Course Summary for NGEN08 Satellite Remote Sensing spring 2022

Course coordinator: Lars Eklundh

Teachers:

- *Jonas Ardö, professor (JA)*
- *Zheng Duan, associate senior lecturer(ZD)*
- *Lars Eklundh, professor (LE)*
- *Helena Elvén Eriksson, lecturer (HEE)*
- *Babak Mohamadi, PhD candidate (BM)*
- *Per-Ola Olsson, postdoctoral researcher, (PO)*
- *Torbern Tagesson, postdoctoral researcher (TT)*
- *David Tenenbaum, senior lecturer (DT)*

Number of students: 37 students (of which 3 PhD candidates).
Grade distribution: G (pass), VG (pass with distinction).

Summary of the course evaluation

Number of survey responses: 27
Short summary of the evaluation responses: Overall course grades was satisfactory 2022, though slightly below the average for previous years. On a scale from 1 to 5, fulfilment of course objectives was given 4.4, overall course grade was 3.9 (usually above 4), and workload 3.4 (3 is ideal). Some students perceived the course to be at too low lever, whereas others felt the workload was somewhat high. This reflects the diverse intake of students to the course. Instructions for one exercise was perceived as insufficient (time series analysis) and there were technical problems during one (machine learning). The final exercise on ethics was perceived as needing more background material. In general, student comments on the whole course were very positive and students meant that they had learnt a lot.

Comments from the teaching team
One comment given was that the schedule can be adjusted to provide more time and teacher support for working on some of the exercises.

Evaluation of changes implemented since the last time the course was given
A machine learning exercise was new this year and an exercise on radar had been skipped.

Suggestions for changes to implement before the course is given the next time The teachers have studied the student evaluation and will take this into account when updating their material for 2023. More instructor time will be given early in the time-series analysis exercise, and software for the machine learning exercise will be overseen. The ethics exercise will be somewhat extended to give the students more time for reflection. For this exercise a second teacher will also be engaged.

2023-03-07, this summary was made by Lars Eklundh

NGEN08_VT_2022

Answer Count: 30

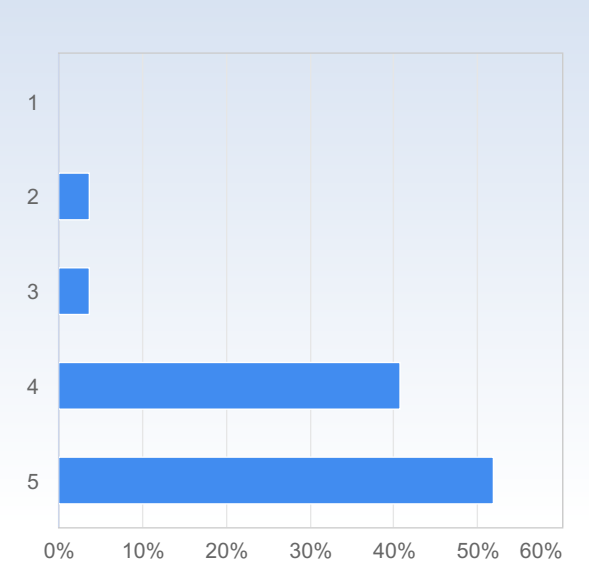
Part I: The course in general

(If not indicated in any other way: 1= not at all, 5=very well)

Please note that there is space for a free comment on the whole course at the end of the survey.

Do you think that the course has met the general objectives in the course curriculum (see summary above)?

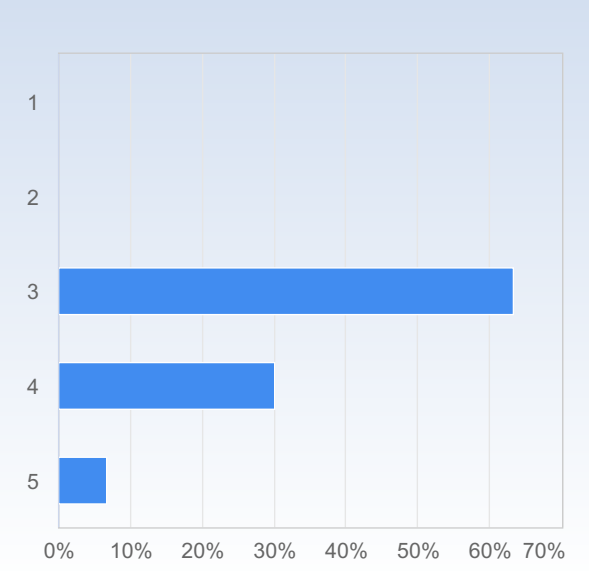
Do you think that the course has met the general objectives in the course curriculum (see summary above)?	Number of responses
1	0 (0,0%)
2	1 (3,7%)
3	1 (3,7%)
4	11 (40,7%)
5	14 (51,9%)
Total	27 (100,0%)



	Mean	Standard Deviation
Do you think that the course has met the general objectives in the course curriculum (see summary above)?	4,4	0,7

How was the workload of the course? (1=too low, 3= OK, 5= too much work)

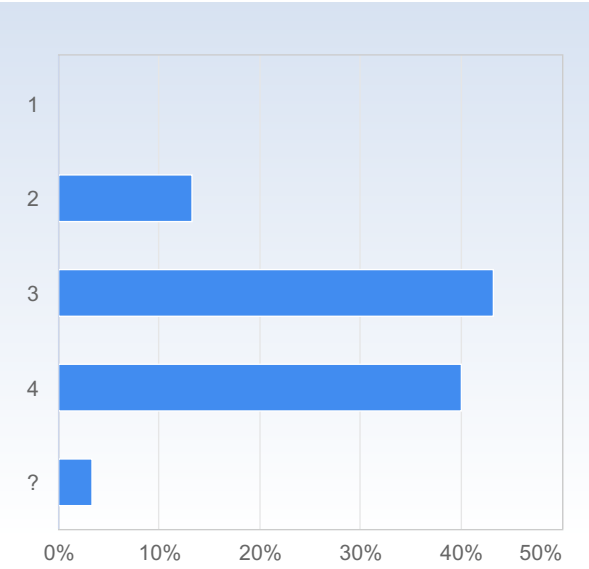
How was the workload of the course? (1=too low, 3= OK, 5= too much work)	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	19 (63,3%)
4	9 (30,0%)
5	2 (6,7%)
Total	30 (100,0%)



	Mean	Standard Deviation
How was the workload of the course? (1=too low, 3= OK, 5= too much work)	3,4	0,6

Was the course as you expected (1=No, not at all,2=No, not really, 3=yes, partly, 4=Yes, completely, ?= do not know)

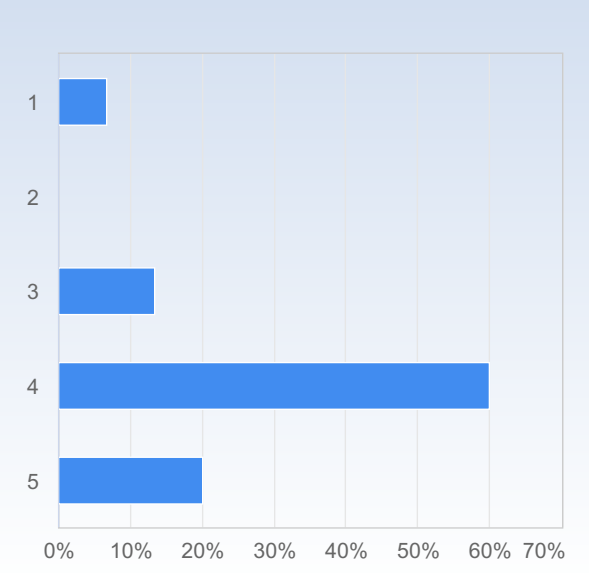
Was the course as you expected (1=No, not at all,2=No, not really, 3=yes, partly, 4=Yes, completely, ?= do not know)	Number of responses
1	0 (0,0%)
2	4 (13,3%)
3	13 (43,3%)
4	12 (40,0%)
?	1 (3,3%)
Total	30 (100,0%)



