Land use and watershed management to reduce eutrophication MV0217, 20102.1920

7.5 Hp
Pace of study = 100%
Education cycle = Advanced

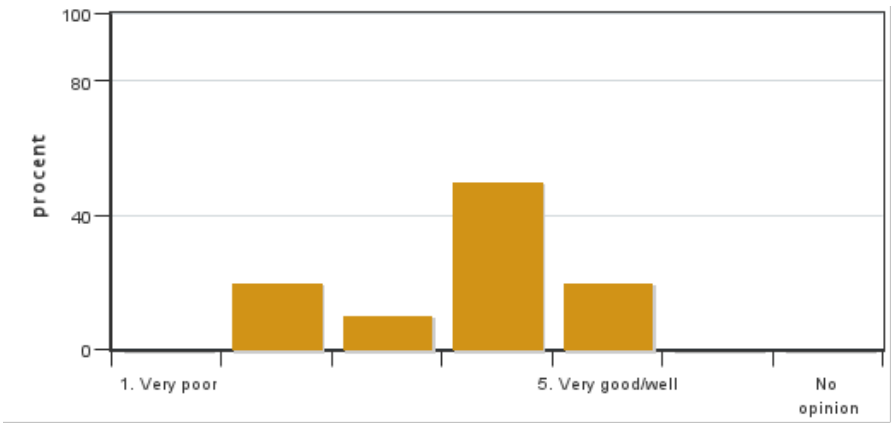
Evaluation report

Evaluation period: 2019-11-26 - 2019-12-17

Answers	10
Number of students	24
Answer frequency	41 %

Mandatory standard questions

1. My overall impression of the course is:

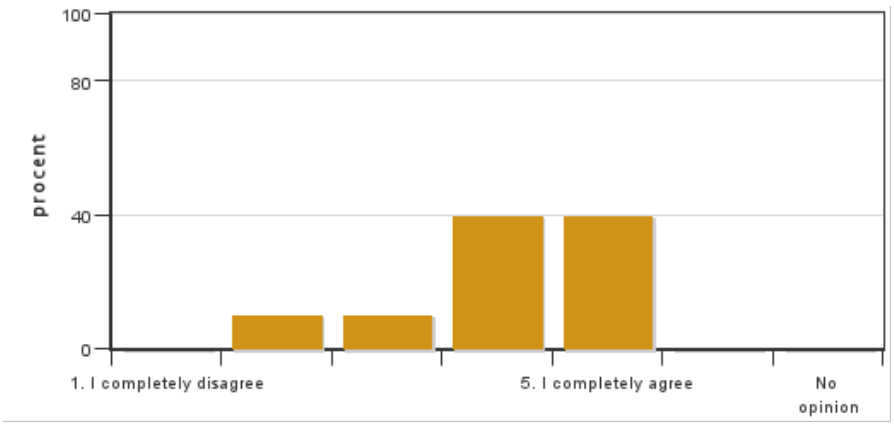


Answers: 10
Medel: 3,7
Median: 4

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

No opinion: 0

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

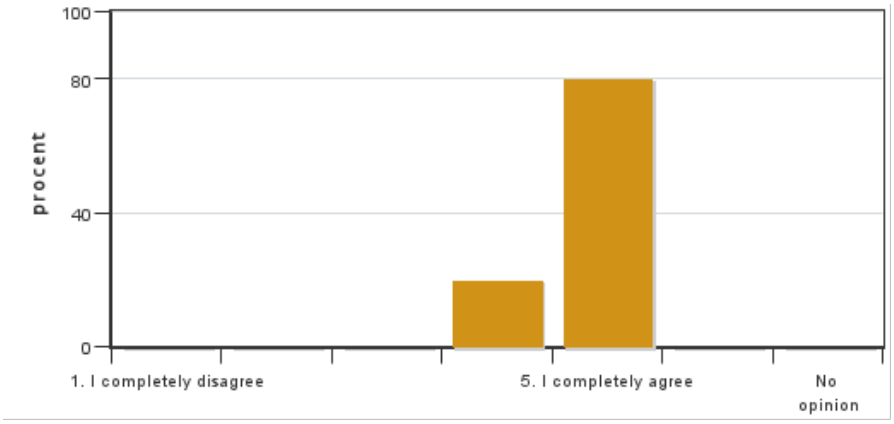


Answers: 10
Medel: 4,1
Median: 4

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

No opinion: 0

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

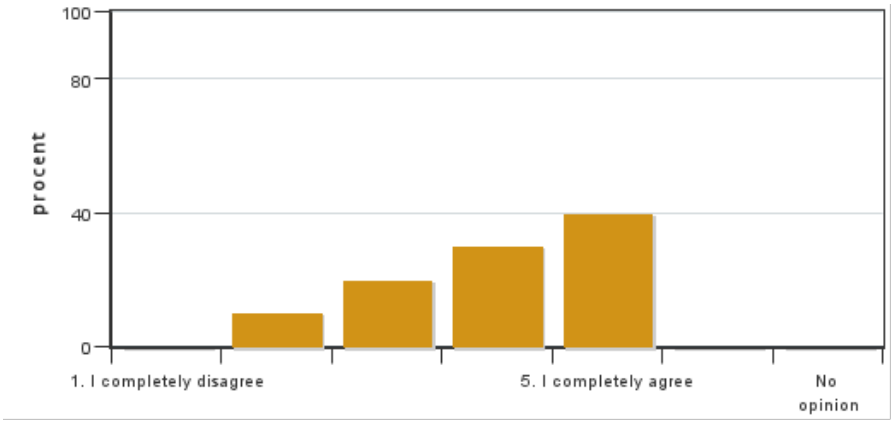


Answers: 10
Medel: 4,8
Median: 5

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

No opinion: 0

4. The information about the course was easily accessible.

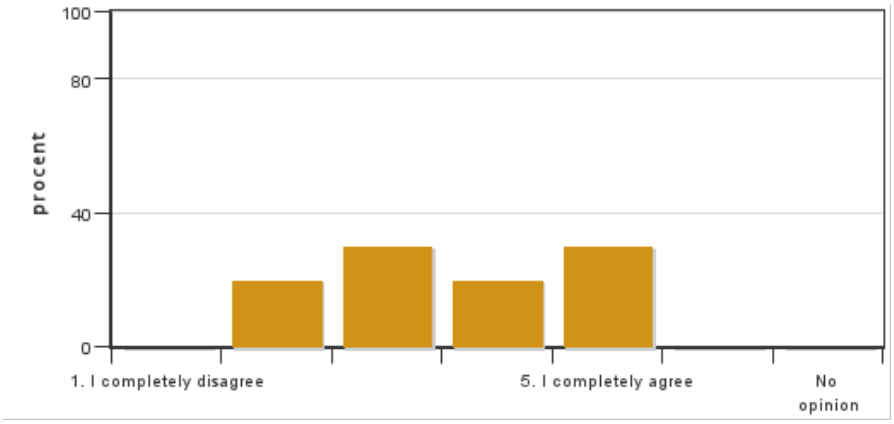


Answers: 10
Medel: 4,0
Median: 4

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

