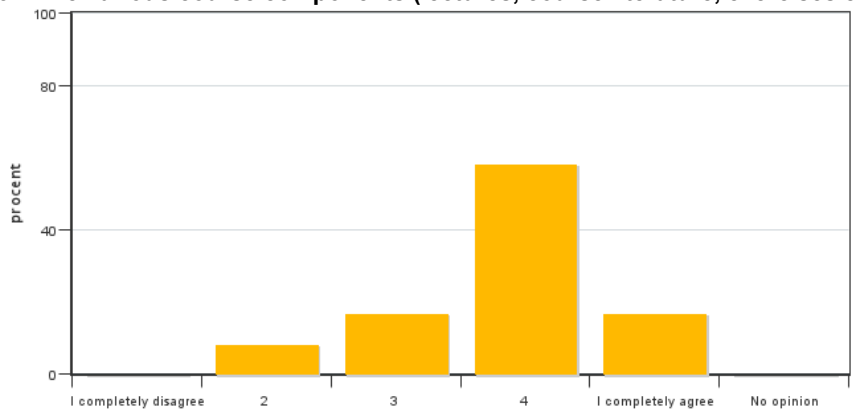
4. The information about the course was easily accessible.



Number of answers: 12
Average: 4,1
Median: 4

I completely disagree: 0
2: 0
3: 3
4: 5
I completely agree: 4
No opinion: 0

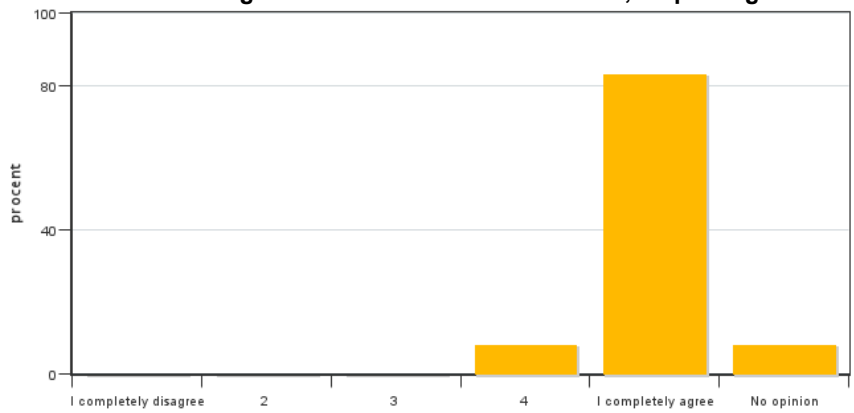
5. The various course components (lectures, course literature, exercises etc.) have supported my learning.