	Mean	Standard Deviation
Was the course as you expected (1=No, not at all,2=No, not really, 3=yes, partly, 4=Yes, completely, ?= do not know)	3,3	0,8

How do you grade the course as a whole? (1=very bad, 5= very good)

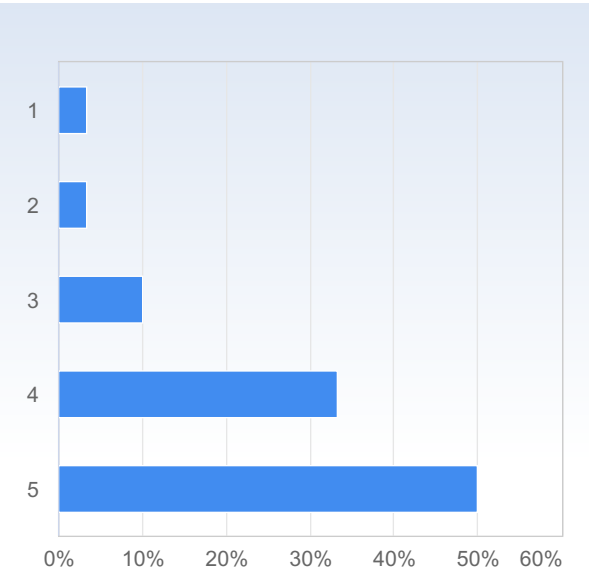
How do you grade the course as a whole? (1=very bad, 5= very good)	Number of responses
1	2 (6,7%)
2	0 (0,0%)
3	4 (13,3%)
4	18 (60,0%)
5	6 (20,0%)
Total	30 (100,0%)



	Mean	Standard Deviation
How do you grade the course as a whole? (1=very bad, 5= very good)	3,9	1,0

Does the course content and work load corresponds to the course credits (1= No, not at all, 5= yes, entirely)

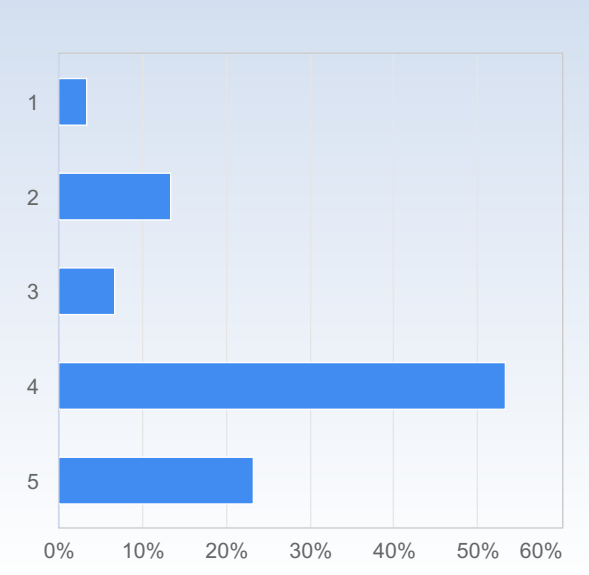
Does the course content and work load corresponds to the course credits (1= No, not at all, 5= yes, entirely)	Number of responses
1	1 (3,3%)
2	1 (3,3%)
3	3 (10,0%)
4	10 (33,3%)
5	15 (50,0%)
Total	30 (100,0%)



	Mean	Standard Deviation
Does the course content and work load corresponds to the course credits (1= No, not at all, 5= yes, entirely)	4,2	1,0

Did the teachers motivate you and inspire you ? (1=no, not at all, 5= yes, very much)

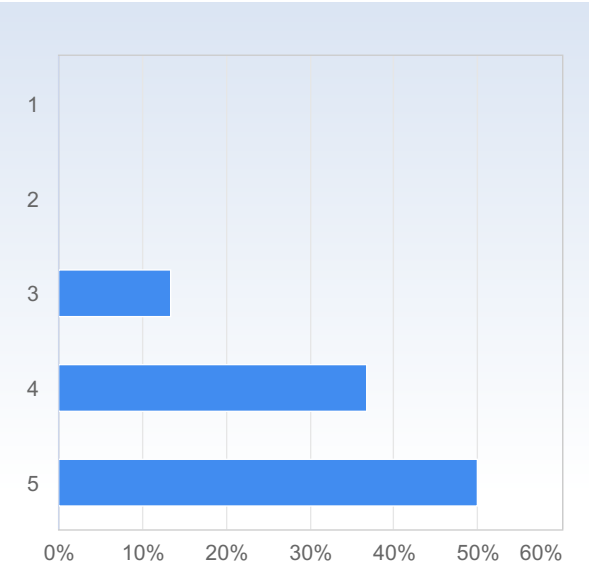
Did the teachers motivate you and inspire you ? (1=no, not at all, 5= yes, very much)	Number of responses
1	1 (3,3%)
2	4 (13,3%)
3	2 (6,7%)
4	16 (53,3%)
5	7 (23,3%)
Total	30 (100,0%)



	Mean	Standard Deviation
Did the teachers motivate you and inspire you ? (1=no, not at all, 5= yes, very much)	3,8	1,1

Did you get enough training in communication, both oral and written? (1=No, not at all, 5= Yes, completely)

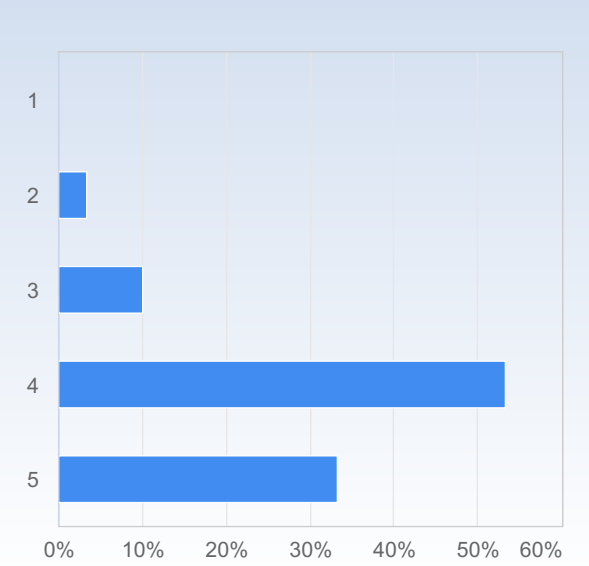
Did you get enough training in communication, both oral and written? (1=No, not at all, 5= Yes, completely)	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	4 (13,3%)
4	11 (36,7%)
5	15 (50,0%)
Total	30 (100,0%)



	Mean	Standard Deviation
Did you get enough training in communication, both oral and written? (1=No, not at all, 5= Yes, completely)	4,4	0,7

Did you get useful feedback on your work and help to understand difficult material during the course (help during work, answers to questions, useful comments to hand-ins; 1=not at all, 5= completely)?