No opinion: 0

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

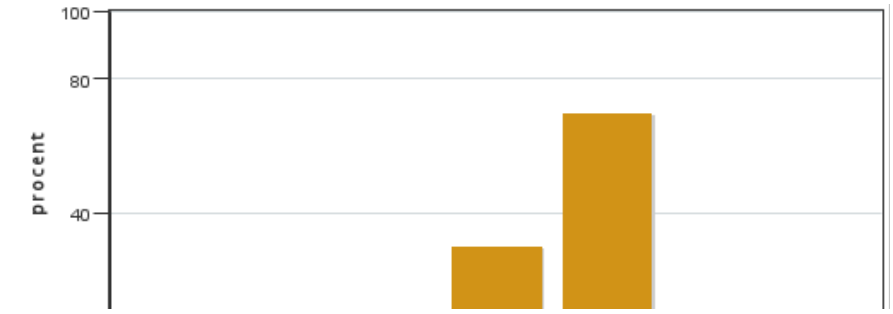


Answers: 10
Medel: 3,6
Median: 3

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

No opinion: 0

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

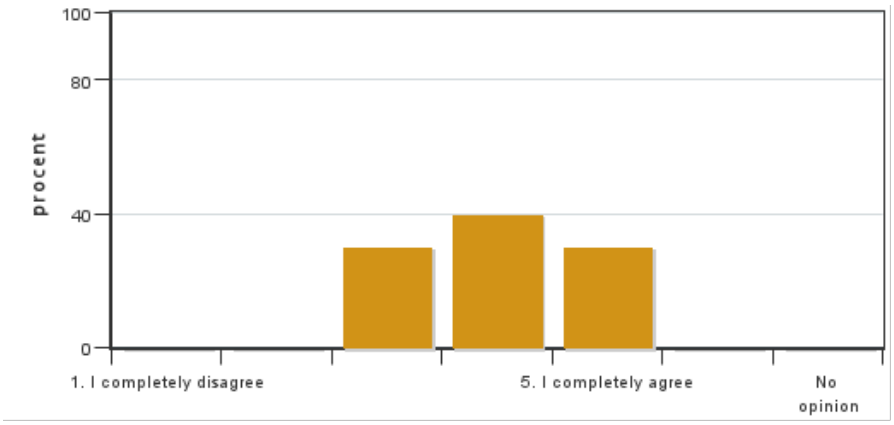


Answers: 10
Medel: 4,7
Median: 5

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

No opinion: 0

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

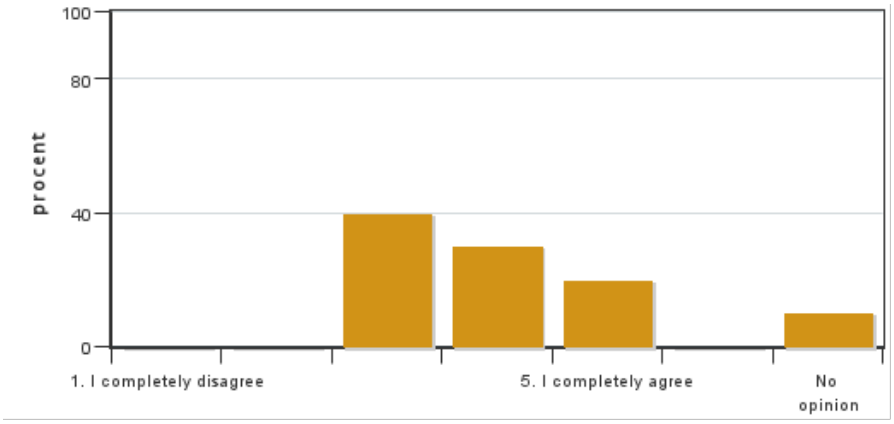


Answers: 10
Medel: 4,0
Median: 4

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

No opinion: 0

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

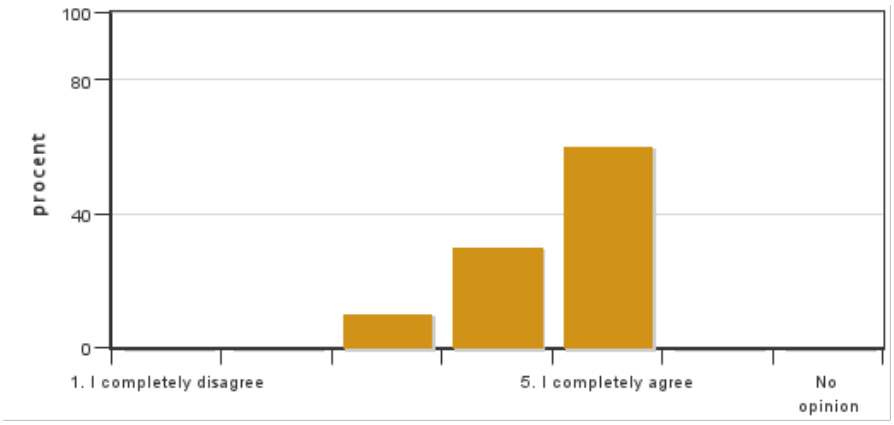


Answers: 10
Medel: 3,8
Median: 4

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

No opinion: 1

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

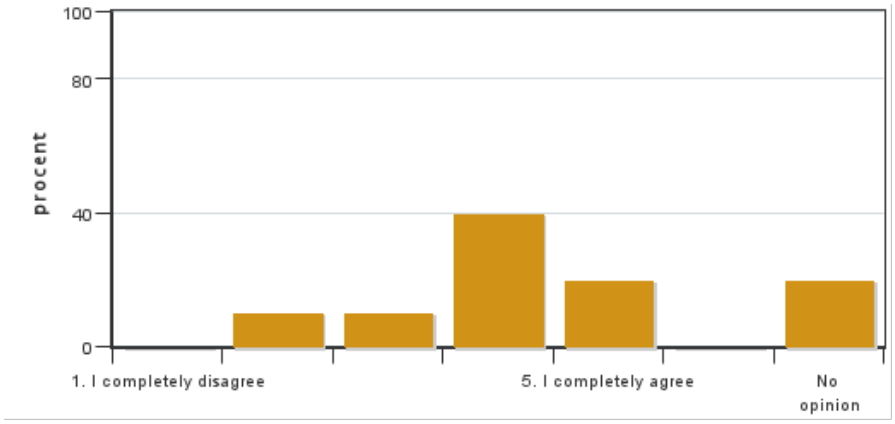


Answers: 10
Medel: 4,5
Median: 5

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

No opinion: 0

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).