Number of answers: 12
Average: 3,8
Median: 4

I completely disagree: 0
2: 1
3: 2
4: 7
I completely agree: 2
No opinion: 0

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

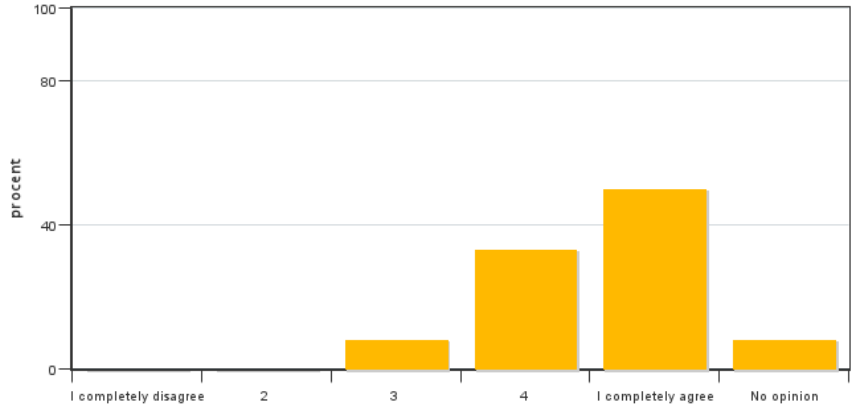


Number of answers: 12
Average: 4,9
Median: 5

I completely disagree: 0
2: 0
3: 0
4: 1
I completely agree: 10

No opinion: 1

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

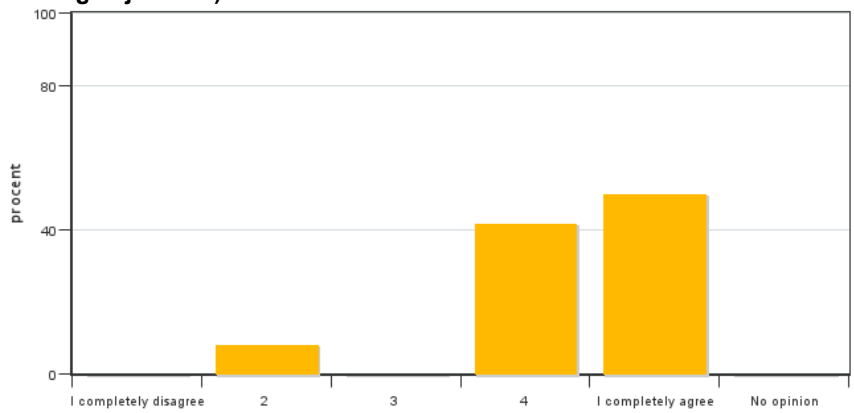


Number of answers: 12
Average: 4,5
Median: 5

I completely disagree: 0
2: 0
3: 1
4: 4
I completely agree: 6

No opinion: 1

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

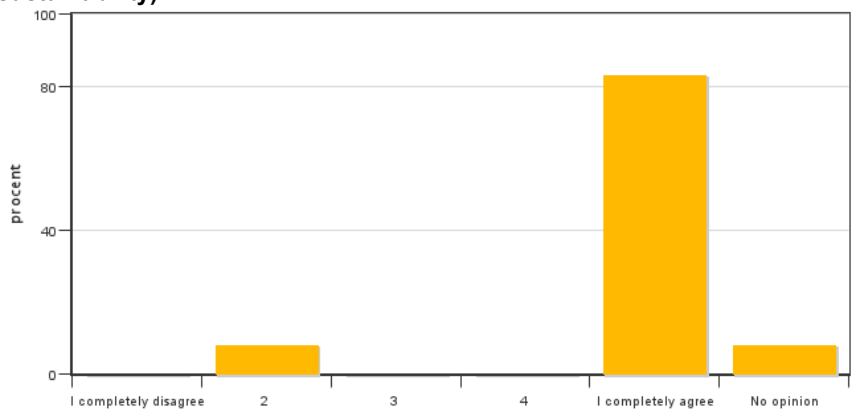


Number of answers: 12
Average: 4,3
Median: 4

I completely disagree: 0
2: 1
3: 0
4: 5
I completely agree: 6

No opinion: 0

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

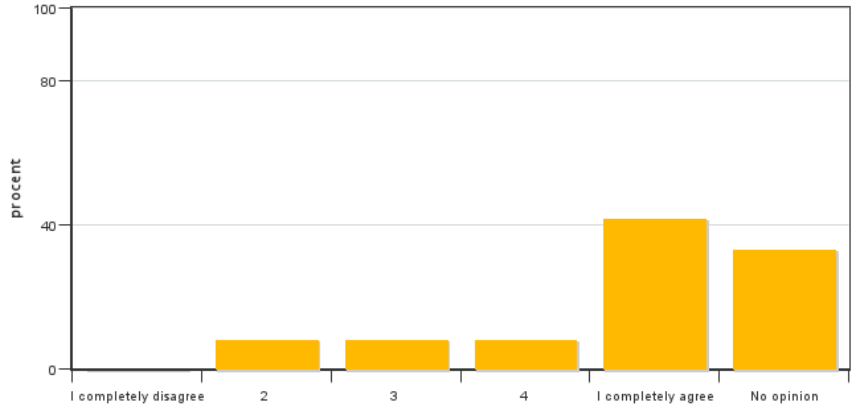


Number of answers: 12
Average: 4,7
Median: 5

I completely disagree: 0
2: 1
3: 0
4: 0
I completely agree: 10

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).