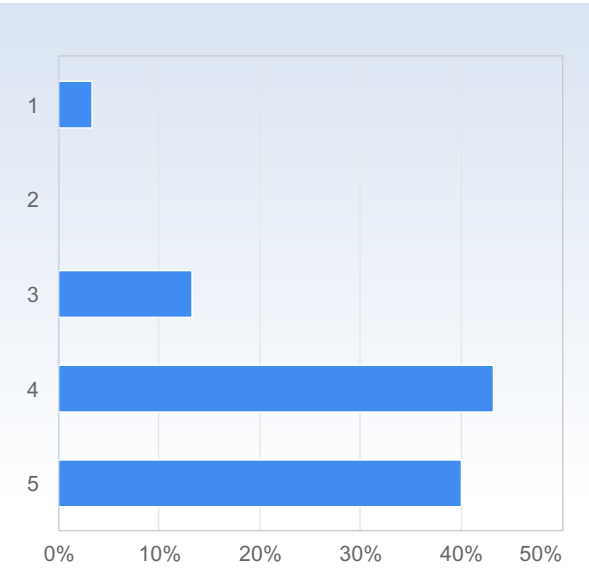
Did you get useful feedback on your work and help to understand difficult material during the course (help during work, answers to questions, useful comments to hand-ins; 1=not at all, 5= completely) ?	Number of responses
1	0 (0,0%)
2	1 (3,3%)
3	3 (10,0%)
4	16 (53,3%)
5	10 (33,3%)
Total	30 (100,0%)



	Mean	Standard Deviation
Did you get useful feedback on your work and help to understand difficult material during the course (help during work, answers to questions, useful comments to hand-ins; 1=not at all, 5= completely)?	4,2	0,7

How were the practical arrangements of the course: schedule, course page information, Canvas? (1=very bad, 5= very good)

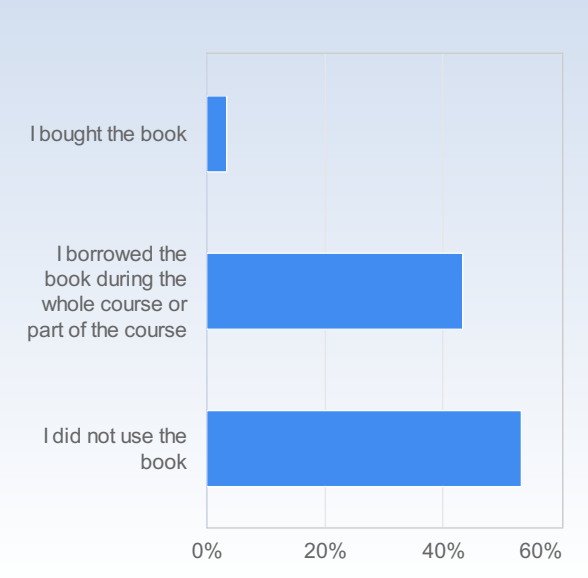
How were the practical arrangements of the course: schedule, course page information, Canvas? (1=very bad, 5= very good)	Number of responses
1	1 (3,3%)
2	0 (0,0%)
3	4 (13,3%)
4	13 (43,3%)
5	12 (40,0%)
Total	30 (100,0%)



	Mean	Standard Deviation
How were the practical arrangements of the course: schedule, course page information, Canvas? (1=very bad, 5= very good)	4,2	0,9

Course book Chuvieco: Fundamentals of Satellite Remote Sensing - use

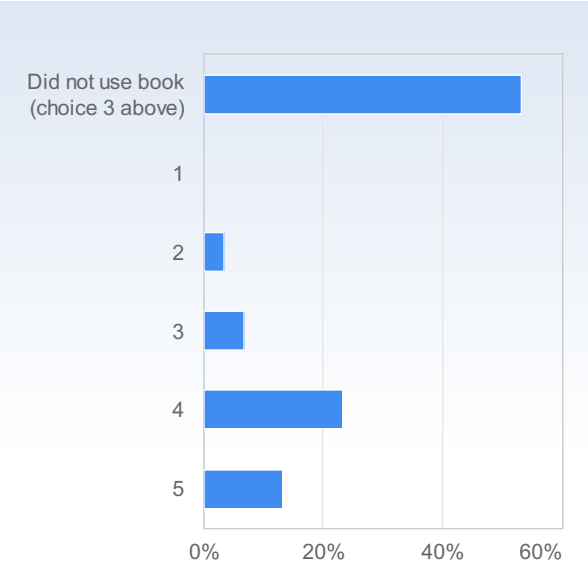
Course book Chuvieco: Fundamentals of Satellite Remote Sensing - use	Number of responses
I bought the book	1 (3,3%)
I borrowed the book during the whole course or part of the course	13 (43,3%)
I did not use the book	16 (53,3%)
Total	30 (100,0%)



	Mean	Standard Deviation
Course book Chuvieco: Fundamentals of Satellite Remote Sensing - use	2,5	0,6

Course book Chuvieco: How did you like the book? (1= not at all; 5= very much)

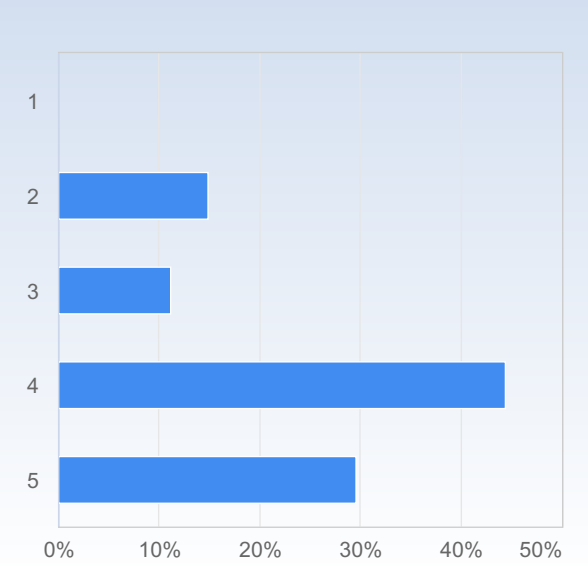
Course book Chuvieco: How did you like the book? (1= not at all; 5= very much)	Number of responses
Did not use book (choice 3 above)	16 (53,3%)
1	0 (0,0%)
2	1 (3,3%)
3	2 (6,7%)
4	7 (23,3%)
5	4 (13,3%)
Total	30 (100,0%)



	Mean	Standard Deviation
Course book Chuvieco: How did you like the book? (1= not at all; 5= very much)	1,9	2,1

Was the principle for examination and grading justified and did the exam questions reflect the course? (1=not at all, 5 = very much so)

Was the principle for examination and grading justified and did the exam questions reflect the course? (1=not at all, 5 = very much so)	Number of responses
1	0 (0,0%)
2	4 (14,8%)
3	3 (11,1%)
4	12 (44,4%)
5	8 (29,6%)
Total	27 (100,0%)



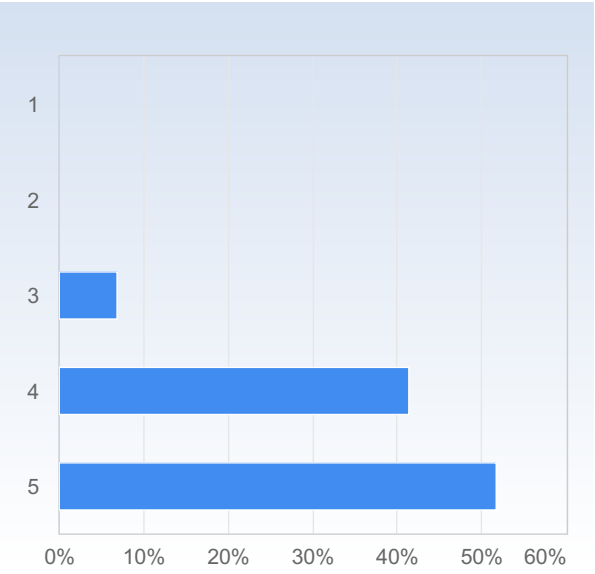
	Mean	Standard Deviation
Was the principle for examination and grading justified and did the exam questions reflect the course? (1=not at all, 5 = very much so)	3,9	1,0