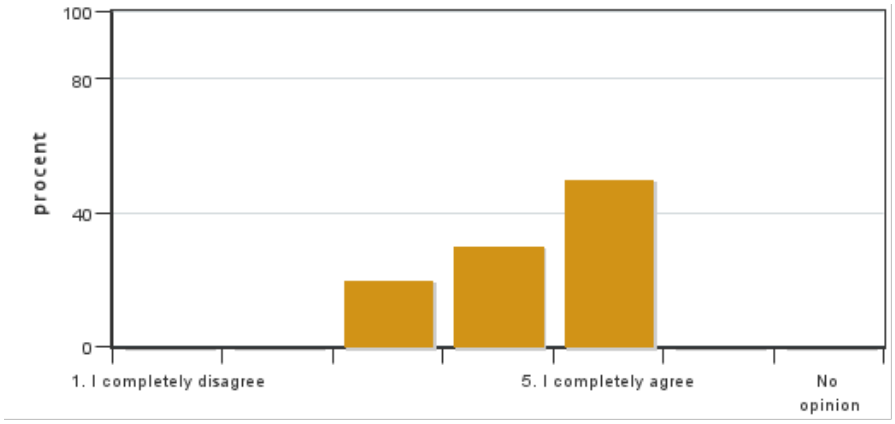


Answers: 10
Medel: 3,9
Median: 4

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

No opinion: 2

11. The course covered international perspectives.

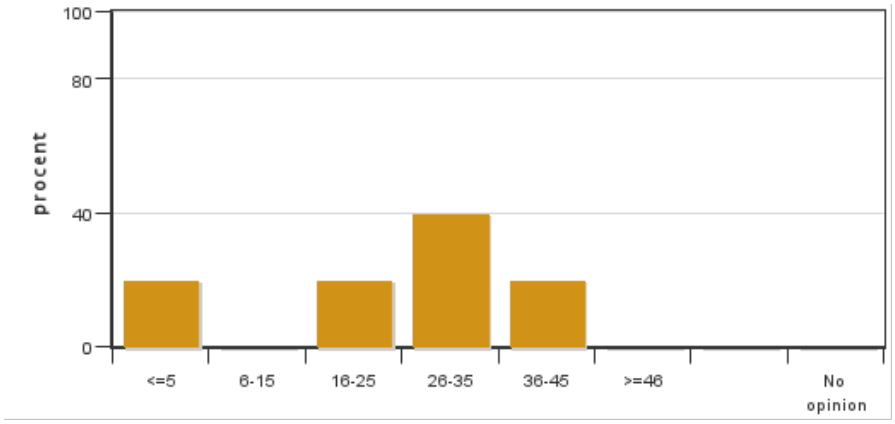


Answers: 10
Medel: 4,3
Median: 4

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

No opinion: 0

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



Answers: 10
Medel: 24,5
Median: 26-35

≤5: 2
6-15: 0
16-25: 2
26-35: 4
36-45: 2
≥46: 0

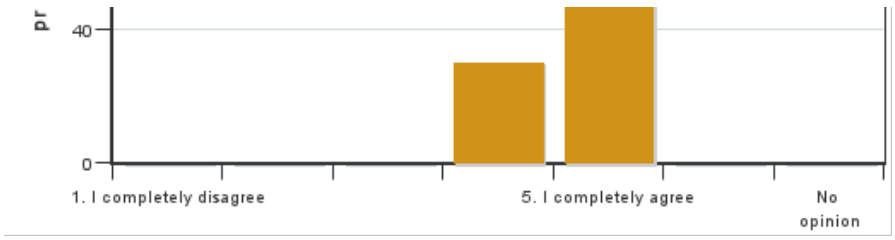
No opinion: 0

Additional own questions

13. The course introduction lecture provided me with all information needed for the course (teacher Magdalena Bieroza).

Answers: 10
Medel: 4,7
Median: 5

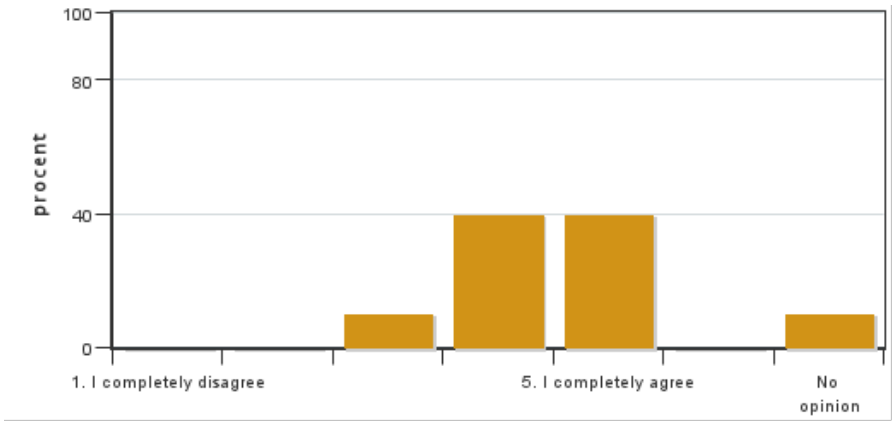
1: 0
2: 0



3: 0
4: 3
5: 7

No opinion: 0

14. The hydrology lecture was useful and relevant to the topic of the course (teacher Kevin Bishop).

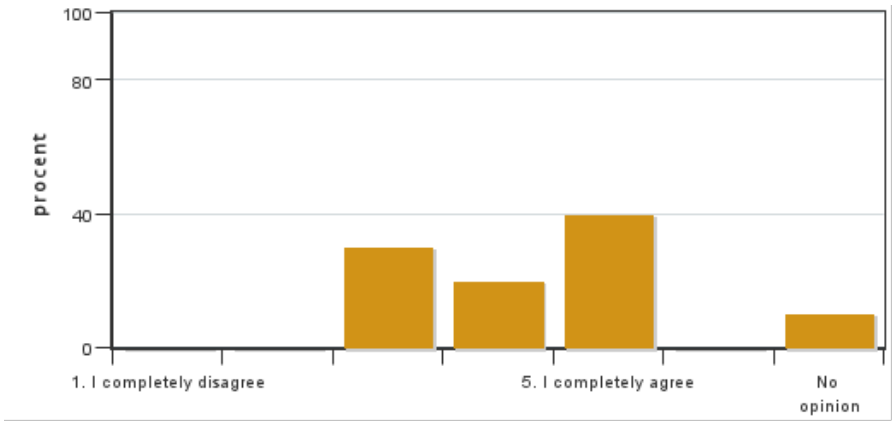


Answers: 10
Medel: 4,3
Median: 4