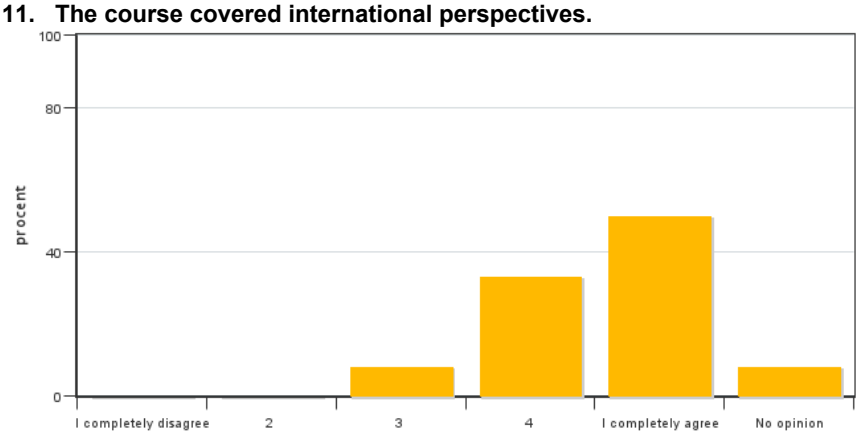


Number of answers: 12
Average: 4,3
Median: 5

I completely disagree: 0
2: 1
3: 1
4: 1
I completely agree: 5

No opinion: 4

11. The course covered international perspectives.

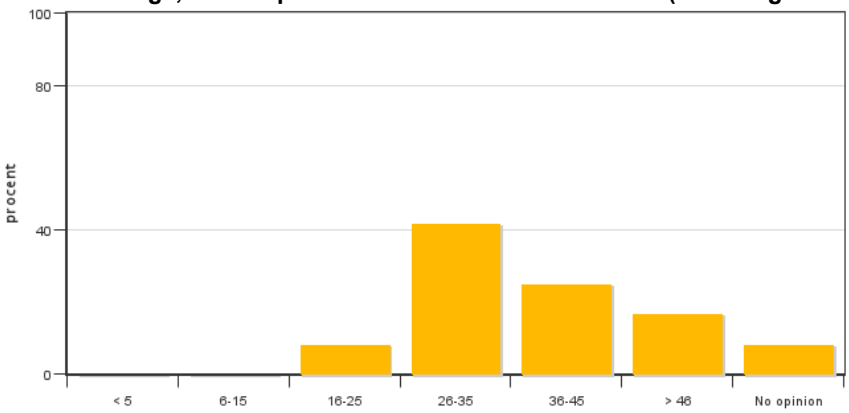


Number of answers: 12
Average: 4,5
Median: 5

I completely disagree: 0
2: 0
3: 1
4: 4
I completely agree: 6

No opinion: 1

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



Number of answers: 12
Average: 34,7
Median: 26-35

< 5: 0
6-15: 0
16-25: 1
26-35: 5
36-45: 3
> 46: 2

No opinion: 1

Course leaders comments

The majority of the students at environmental geochemistry come from the agronomy program (mark/växt) and the soil and water master's program. These students then enjoy the company of EnvEuro program students and various international and national students taking our course separately.

Some changes were done compared to the 2022 – 2023 curriculum:

- All course elements except the exam was scheduled before Christmas
- An additional adsorption exercises session was planned
- The Visual Minteq exercises, assignment and seminar were replaced with all focus on helping students with Visual Minteq modelling of their lab results.

