PUBLICERAD KURSANALYS

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Kursanalys har genomförts och publicerats av kursansvarig lärare.

Universitetets utvärderingsinstrument ägs innehållsligt av Kompetensutvecklingsenheten och förvaltas av systemgruppen för utbildningsadministration vid Studentcentrum.

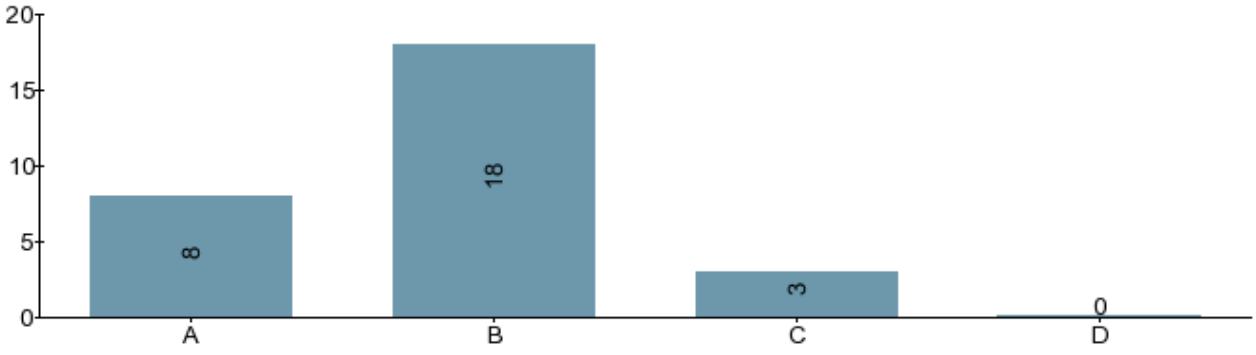
Datastrukturer och algoritmer, 7.5 hp (DVGB03)
Kursansvarig: Donald F Ross

Grunddata från Ladok	
Kurskod:	DVGB03
Anmälningskod:	26654
Termin:	HT-15
Startvecka:	201545
Slutvecka:	201603
Studietakt:	50%
Studieform:	Campus

Kursdata	
Antal besvarade kursvärderingsenkäter:	29
Antal förstagångsregistrerade på kurs[1]:	48
Andel med slutbetyg på kurstillfälle vid analystillfället[2]:	58%

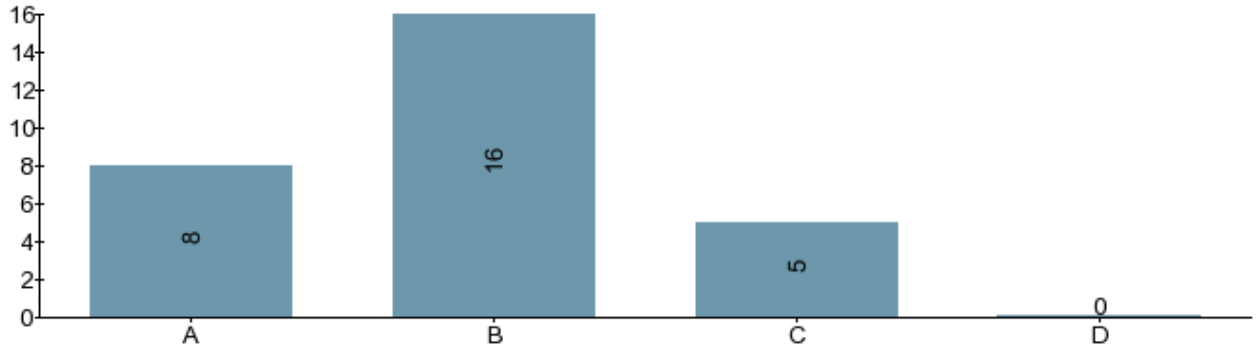
Förändringar som föreslogs vid föregående kurstillfälles kursanalys:
--Study plan revised to avoid working on 2 labs "at the same time" i.e. in parallel.
Implemented.