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

No opinion: 1

15. The limnology lecture was useful and relevant to the topic of the course (teacher Hampus Markensten)

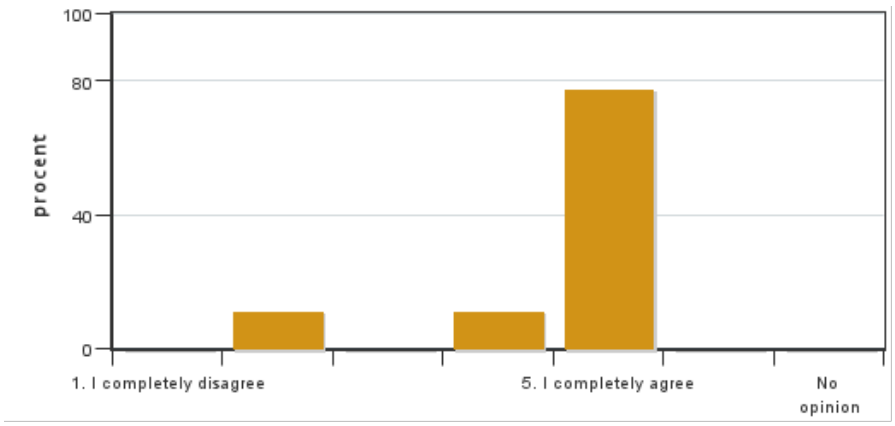


Answers: 10
Medel: 4,1
Median: 4

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

No opinion: 1

16. The sources of P lecture was useful and relevant to the topic of the course (teacher Faruk Djodjic).

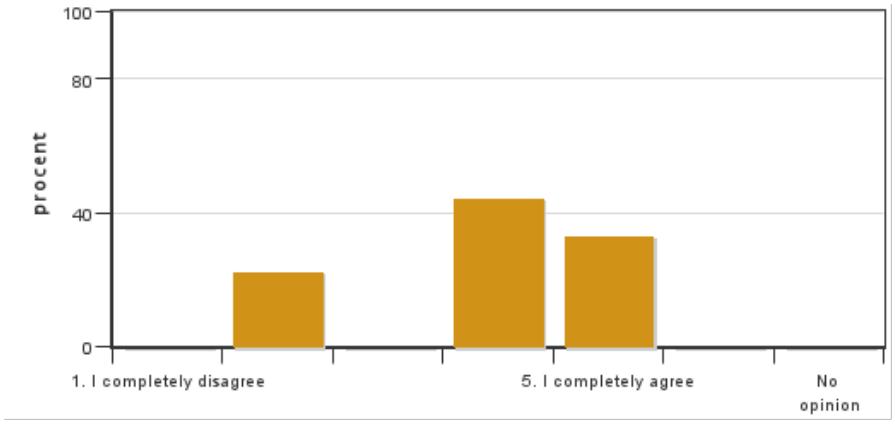


Answers: 9
Medel: 4,6
Median: 5

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

No opinion: 0

17. The sources of N lecture was useful and relevant to the topic of the course (teacher Helena Aronsson).

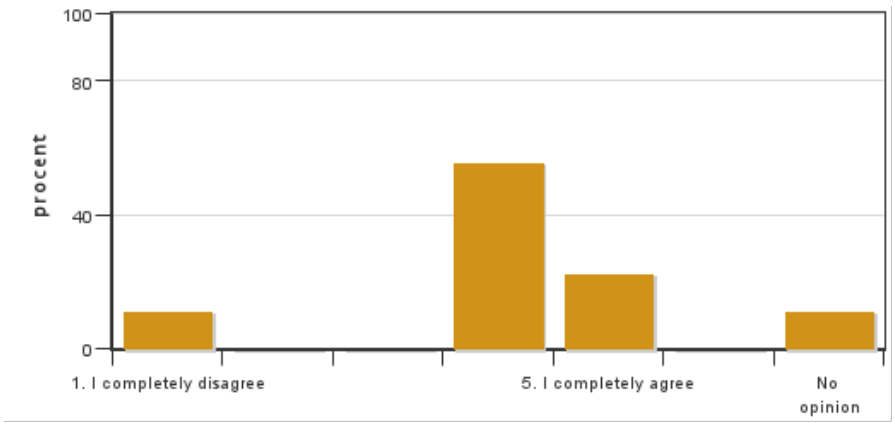


Answers: 9
Medel: 3,9
Median: 4

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

No opinion: 0

18. The Water Framework Directive lecture was useful and relevant to the topic of the course (teacher Jens Fölster).

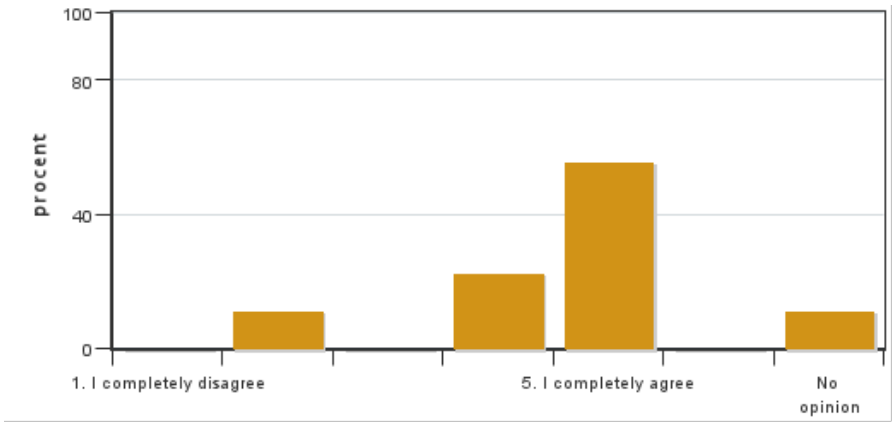