This year's evaluation was rather atypical in two ways. First, student numbers went from 6 in 2022-2023 to 18 in 2023-2024. Secondly, many concrete and constructive remarks were made. After analysing the evaluation together with the student representative (Clara Kieschnick-Llamas), the main positive points were:

- First session with introduction to Chemical concepts is very good to get again up to speed with chemistry
- The level and workload of the course is relatively high, but appropriate as we achieve good and relevant learning outcomes that are at a proper Master's level in terms of difficulty. This is an improvement relative to earlier years where the workload was often experienced as too high, especially towards the end of the course.
- Having no classes after X-mas break allowed especially non-Swedish students could go home and focus on the exam
- The course has good learning outcomes and students experience a good alignment between course objectives, content and exam
- Splitting up exercises sessions allowing for own time to work on exercises is a good feature and should be maintained.
- Most teachers received highest marks, especially on the lectures, though some teachers could reduce the speaking pace somewhat, especially if there was anyway time left at the end.
- The literature seminar is a great part of the course as it allows to focus on a “favourite” subject and apply different aspects of the course. A peer-review system of each other's presentations might make this course part more interactive.
- The focus on geochemical modelling is great, especially in combination with modelling own data from the lab, albeit the course could use even more focus on Visual Minteq.
- Some lectures ended with discussion around a few questions posed to class and discussed in groups which helps with internalising the content.

Points of improvement and how these will be remedied were

- Overlap between some course moments were identified and these will be remedied during a planned teacher's meeting and via conversations of course responsible and involved teachers
- Canvas content for some modules was messy and should contain fewer items, which will also be raised at teacher's meeting
- All course parts should make full use of the allocated time as pointed out in the schedule to facilitate student's planning their time
- If multiple exercise session are planned, the teacher should end the first sessions with clear assignments for what the students should prepare for the next sessions. This could be complemented with proper assignments (e.g. via Canvas) where students get written feedback from the teacher.
- More focus will be laid on Visual Minteq in the form of additional exercises and possibly more time in the schedule allowing students to be better prepared for modelling laboratory data.
- At the same time, solving equilibrium exercises is too dominant and it could be investigated how this time can be reduced.

- Less focus on Swedish regulations and protocols could be replaced with more focus international (EU) regulations.

Internal comments

Student representatives comments

Overall, this course received positive reviews. It is a challenging course, but the content is very interesting and practical. At the same time, part of this challenge came from a lack of communication between professors, and a general disorganized structure. Students suggested some improvements for the future.

The main critique from students for this class was the disorganization. Although lectures were clear and interesting, there was often significant overlap between professors in terms of lecture content. Better communication between professors in terms of what students have already learned would greatly improve the course. The course schedule also jumped around significantly in terms of content—one day, students learned about a topic, then it wasn't mentioned again until a lecture several weeks later. If the class had modules, the structure would feel more organized and easy to follow. Additionally, classes often ended early, another organization issue—it would be easier for students to organize their time if classes matched the expected schedule time.

In terms of lectures, students liked when professors had questions at the end of the class to recap what had been covered. Some students also suggested a weekly quiz to summarize what they had learned that week.

This year, the professors added an additional exercise session for adsorption exercises. Having 3 of these sessions was necessary, but students felt like they were still rushed; they didn't have enough time in the sessions to complete the problem before going over it with the professor. These problems are math-heavy and just take a long time to solve by hand. It would be helpful for the professor to assign certain problems for students to try at home first, that could then be reviewed together in class. The answer sheet also had several errors that the professor hadn't fixed, making it confusing for students to know if their final answer was or was not correct.

Students enjoyed the lab aspect of the course and learning Visual MINTEQ. However, they hoped to have more time to work on MINTEQ and learn how it worked; it would be helpful to dedicate more time to Visual MINTEQ within the course.

Overall, the reviews for this course were positive, and students appreciated the rigor of the course, but strongly emphasized the disorganized component of it. With better communication between professors, this could be a great course.