Part II: question on course specific elements

(If not indicated in another way: 1= very bad, 5=very good)

Lectures in fundamental remote sensing: Introduction to RS, Physical basis, spectral properties (1=very bad, 5= very good)

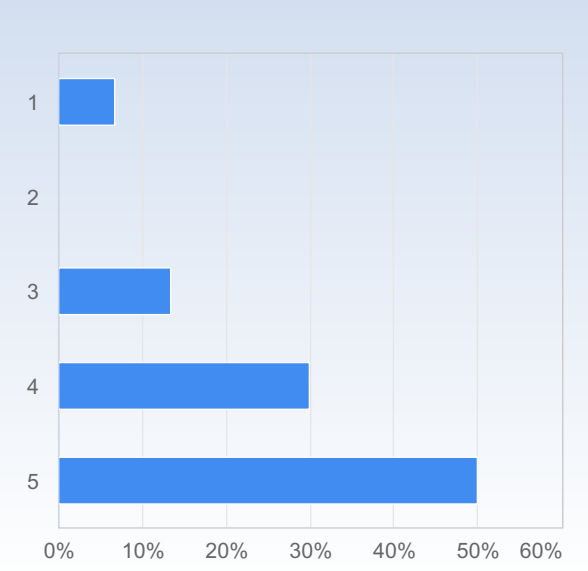
Lectures in fundamental remote sensing: Introduction to RS, Physical basis, spectral properties (1=very bad, 5= very good)	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	2 (6,9%)
4	12 (41,4%)
5	15 (51,7%)
Total	29 (100,0%)



	Mean	Standard Deviation
Lectures in fundamental remote sensing: Introduction to RS, Physical basis, spectral properties (1=very bad, 5= very good)	4,4	0,6

Exercise: Group work in radiation physics (1=very bad, 5= very good)

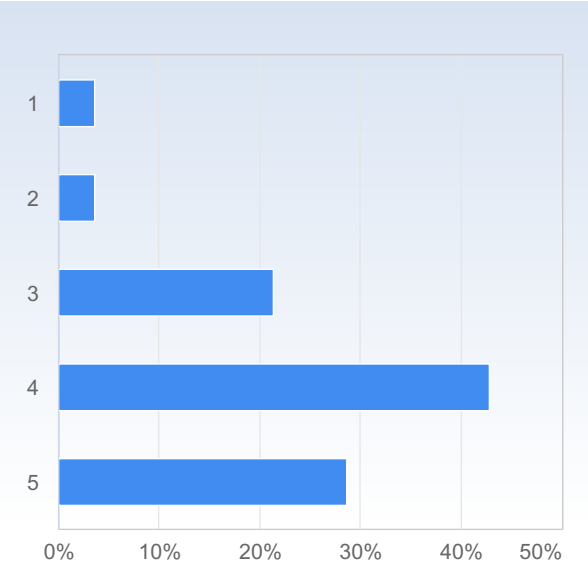
Exercise: Group work in radiation physics (1=very bad, 5= very good)	Number of responses
1	2 (6,7%)
2	0 (0,0%)
3	4 (13,3%)
4	9 (30,0%)
5	15 (50,0%)
Total	30 (100,0%)



	Mean	Standard Deviation
Exercise: Group work in radiation physics (1=very bad, 5= very good)	4,2	1,1

Lecture on satellites and sensors (1=very bad, 5= very good)

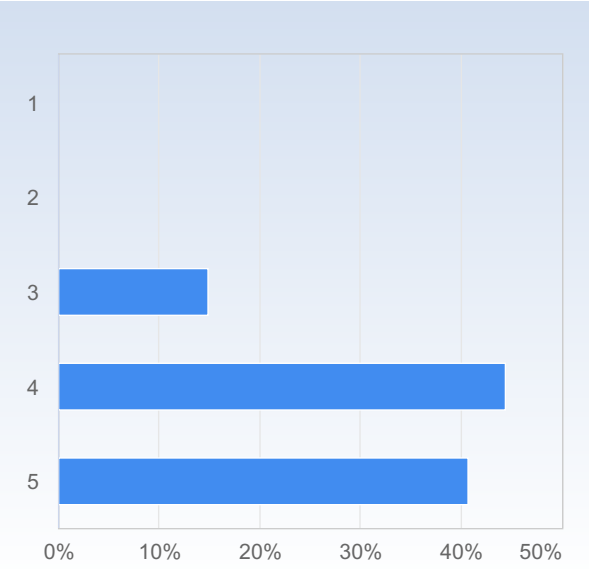
Lecture on satellites and sensors (1=very bad, 5= very good)	Number of responses
1	1 (3,6%)
2	1 (3,6%)
3	6 (21,4%)
4	12 (42,9%)
5	8 (28,6%)
Total	28 (100,0%)



	Mean	Standard Deviation
Lecture on satellites and sensors (1=very bad, 5= very good)	3,9	1,0

Lectures: Digital RS parts 1-2 (1=very bad, 5= very good)

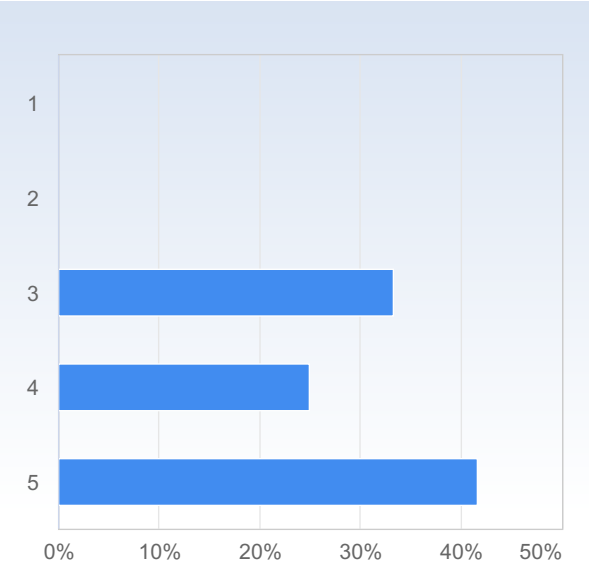
Lectures: Digital RS parts 1-2 (1=very bad, 5= very good)	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	4 (14,8%)
4	12 (44,4%)
5	11 (40,7%)
Total	27 (100,0%)



	Mean	Standard Deviation
Lectures: Digital RS parts 1-2 (1=very bad, 5= very good)	4,3	0,7

Exercise: Raster GIS (voluntary for students without GIS) (1=very bad, 5= very good)

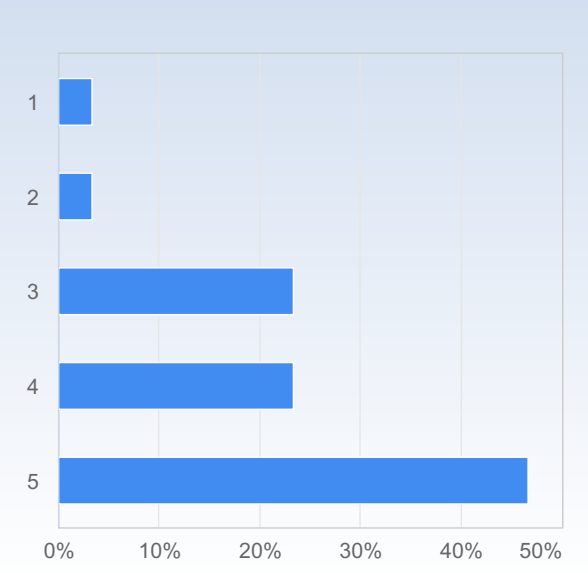
Exercise: Raster GIS (voluntary for students without GIS) (1=very bad, 5= very good)	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	4 (33,3%)
4	3 (25,0%)
5	5 (41,7%)
Total	12 (100,0%)