Answers: 9
Medel: 3,9
Median: 4

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

No opinion: 1

19. The Water quality lecture was useful and relevant to the topic of the course (teacher Magdalena Bieroza).



Answers: 9
Medel: 4,4
Median: 5

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

No opinion: 1

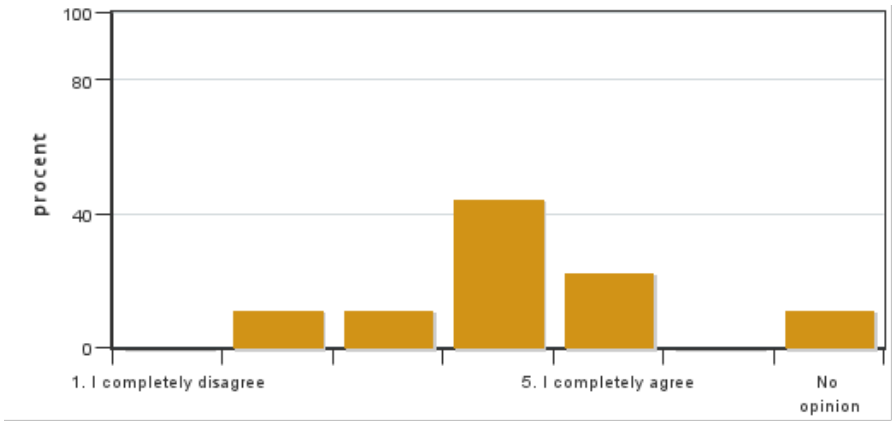
20. The Swedish Monitoring lecture was useful and relevant to the topic of the course (teacher Jens Fölster).

Answers: 9
Medel: 3,4
Median: 3

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

No opinion: 2

21. The Agricultural water management lecture was useful and relevant to the topic of the course (teacher Jennie Barron).

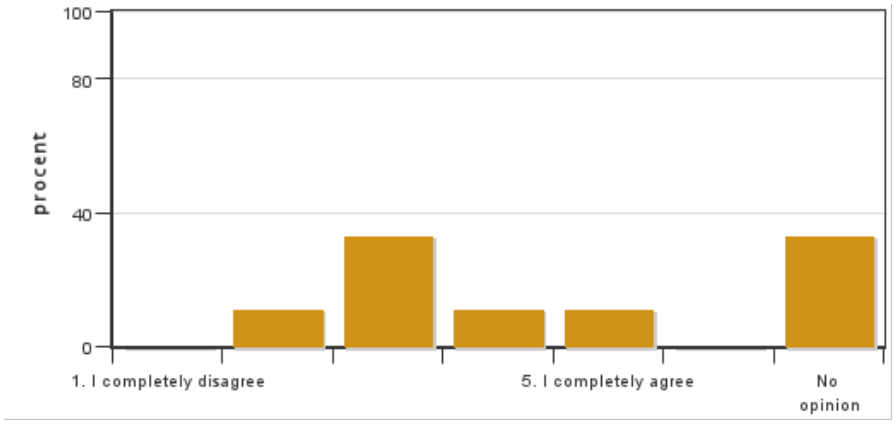


Answers: 9
Medel: 3,9
Median: 4

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

No opinion: 1

22. The modelling lecture was useful and relevant to the topic of the course (teachers Kristina Mårtensson, Martyn Futter and Faruk Djodjic).

