Soil biology and biogeochemical cycles
BI1322, 30106.1819

15 Hp
Pace of study = 100%
Education cycle = Advanced
Course leader = Björn Lindahl, Karina Engelbrecht Clemmensen

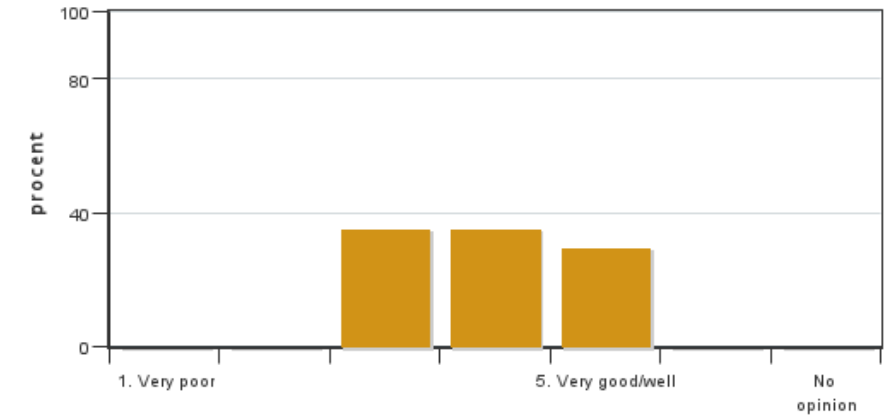
Evaluation report

Evaluation period: 2019-03-18 - 2019-04-08

Answers	17
Number of students	29
Answer frequency	58 %

Mandatory standard questions

1. My overall impression of the course is:

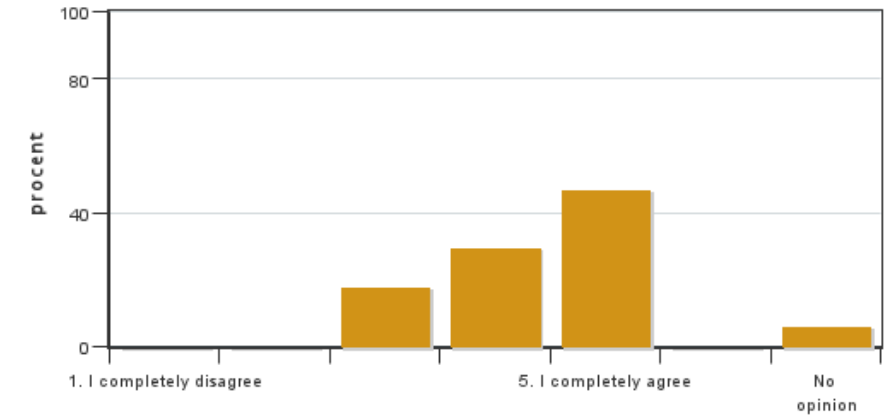


Answers: 17
Medel: 3,9
Median: 4

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

No opinion: 0

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

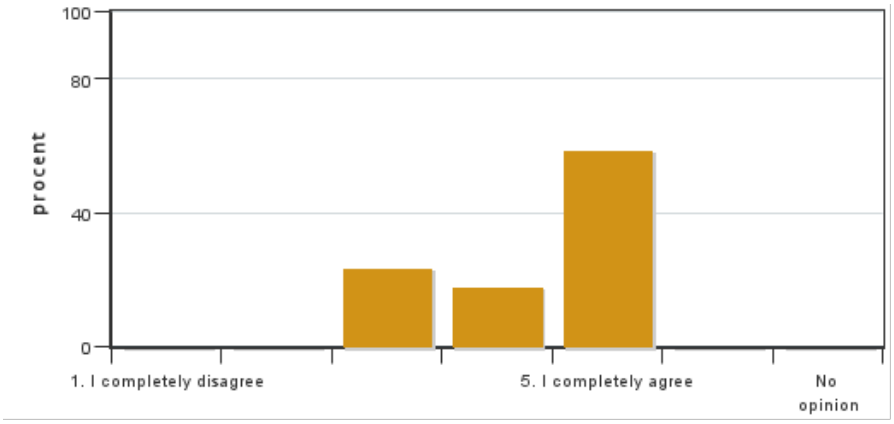


Answers: 17
Medel: 4,3
Median: 4

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