	Mean	Standard Deviation
Exercise: Raster GIS (voluntary for students without GIS) (1=very bad, 5= very good)	4,1	0,9

Exercise: Image processing in IDRISI (1=very bad, 5= very good)

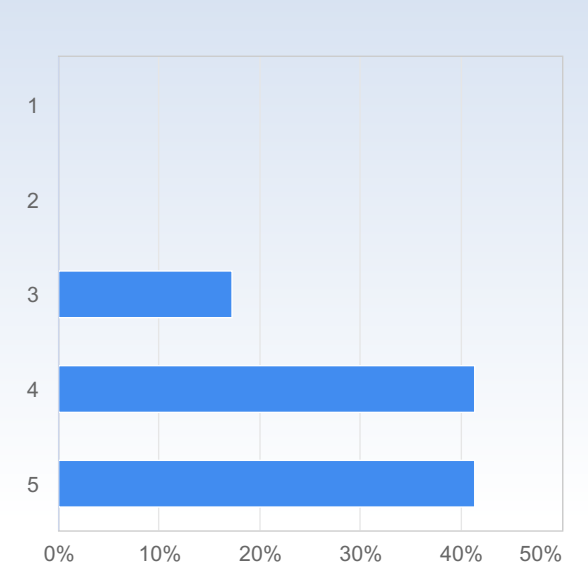
Exercise: Image processing in IDRISI (1=very bad, 5= very good)	Number of responses
1	1 (3,3%)
2	1 (3,3%)
3	7 (23,3%)
4	7 (23,3%)
5	14 (46,7%)
Total	30 (100,0%)



	Mean	Standard Deviation
Exercise: Image processing in IDRISI (1=very bad, 5= very good)	4,1	1,1

Lecture: Change analysis (1=very bad, 5= very good)

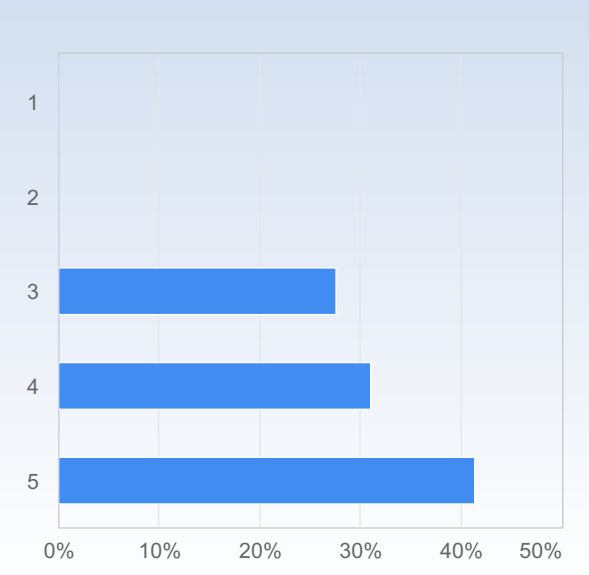
Lecture: Change analysis (1=very bad, 5= very good)	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	5 (17,2%)
4	12 (41,4%)
5	12 (41,4%)
Total	29 (100,0%)



	Mean	Standard Deviation
Lecture: Change analysis (1=very bad, 5= very good)	4,2	0,7

Exercise: Change analysis and radiometric correction (1=very bad, 5= very good)

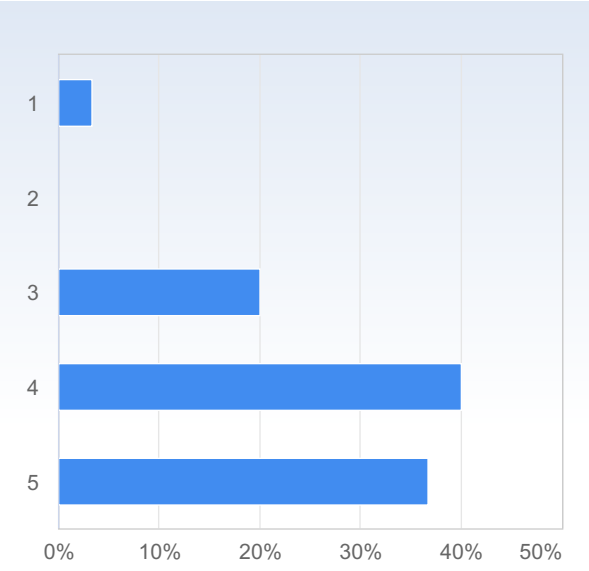
Exercise: Change analysis and radiometric correction (1=very bad, 5= very good)	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	8 (27,6%)
4	9 (31,0%)
5	12 (41,4%)
Total	29 (100,0%)



	Mean	Standard Deviation
Exercise: Change analysis and radiometric correction (1=very bad, 5= very good)	4,1	0,8

Exercise: Lund kommun 1: Geom. correction (1=very bad, 5= very good)

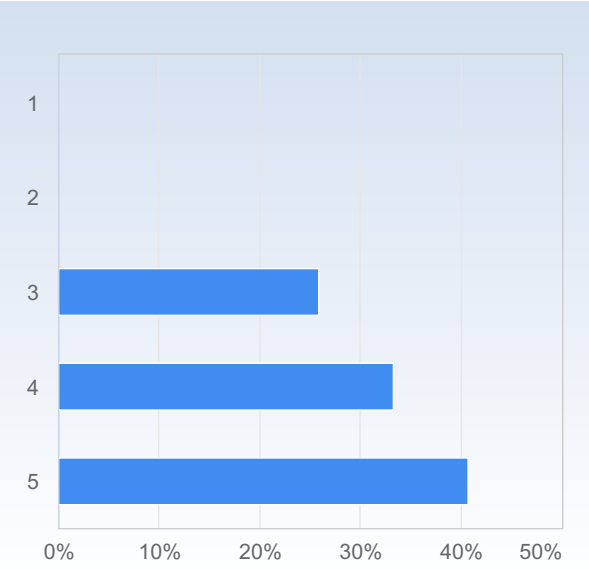
Exercise: Lund kommun 1: Geom. correction (1=very bad, 5= very good)	Number of responses
1	1 (3,3%)
2	0 (0,0%)
3	6 (20,0%)
4	12 (40,0%)
5	11 (36,7%)
Total	30 (100,0%)



	Mean	Standard Deviation
Exercise: Lund kommun 1: Geom. correction (1=very bad, 5= very good)	4,1	0,9

Lecture: Digital RS part 3 (1=very bad, 5= very good)

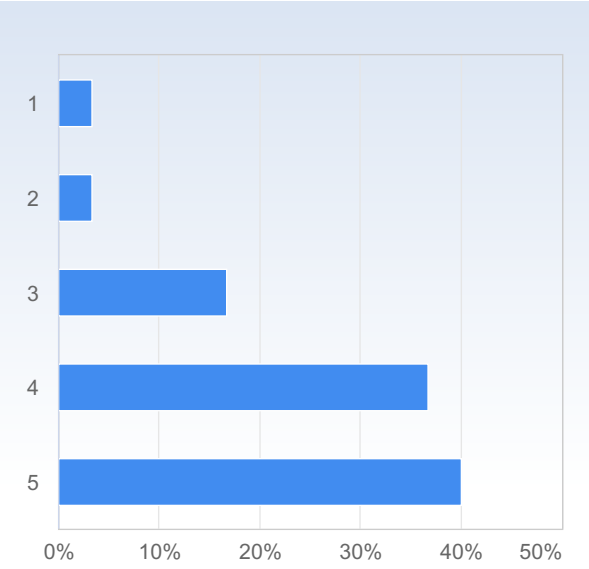
Lecture: Digital RS part 3 (1=very bad, 5= very good)	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	7 (25,9%)
4	9 (33,3%)
5	11 (40,7%)
Total	27 (100,0%)