1. Jag har under kursen kunnat utveckla de kunskaper, färdigheter och andra förmågor som finns beskrivna i lärandemålen.



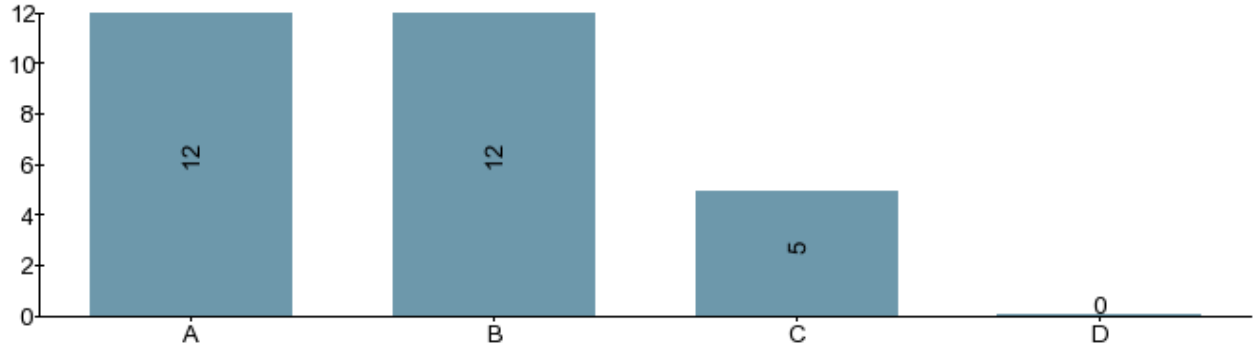
A) I mycket hög utsträckning
B) I hög utsträckning
C) I viss utsträckning
D) I endast ringa utsträckning/inte alls

2. Jag har under kursens examinerande moment haft möjlighet att visa om jag uppnått de kunskaper, färdigheter och andra förmågor som finns beskrivna i lärandemålen.



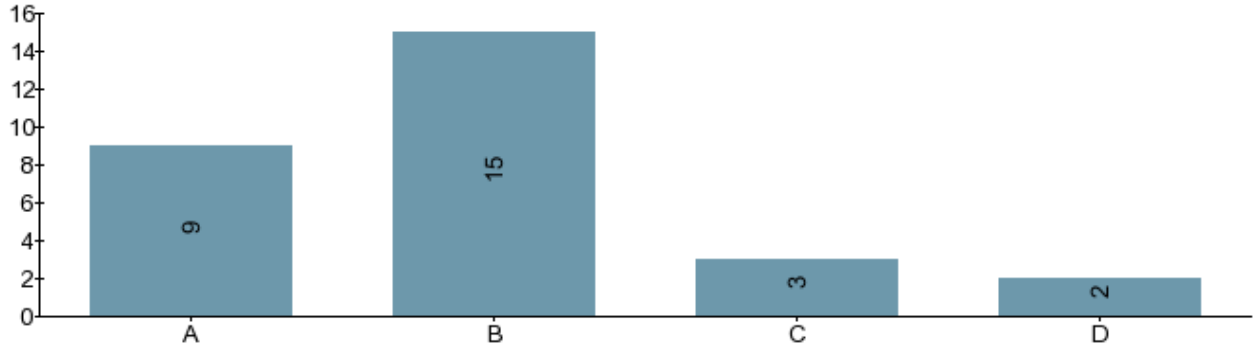
A) I mycket hög utsträckning
B) I hög utsträckning
C) I viss utsträckning
D) I endast ringa utsträckning/inte alls

3. Jag har under kursens gång i genomsnitt lagt ner följande antal timmar på kursarbete per vecka:



A) Mer än 40 timmar (eller mer än 20 vid halvfart, mer än 10 vid kvartsfart etc.)
B) Mellan 30 och 39 timmar (eller mellan 15 och 19 vid halvfart, mellan 8 och 10 vid kvartsfart etc.)
C) Mellan 20 och 29 timmar (eller mellan 10 och 14 vid halvfart, mellan 5 och 7 vid kvartsfart etc.)
D) Mindre än 20 timmar (eller mindre än 10 vid halvfart, mindre än 5 vid kvartsfart etc.)