No opinion: 1

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

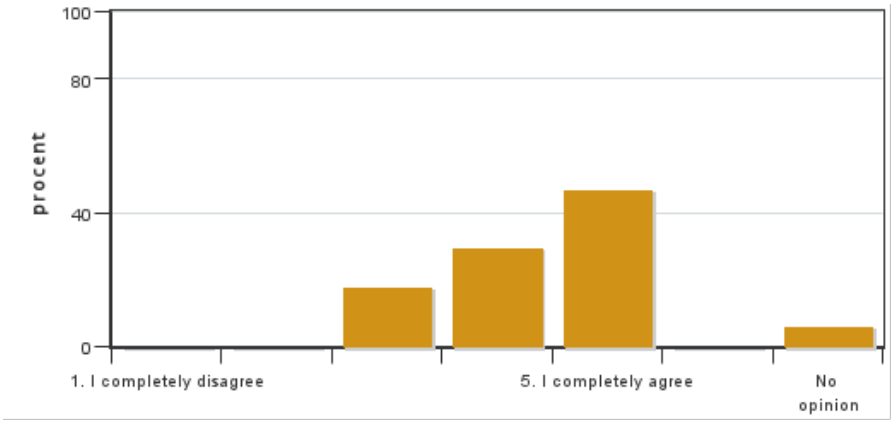


Answers: 17
Medel: 4,4
Median: 5

1: 0
2: 0
3: 4
4: 3
5: 10

No opinion: 0

4. The information about the course was easily accessible.

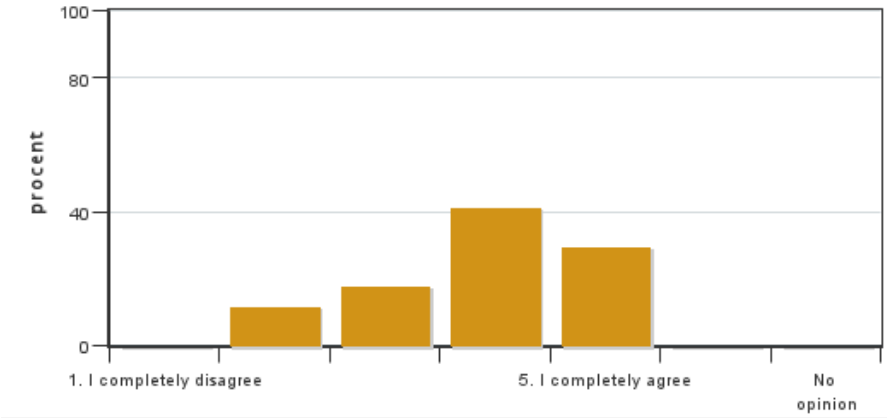


Answers: 17
Medel: 4,3
Median: 4

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

No opinion: 1

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

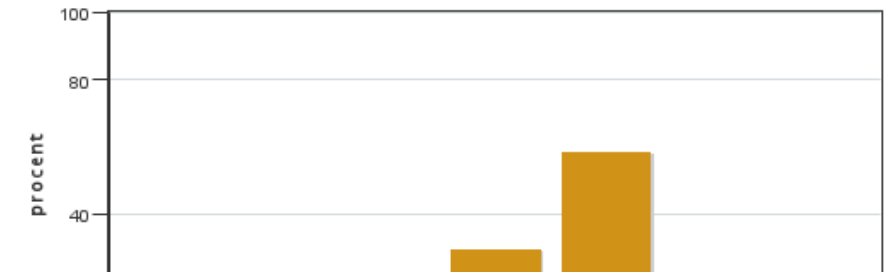


Answers: 17
Medel: 3,9
Median: 4

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

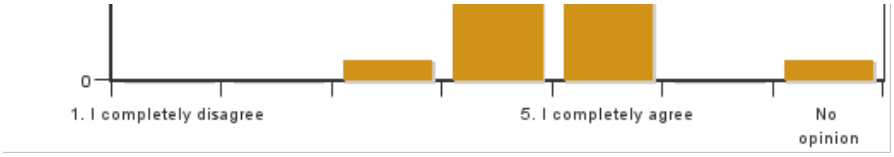
No opinion: 0

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