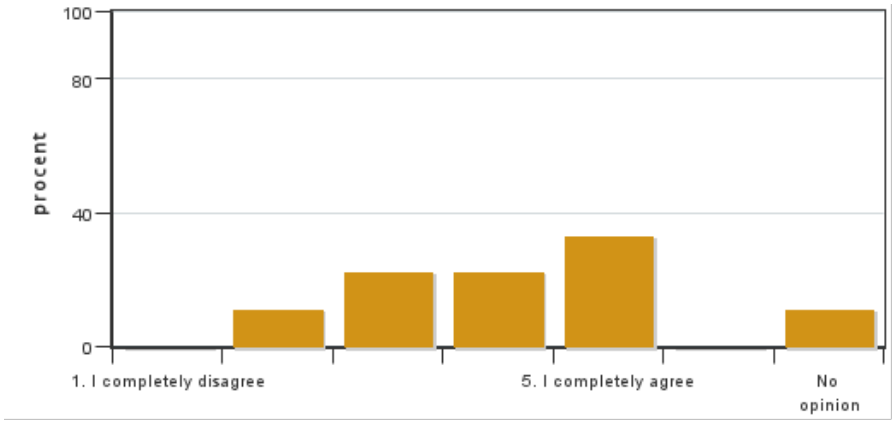


Answers: 9
Medel: 3,3
Median: 3

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

No opinion: 3

23. The ecosystem impacts lecture was useful and relevant to the topic of the course (teacher Andreas Bryhn)..

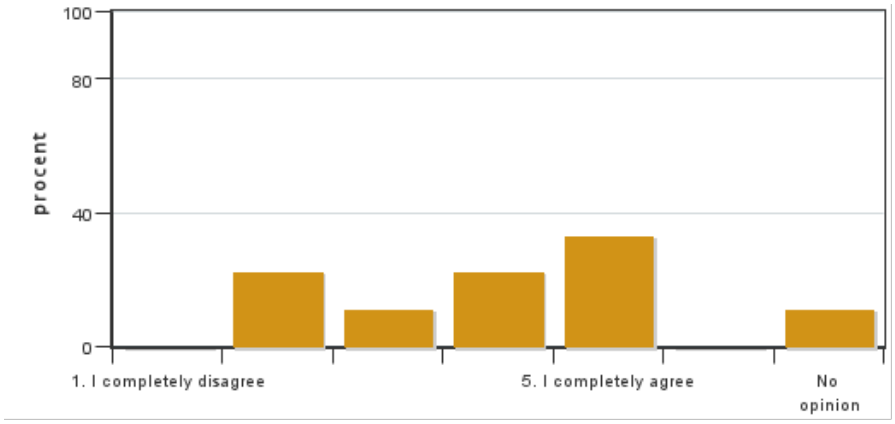


Answers: 9
Medel: 3,9
Median: 4

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

No opinion: 1

24. The P mitigation lecture was useful and relevant to the topic of the course (teacher Faruk Djodjic).

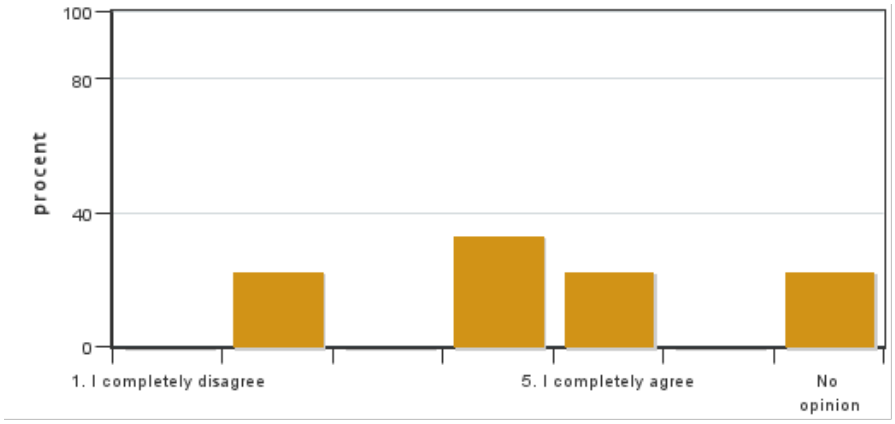


Answers: 9
Medel: 3,8
Median: 4

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

No opinion: 1

25. The N mitigation lecture was useful and relevant to the topic of the course (teacher Magdalena Bieroza).

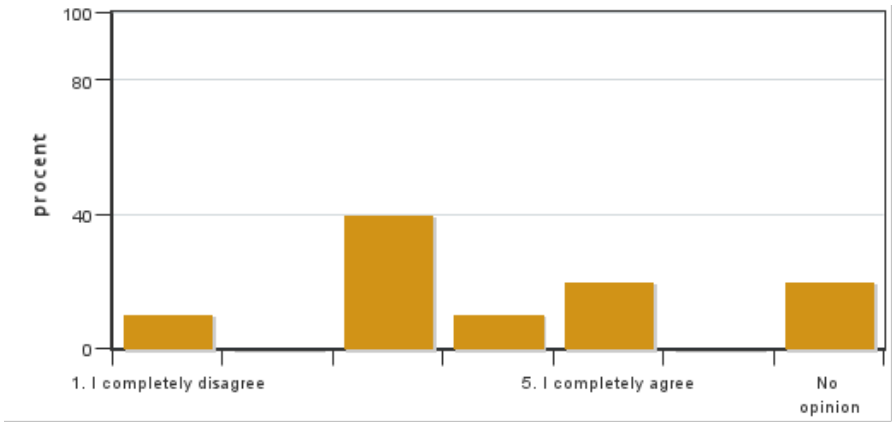


Answers: 9
Medel: 3,7
Median: 4

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

No opinion: 2

26. The international WQ lectures were useful and relevant to the topic of the course (teachers Lars Bergström, Magdalena Bieroza, Jennie Barron).