	Mean	Standard Deviation
Lecture: Digital RS part 3 (1=very bad, 5= very good)	4,1	0,8

Exercise: Lund kommun 2: Image enhancement (1=very bad, 5= very good)

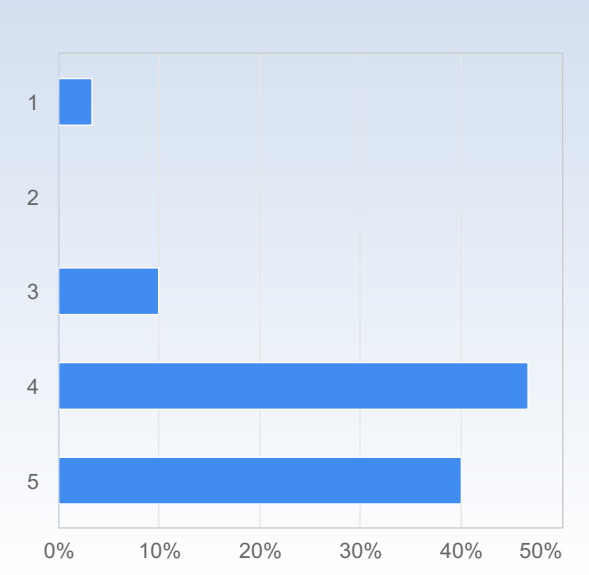
Exercise: Lund kommun 2: Image enhancement (1=very bad, 5= very good)	Number of responses
1	1 (3,3%)
2	1 (3,3%)
3	5 (16,7%)
4	11 (36,7%)
5	12 (40,0%)
Total	30 (100,0%)



	Mean	Standard Deviation
Exercise: Lund kommun 2: Image enhancement (1=very bad, 5= very good)	4,1	1,0

Exercise: Lund kommun 3: Classification (1=very bad, 5= very good)

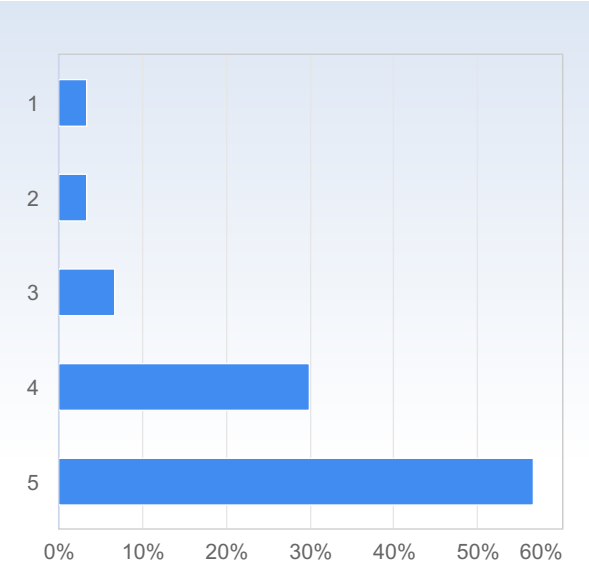
Exercise: Lund kommun 3: Classification (1=very bad, 5= very good)	Number of responses
1	1 (3,3%)
2	0 (0,0%)
3	3 (10,0%)
4	14 (46,7%)
5	12 (40,0%)
Total	30 (100,0%)



	Mean	Standard Deviation
Exercise: Lund kommun 3: Classification (1=very bad, 5= very good)	4,2	0,9

Lecture: Field data sampling, and field work day (1=very bad, 5= very good)

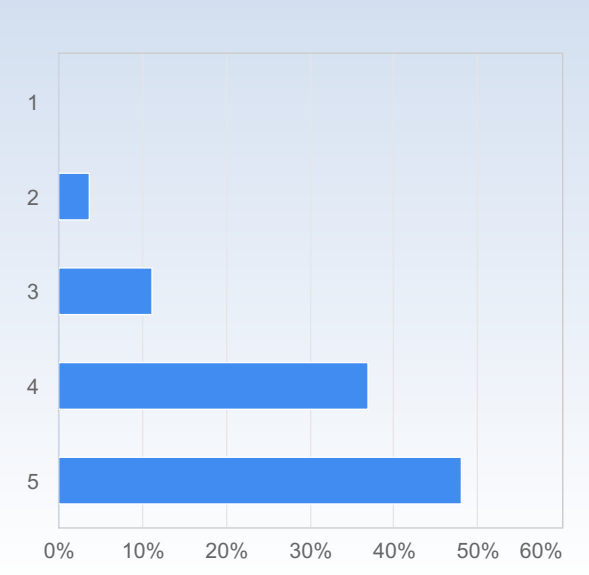
Lecture: Field data sampling, and field work day (1=very bad, 5= very good)	Number of responses
1	1 (3,3%)
2	1 (3,3%)
3	2 (6,7%)
4	9 (30,0%)
5	17 (56,7%)
Total	30 (100,0%)



	Mean	Standard Deviation
Lecture: Field data sampling, and field work day (1=very bad, 5= very good)	4,3	1,0

Lecture: RS for vegetation estimation / vegetation indices (1=very bad, 5= very good)

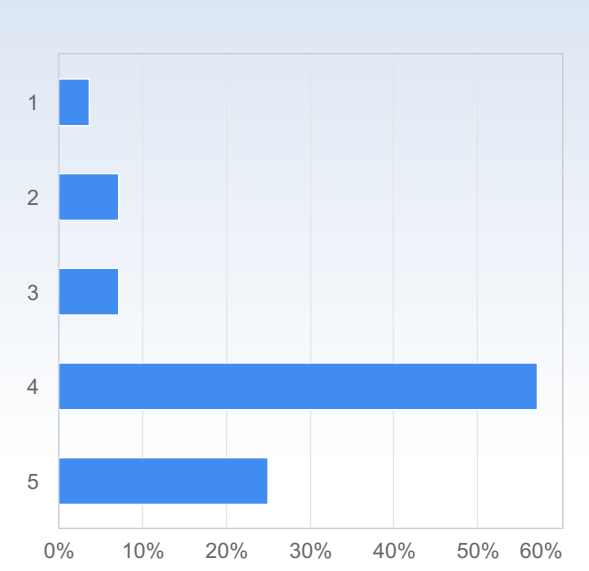
Lecture: RS for vegetation estimation / vegetation indices (1=very bad, 5= very good)	Number of responses
1	0 (0,0%)
2	1 (3,7%)
3	3 (11,1%)
4	10 (37,0%)
5	13 (48,1%)
Total	27 (100,0%)



	Mean	Standard Deviation
Lecture: RS for vegetation estimation / vegetation indices (1=very bad, 5= very good)	4,3	0,8

Lecture: Machine learning (1=very bad, 5= very good)

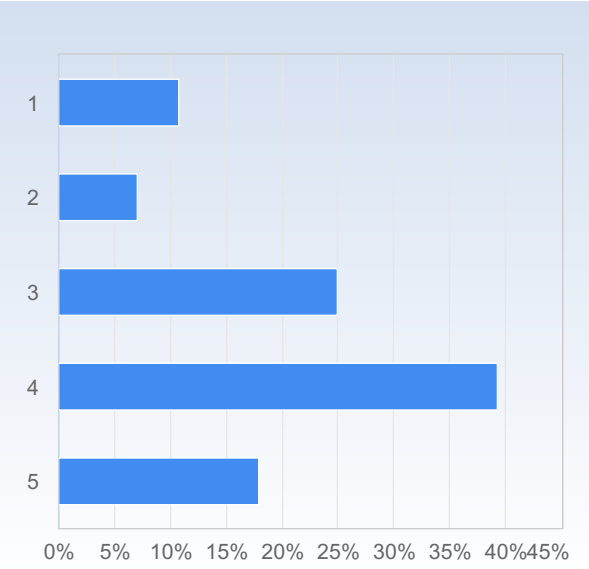
Lecture: Machine learning (1=very bad, 5= very good)	Number of responses
1	1 (3,6%)
2	2 (7,1%)
3	2 (7,1%)
4	16 (57,1%)
5	7 (25,0%)
Total	28 (100,0%)