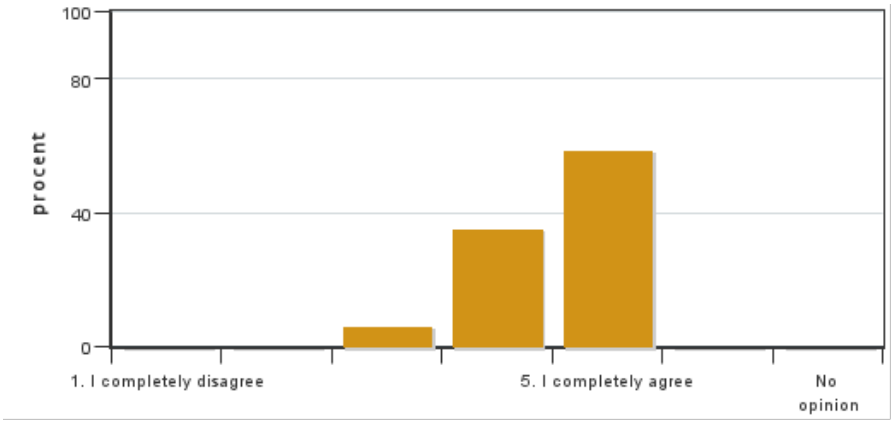
Answers: 17
Medel: 4,6
Median: 5

1: 0
2: 0
3: 1
4: 5
5: 10



No opinion: 1

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

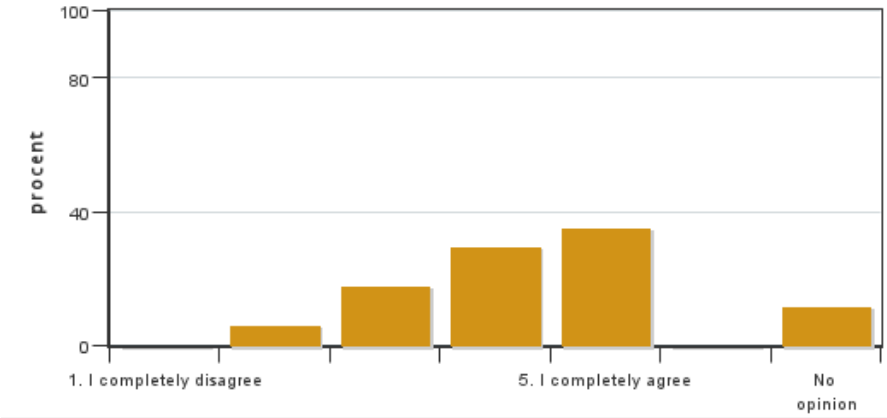


Answers: 17
Medel: 4,5
Median: 5

1: 0
2: 0
3: 1
4: 6
5: 10

No opinion: 0

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

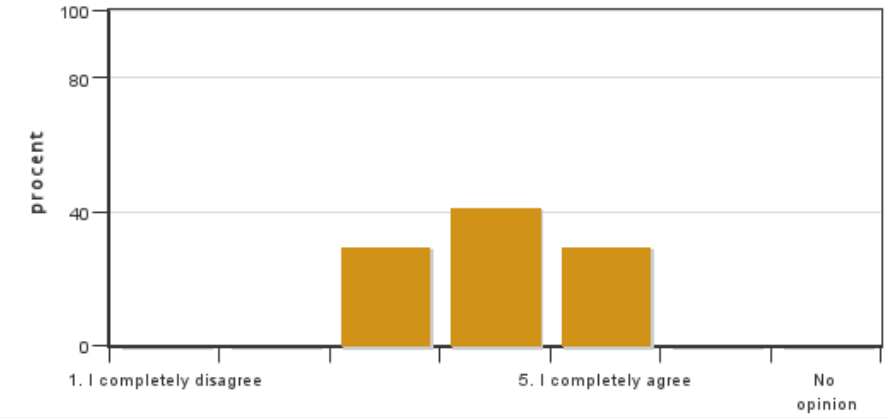


Answers: 17
Medel: 4,1
Median: 4

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

No opinion: 2

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

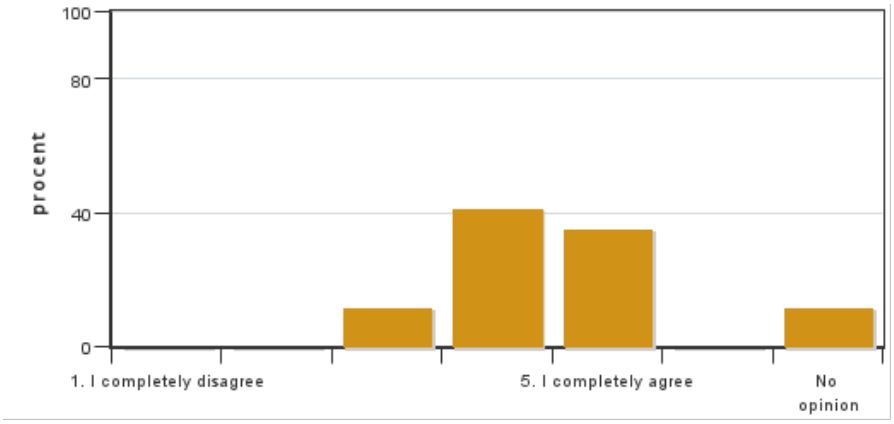


Answers: 17
Medel: 4,0
Median: 4

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

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).