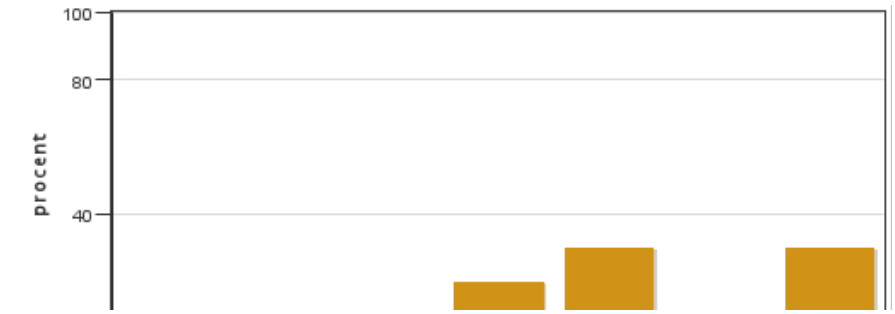


Answers: 10
Medel: 3,4
Median: 3

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

No opinion: 2

27. The Stream restoration lecture was useful and relevant to the topic of the course (teacher Brendan McKie).

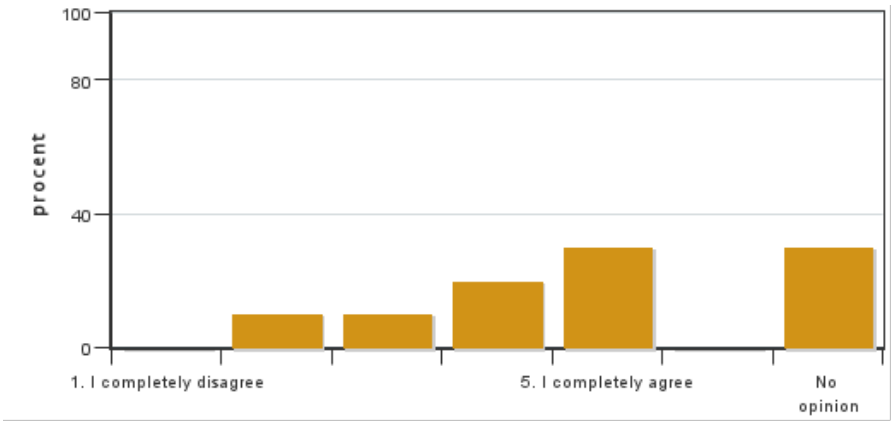


Answers: 10
Medel: 4,0
Median: 4

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

No opinion: 3

28. The nutrient recycling lecture was useful and relevant to the topic of the course (teacher Yariv Cohen).

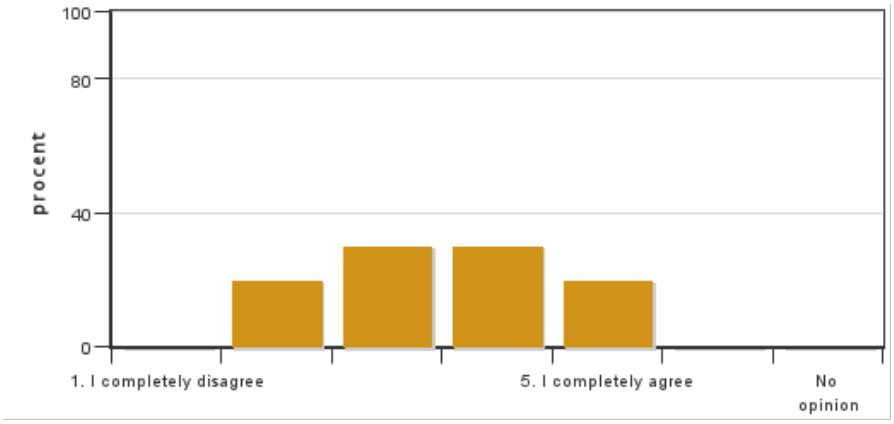


Answers: 10
Medel: 4,0
Median: 4

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

No opinion: 3

29. The trip to Baltic Sea 2020 was useful and relevant to the topic of the course (teacher Magdalena Bieroza).

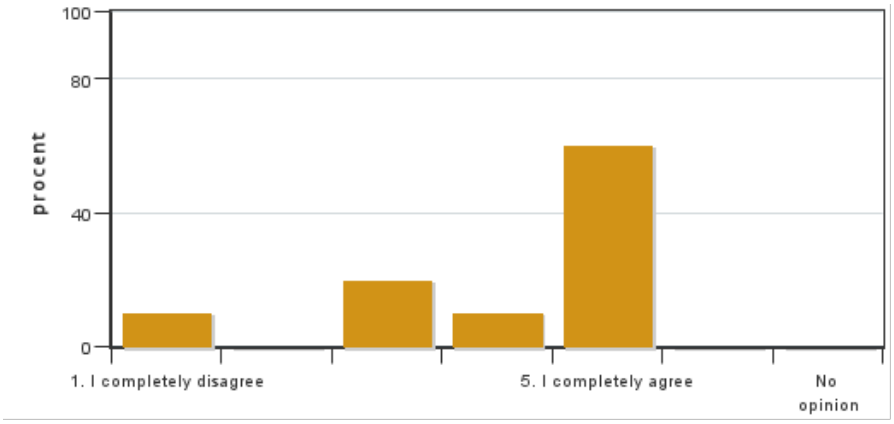


Answers: 10
Medel: 3,5
Median: 3

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

No opinion: 0

30. The trip to treatment plant was useful and relevant to the topic of the course (Uppsala Vatten).

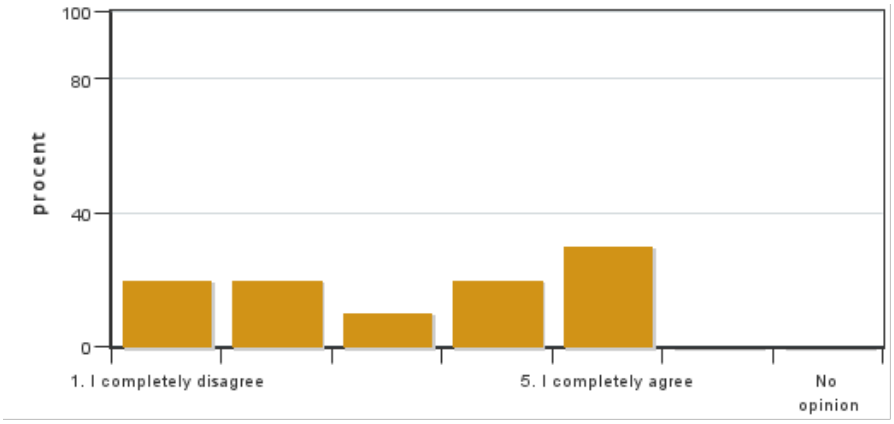


Answers: 10
Medel: 4,1
Median: 5

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

No opinion: 0

31. The literature discussions and term paper clinics were useful in preparing for the exam and writing the term paper.

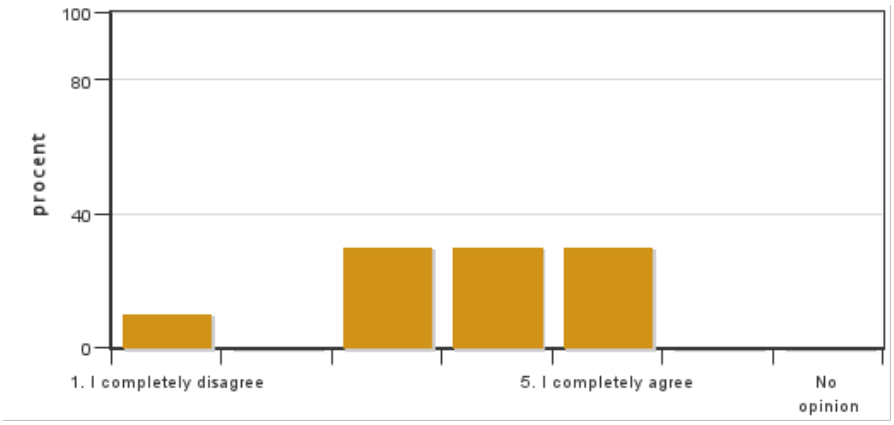


Answers: 10
Medel: 3,2
Median: 3

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

No opinion: 0

32. The term paper was a useful experience in writing scientific report.



Answers: 10
Medel: 3,7
Median: 4

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

No opinion: 0

Course leaders comments

I have been course leader for this course for the second year. Compared to last year, the number of students increased significantly (from 6 in 2018 to 24 in 2019) which posed a number of challenges:

- lecture rooms - the booking of lecture rooms happens long-time before the number of enrolled students is known (for the November course the booking was made in May), and the booking was made for 20 students. Some lecture rooms were therefore tight e.g. sal L. I will mitigate this next year by booking for a larger number of students. However, it seems as the lecture rooms are overbooked as we were located in computer lab rooms for lecture sessions. These rooms are not suited for lectures and it is up to Lokalbokning to resolve this.

- supervision of term papers - with 24 students finding supervisors for the term papers was challenging. On average, each lecturer supervised 2 term papers with me supervising 7 term papers due to lack of available supervisors. Therefore, the format of term papers will be modified next year to rely more on peer-learning. We tested this by introducing term paper clinics and term paper buddies, and this proved useful.

Overall, there was a better balance between theoretical lectures, practical assignments and field trips this year. New additions included:

- Water quality monitoring lecture (Magdalena Bieroza), Stakeholder perspective lecture (Dennis Collentine), Agricultural water management lecture (Jennie Barron), Water quality management in developing countries (Jennie Barron) and Stream restoration (Brendan McKie).

- Literature discussions to discuss course literature. These were extremely useful as they motivated students to read and reflect on the course literature.

- Term paper clinics to discuss progress on term papers.

- Mitigation trip to Baltic 2020 pilot catchment was improved by measurements of water quality during the trip. This hands-on exercise was very useful and will be expanded in the following years.

The students were extremely engaged during lectures and practical assignements. I think they appreciated the

interactive format of this course. The exam results and term paper evaluations show high number of grades 5, which makes me as a course leader extremely happy.

Student representatives comments