4. Jag har under kursens gång upplevt bemötandet från kursens lärare och övrig personal som:



A) Professionellt och mycket tillmötesgående
B) Professionellt och tillmötesgående
C) Professionellt
D) Undermåligt

Analys baserad på kursvärdering, inklusive de fritextsvar som lämnats, samt genomströmningsresultat ovan. Har ytterligare underlag inhämtats på ett annat sätt analyseras även detta här. Om kursen samläses mellan olika program bör eventuella effekter av detta kommenteras.

Executive Summary:

General comments:
(1) General course throughput increased from 34% (2014) to 57%.
(2) The exam pass rate was 61% for those who took the exam
(3) The lab pass rate was 82% for those that handed in labs
(4) The course results were significantly better than previous years
(5) 5 students got a grade 5 for the whole course

Critical comments:
(1) The course is a difficult course and requires work.
(2) Too little time for the labs - 30 hours lab time (+ own time outwith this?).
(3) Too few lab passes for lab 3.
(4) The specification for Lab 3 was changed during the course.
(5) "Labbarna under all kritik" (what does this mean? - non constructive comment!).
(6) Exam grading too hard. Can pass the exam by reading the example answers (facits).
(7) The exam did not correspond to the level of the lectures.
(8) A better knowledge (level?) of programming required.

Positive Comments:
(1) Teachers engaged and helpful
(2) A good course, learned a lot
(3) Good information and theory on the website
(4) Positive with lectures in English + choice of English for the lab report & exam
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COMMENTS ON THE EVALUATION
The course:

(1) This is not an easy course and for some students quite (even very) difficult. Not all courses are easy. Some courses require more work than others. There may well be differences between what the students should know and what they actually know.

(2) I expect the students to use the 138 self-study hours (see below) for the course material.

(3) One student remarked that material in this course has been covered in previous courses. This is true. In DSA the material is revisited on a more abstract level. Pointers and recursion are more central. Some students however appear not to have mastered the material from previous courses. A comment on this appears in the course evaluation for "Datorsystemteknik" (HT2015) which students take before DSA.

Time available:

(1) The CS department some years ago reduced the number of lectures from 20 to 16 (2 hours each) and the number of labs to 15 (2 hours each). This was for economic reasons. I have to work within this framework. Any extra hours come from my free time (unpaid!)

(2) Contact time is 32 hours (lectures) + 30 hours (labs) leaving 138 hours for self study / lab work.

(3) Study period 5 has effectively 9 weeks (not 10). This is a result of a decision made by the university many years ago to start the academic year 1 week later. This gives 7 teaching weeks + 1 study week + 1 exam week. I have to work within this

framework

The exam:

(1) I am aware that my exams may be different in style to other courses HOWEVER (a) I have a presentation during a lecture on the exam style and expectations (b) the exams from the last 5 years together with example answers (facits) are available on the website (c) I have also written revision notes with worked examples to show the level of detail I expect and these are also available on the website. The exam should not come as a surprise.

(2) Many students (a) do not read the exam questions carefully and/or (b) do not answer the question asked. This is why some students fail the exam. A third factor is lack of detail in their answers.

(3) Some students seem to think that half a page, often without textual explanation, is sufficient as an answer. It is not. I have explained during the revision lecture that this is unacceptable for a university course. This is also why some students fail the exam.

(4) Carelessness! This may be due to exam nerves. Some students do not automatically cross-check their answers as they write. This is also why these students fail the exam. Example (1) the number of edges in the Dijkstra question (there were 7 - some students "lost" an edge in the graph) plus the question stated that the graph was directed - a few students drew an undirected graph. Example (2) in the AVL balancing question, some students simply wrote down the tree as an answer with no explanation as to how they arrived at the answer. In addition the tree was clearly not AVL. This had not been checked.

(5) The exam questions are on both the material from the lectures and notes as well as the lab exercises. The lab hand-in is an examination of work in pairs, often with collaboration allowed. The exam tests the individual student.