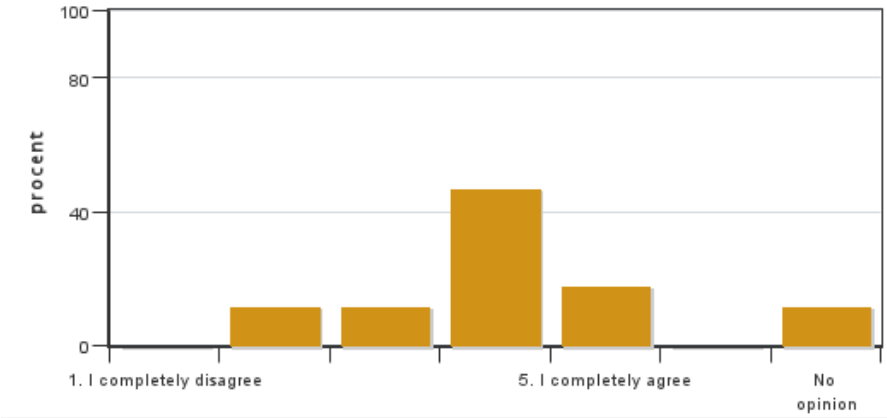


Answers: 17
Medel: 4,3
Median: 4

1: 0
2: 0
3: 2
4: 7
5: 6

No opinion: 2

11. The course covered international perspectives.

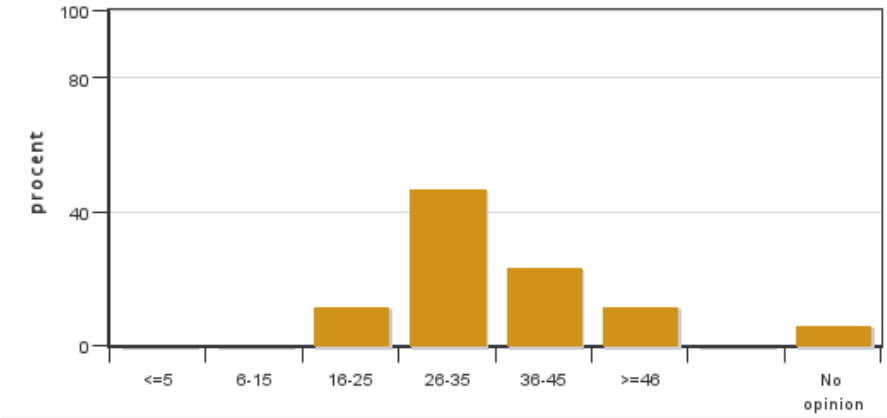


Answers: 17
Medel: 3,8
Median: 4

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

No opinion: 2

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



Answers: 17
Medel: 33,3
Median: 26-35

≤5: 0
6-15: 0
16-25: 2
26-35: 8
36-45: 4
≥46: 2

No opinion: 1

Course leaders comments

This was the first time we ran this course, and our overall impression is very good! We had 29 motivated students who all attended most of the classes. About two-thirds of the students were exchange students and one-third of the students from various SLU masters programmes. During course planning we decided to have a few (4-5) teachers taking on most of the teaching to secure continuity in course content and to promote a good connection among teachers and students. In addition, many other researchers, postdocs and phd students were also contributing with specific lectures, labs and project supervision. A major benefit of this first round was that teachers on different parts were communicating a lot with each other to connect contents, and that at least one senior teacher was present in all classes. This contributed to a very good atmosphere among students and teachers. A main difficulty of running a course first time was that the structure of some parts of the course was suboptimal. The course content and goal – to link soil biology and biochemistry across scales, however, was very highly appreciated.

Below we list course aspects that worked particularly well and aspects that will be improved next year. The lists are based on *i)* the student evaluation in Evald including free text parts, *ii)* an oral evaluation session with the whole class and some teachers, and *iii)* reflections by course leaders.