This evaluation is based on the written evaluation and comments students gave me during the course. The written evaluation was filled in by 10 of the 24 students. The overall impression received a 3,7. Especially the overall organisation of all the different aspects by course leader Magdalena Bieroza was really good. One of the negative comments that was given a lot were that the course was basic and repetitve. For a master course more depth was expected.

Good Aspects

- Organisation
- Exercises
- Field trip measurements
- International perspectives
- People with different backgrounds could easily follow the course
- Time spent

Improvement points

- Availibility of the lectures on Canvas
- Term paper discussions
- Term paper time
- Too many deadlines
- Teacher need to be on one line to not repeat one another every single lecture
- Field trip time traveled vs. time spend at Säby
- Make sure there is an extra assignment for students who missed mandatory parts
- Lecture room size

In the written evaluation there was a focus on all the different lectures given. Overall lectures were received as being good. Eutrophication is an interesting and relevant topic now. There were great interactive discussions with the different lecturers and students. Exercises in the lectures helped get a better understanding of the topic. Lecturers were providing extra literature if you were interested in a certain aspect of the course or things that came up in discussions or questions. Lectures that were especially appreciated were; sources P, water quality, agricultural water management, international water quality in UK and developing countries and nutrient recycling. Students that have previously followed the courses soil biology and environmental assessment thought quite some lectures were repetitive (limnology, hydrology, sources of N, water framework directive, Swedish monitoring, stream restoration). The lecture rooms were sometimes to small to fit all the students which should not happen. The other comment was that more depth would have been prefered since biological, chemical and physical processes all play a roll but were only touched on the surface. It will be good if there is less repetition among the different lectures during the course, this could be achieved by better communication between lecturers who presents what. Also one lecturer presented data that was 10-15 years old which simply needs to be urgently updated (WQ China).

Another important part of the course were the term papers. The term papers gave students a lot of freedom on which water quality aspect they wanted to focus. The term paper supervision and deadlines were well organized. Especially for students who missed depth this was an oppurtunity to get this extra layer. The discussion time during the course were mainly used to work on the term paper or discuss with Magdalena rather then discuss with your opponent. Opponents were often having completely different projects and were at different stages of completion. For some students the project took more time then imagined.

During the course there were two field trips that were both appreciated by the students; Baltic Sea 2020 trip and the WWTP trip. During the Baltic Sea 2020 trip we visited different mitigation measures, did some measurements, some critical thinking and had discussions. The measurements were very much appreciated but should be extended next year. A group discussion after the final measurements would also be preferred. Since the travelling time was long a longer time on location would not be a bad thing. The second trip was to the WWTP in Uppsala. It was an informative trip where we learned all about the different purification processes. The students that I spoke to would prefer the trip at the beginning of the course rather than in the end, so there is more time to study for the exam and write the term paper.

Last part of the course were the literature discussions. These were appreciated and helped create a better understanding of the theory. The papers were discussed in smaller groups and later on with the whole class. It was good that in the end everyone had to hand in the questions about the papers which also helped learning for the exam.