	Mean	Standard Deviation
Lecture: Machine learning (1=very bad, 5= very good)	3,9	1,0

Exercise: Machine learning (1=very bad, 5= very good)

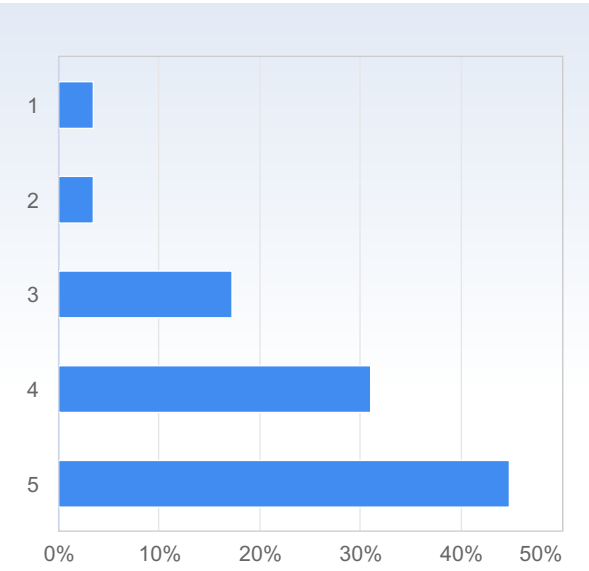
Exercise: Machine learning (1=very bad, 5= very good)	Number of responses
1	3 (10,7%)
2	2 (7,1%)
3	7 (25,0%)
4	11 (39,3%)
5	5 (17,9%)
Total	28 (100,0%)



	Mean	Standard Deviation
Exercise: Machine learning (1=very bad, 5= very good)	3,5	1,2

Lecture: Time series remote sensing (1=very bad, 5= very good)

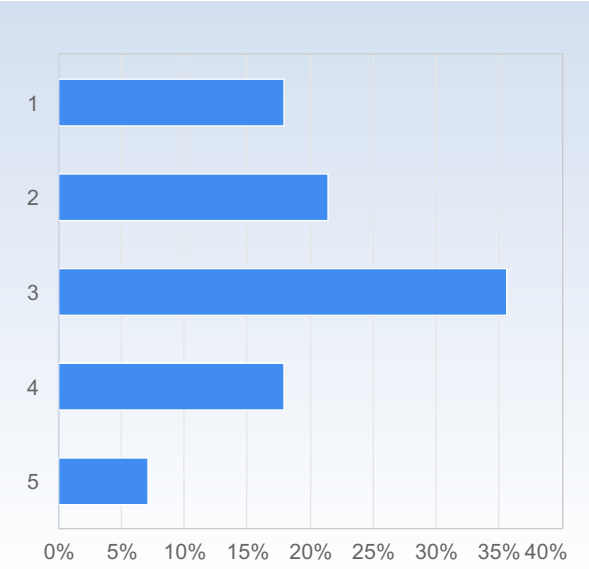
Lecture: Time series remote sensing (1=very bad, 5= very good)	Number of responses
1	1 (3,4%)
2	1 (3,4%)
3	5 (17,2%)
4	9 (31,0%)
5	13 (44,8%)
Total	29 (100,0%)



	Mean	Standard Deviation
Lecture: Time series remote sensing (1=very bad, 5= very good)	4,1	1,0

Exercise: Time series EO data (1=very bad, 5= very good)

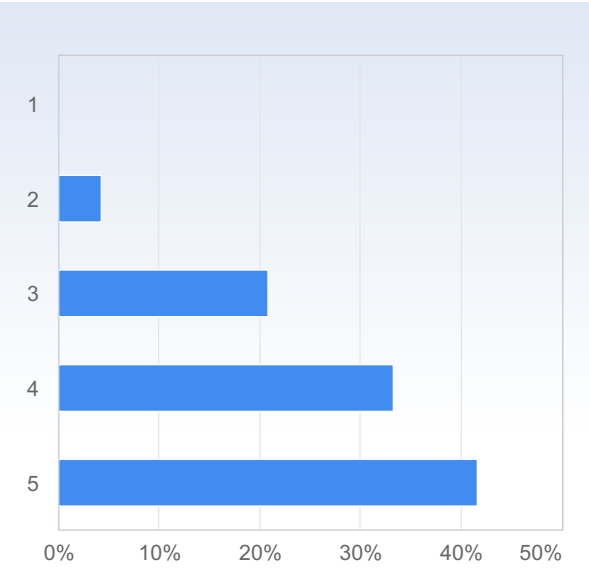
Exercise: Time series EO data (1=very bad, 5= very good)	Number of responses
1	5 (17,9%)
2	6 (21,4%)
3	10 (35,7%)
4	5 (17,9%)
5	2 (7,1%)
Total	28 (100,0%)



	Mean	Standard Deviation
Exercise: Time series EO data (1=very bad, 5= very good)	2,8	1,2

Lecture: Applications in eco-hydrology (1=very bad, 5= very good)

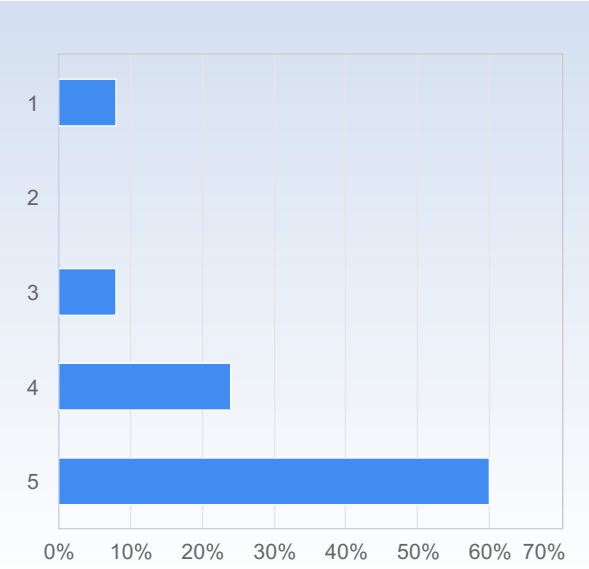
Lecture: Applications in eco-hydrology (1=very bad, 5= very good)	Number of responses
1	0 (0,0%)
2	1 (4,2%)
3	5 (20,8%)
4	8 (33,3%)
5	10 (41,7%)
Total	24 (100,0%)



	Mean	Standard Deviation
Lecture: Applications in eco-hydrology (1=very bad, 5= very good)	4,1	0,9