Aspects that worked particularly well and will be kept 2020:

- Lectures: The course have 20 lectures covering the theoretical content of the course. Most lectures were highly interactive implementing time for discussion and questioning. Although some student found discussions during lectures confusing, lectures were generally highly evaluated, and teachers found that they provided a good and well-connected flow of knowledge. Some students were introduced to conceptual thinking and discussing theories (rather than memorizing) as part of a course for the first time, which they found very useful for their further work.
- Level: Generally the level of the course was good. Students had very different backgrounds and all lectures needed a bit of introduction at a more basic level which was repetition for some students, but always appreciated by others. The level increased fast after that.
- Field trip: The field trip to the Norunda experimental forest was appreciated, particularly for the many exchange students with otherwise little experience of Swedish nature.
- Project work in groups: Project works were generally highly appreciated, and oral presentations in conference format were found to be useful. Project supervisors (postdocs) helped a lot in deepening understanding in selected subjects and to improve writing skills.
- Group works: several lecture discussions and the laboratory practical implemented random student groups, which helped mixing up the whole class and contributed to the good learning environment and social atmosphere.
- Practicals: The laboratory practicals were generally highly appreciated by the students and complemented theoretical work well.
- The students really appreciated one specific exercise with more interactive learning, and we will try to develop this idea further for other subjects.
- Exam: generally the written exam was judged to cover course contents well, and we plan to keep the format.

Aspects that will be improved next year:

- Course structure: The schedule will be somewhat reorganized to push more of the work earlier in the course. Particularly the organization of the laboratory reporting will be changed so that the graded report will have different content and can be handed in earlier. Deadlines for handing in reports will also be longer.
- Practical contents: The laboratory practicals will be revised to remove some unpractical parts and protocols will be clarified and connect even better with the theoretical lectures. Further, a better general explanation of analytical methods will be included. More time for conducting calculations will be implemented, and data generated throughout the different practicals will be compiled and checked by teachers continuously rather than at the end of the course.
- Course literature: We will see over whether we can connect lecture material better with the course literature, as the link appeared weak for some students.
- Lectures: We will develop presentation notes to hand out together with lecture slides that are not self-explanatory.
- More discussion of human impacts: We will implement a session with discussion of human impacts, where we can take advantage of the very diverse backgrounds of the students in the course and better link up to some contemporary societal issues where course contents are relevant. This session could be based on challenging papers and have a clear global perspective, as this was a lack some students pointed out.
- Project work in groups: We will implement more feedback on the oral presentations of project work, and also make sure to help project supervisors to narrow down projects to a subject area that fits the time available for this part of the course.
- CANVAS: we will organize contents even better next year.
- Exam: we will now have previous exams that students can have as an example of the written exam.

Thank you for a great course atmosphere to teachers and to students!

Student representatives comments

The overall impression of the course was good. It was an interesting course with a lot of theory on soil biology and biogeochemical cycles. The course and the lectures were well organized. The project and lab work were interesting and complimented the theory. The course was easy to follow for most students, although for students with a biological background there was sometimes too much repetition.

During each lecture there was a good introduction into the topic. The topics were looked at from different perspectives. A lot of the theory was supported by current research. Teachers were helpful and had a lot of enthusiasm, which made it fun to follow the lectures. There was an ample opportunity to ask questions and have discussions about presented topics, although this could be improved. The course mainly focused on cases/studies in Sweden and Scandinavia, more global examples would be nice.

The different lab practical's were interesting and helps you to better understand the processes in the soil. The

instructions for the labs were clear. During the data analysis you could evaluate results and gain a better understanding of them. The reporting on the labs caused a lot of discussions among students, especially the final report. Also it was often unclear what the teachers exactly wanted in the reports. It was a lot of work to write the reports and it was not possible to finish the reports during the data analysis hours. The time it would cost to do the data compilation of all the lab results was underestimated.

Most of the exercises helped to get a better understanding of the theory. The biogeochemical cycling exercises and seminars missed depth, the focus was on numbers rather than the actual cycling. One of the most interesting and helpful exercises was the nitrogen cycling. During the exercise we first got the opportunity to look into the nitrogen cycle and then the teacher gave a good and understandable overview of the nitrogen cycle. The big project was a good way to develop writing and presentation skills. The projects helped to put the knowledge obtained in class into use by evaluating papers and practice academic writing. The topics were interesting and you had the opportunity to look deeper into your topic. There were a lot of peer reviews which were not always taken that serious by the students. The deadline for the project was to close to the exam.

This course had an amazing study atmosphere also between lecturers and students. The lecturers were approachable and they were willing to get to know individual students. The quality and diversity of the lectures were great, although next year maybe increase the level a bit. Very good first run for this course. Karina and Björn did a great job as course leaders and put a lot of effort and enthusiasm into the course. Thank you.