Exercises: Theory recap and exam questions

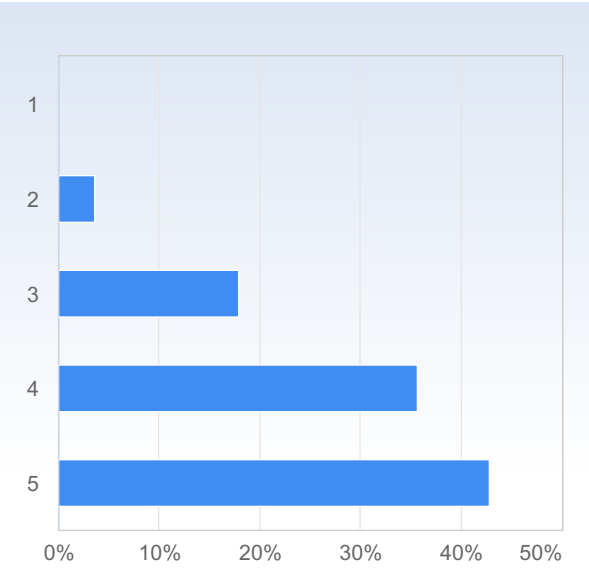
Exercises: Theory recap and exam questions	Number of responses
1	2 (8,0%)
2	0 (0,0%)
3	2 (8,0%)
4	6 (24,0%)
5	15 (60,0%)
Total	25 (100,0%)



	Mean	Standard Deviation
Exercises: Theory recap and exam questions	4,3	1,2

Lecture and exercise: UAV technique (1=very bad, 5= very good)

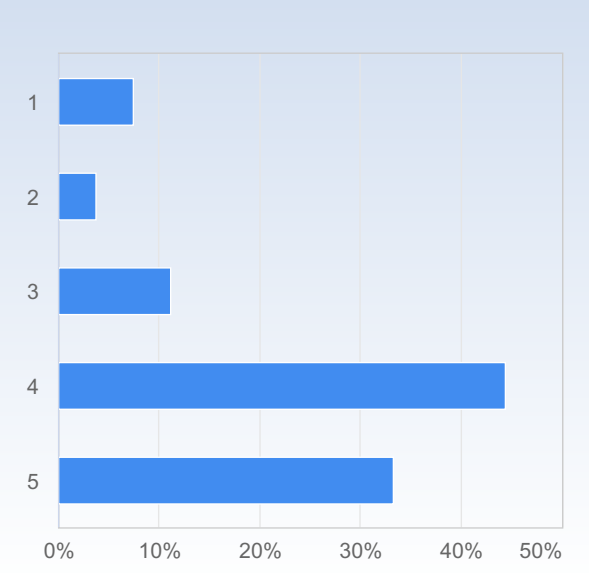
Lecture and exercise: UAV technique (1=very bad, 5= very good)	Number of responses
1	0 (0,0%)
2	1 (3,6%)
3	5 (17,9%)
4	10 (35,7%)
5	12 (42,9%)
Total	28 (100,0%)



	Mean	Standard Deviation
Lecture and exercise: UAV technique (1=very bad, 5= very good)	4,2	0,9

Exercise: RS Applications - abstract writing (1=very bad, 5= very good)

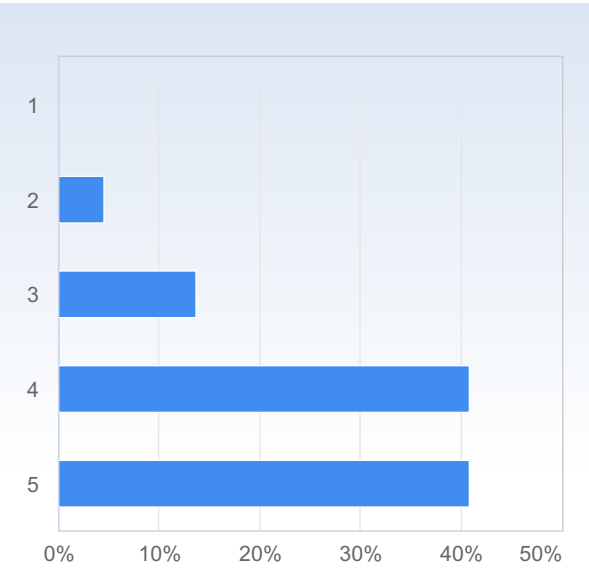
Exercise: RS Applications - abstract writing (1=very bad, 5= very good)	Number of responses
1	2 (7,4%)
2	1 (3,7%)
3	3 (11,1%)
4	12 (44,4%)
5	9 (33,3%)
Total	27 (100,0%)



	Mean	Standard Deviation
Exercise: RS Applications - abstract writing (1=very bad, 5= very good)	3,9	1,1

Lecture: Radar remote sensing (1=very bad, 5= very good)

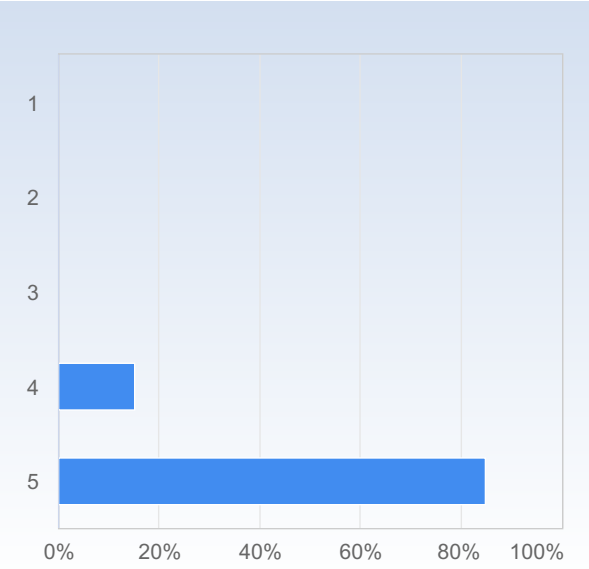
Lecture: Radar remote sensing (1=very bad, 5= very good)	Number of responses
1	0 (0,0%)
2	1 (4,5%)
3	3 (13,6%)
4	9 (40,9%)
5	9 (40,9%)
Total	22 (100,0%)



	Mean	Standard Deviation
Lecture: Radar remote sensing (1=very bad, 5= very good)	4,2	0,9

Study visit to Vultus

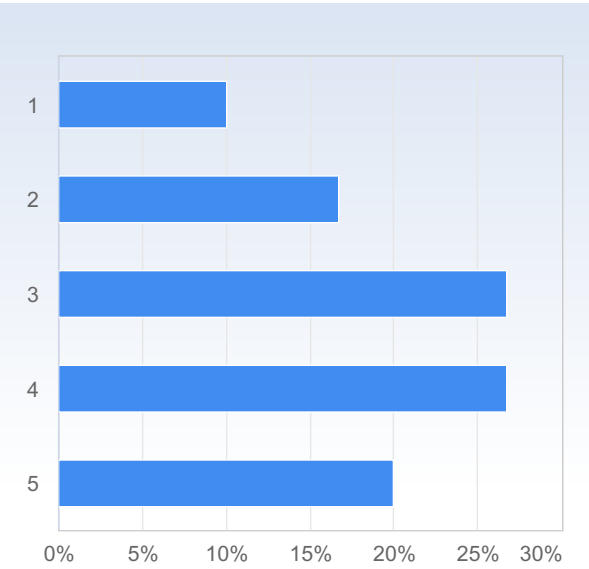
Study visit to Vultus	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	3 (15,0%)
5	17 (85,0%)
Total	20 (100,0%)



	Mean	Standard Deviation
Study visit to Vultus	4,8	0,4

Exercise: Ethics exercise - maybe not finished so how do you like the idea of it (1=very bad, 5= very good)

Exercise: Ethics exercise - maybe not finished so how do you like the idea of it (1=very bad, 5= very good)	Number of responses
1	3 (10,0%)
2	5 (16,7%)
3	8 (26,7%)
4	8 (26,7%)
5	6 (20,0%)
Total	30 (100,0%)



	Mean	Standard Deviation
Exercise: Ethics exercise - maybe not finished so how do you like the idea of it (1=very bad, 5= very good)	3,3	1,3