(6) If you did not attend lectures you may possibly have missed these points.

The Labs:

(1) The number of labs was reduced from 4 to 3 in 2014. What would be left with further reductions? The purpose of the labs is to give practical experience of implementing algorithms and operations. This is learning by doing. As programmers, students need to be able to translate ideas into (working) code.

(2) Lab 3 had 3 lab passes including one in January to which very few students turned up.
There is also a revision lecture in January to which few students turned up.
These 2 contact times were in response to student requests in previous years.
Students tend to want more time but not all actually turn up.

(3) Much of the basic code for lab 3 was provided in the introduction lab on sequences. This could have been used to implement the first part of lab 3 before the lectures on graphs. Perhaps this was non-obvious. Students complained in 2014 when I suggested this saying it was not possible to work on 2 labs in parallel!

(4) For labs 1 and 3, much of the framework and design is already provided (UI, front-end, back-end outline) and students are required to write the back-end functions. I estimate that 70%-80% of the code is already provided. Some of the remaining code is provided in the lectures (and lecture notes) either as usable C code or pseudo code. One goal of the course is for students to implement some of the algorithms discussed in the course. Pseudo code is usually provided in the lecture notes (and incidentally in the exams).

(5) The specification for Lab 3 was not changed. I added an OPTIONAL requirement as a challenge. Only 2 students did this part. The original specification was unchanged.

Programming Level:

(1) There is a presentation on programming for this course which students may read.

(2) In the lectures "patterns" for recursive programming (sequence, tree) were introduced and code examples given. From the exams and the labs, these patterns appear not to have been mastered nor understood by all students.

(3) DSA is not a programming course as such. Students are expected to have a reasonable knowledge of programming. One new aspect is the recursive style of programming introduced in DSA.

Student participation:

(1) (+ve) More questions were asked during this course. Still could be better.

(2) (+ve) The majority of students have a positive attitude towards the course and contribute towards a positive atmosphere. This makes the course worth giving. The course is a challenge!

(3) (-ve) Attendance at lectures and labs was between 50% and 66%. It is difficult to decide in general if lack of attendance leads to poorer results however in some cases I think it does.

(4) (-ve) More than a few students do not hand in labs or take the ordinary exam nor attend labs & lectures. This is NOT a distance course. I do not think you can use self-study to get through this course. What is the point of signing up for the course? This is wasting everybody's time! In addition the accumulated number of late labs and resits over the last few years is becoming untenable. This year there were 23 extra students (re-registered) on top of 48 ordinary students - this is an increase of nearly 50%. Apart from extra time for grading the exams (which I had to re-negotiate) it is not clear that I receive extra time for the increase in teaching, supervision and lab grading. I suspect I do not!

Statistics. The course had 48 students + 23 re-registered = 71 students in total.

For the 48 "ordinary" students the results were
EXAM: 41 students sat the exam 29 (71%) passed:
grade 3 (20 (49%)); grade 4 (7 (17%)); grade 5 (2 (5%)); fail (12 (29%))
LABS: 46 students handed in labs 39 (85%) passed:
grade 3 (8 (17%); grade 4 (13 (28%)); grade 5 (18 (39%)); fail (7 (15%))
COURSE: 41 Students completed the course, 28 (68%) passed
grade 3 (12 (29%)); grade 4 (12 (29%)); grade 5 (4 (10%)); fail (13 (32%))

Comments: Exam 71%, Labs 85%, Course 68% seems a reasonable result

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For the 23 re-registered + resit students the results were
EXAM: 18 students sat the exam 7 (31%) passed
grade 3 (4 (22%)); grade 4 (3 (17%)); grade 5 (0 (0%)); fail (11 (61%))
LABS: 11 students handed in labs 8 (73%) passed
grade 3 (5 (45%)); grade 4 (2 (18%)); grade 5 (1 (9%)); fail (3 (27%))
COURSE: 15 students completed the course, 4 (27%) passed
grade 3 (1 (7%)); grade 4 (2 (14%)); grade 5 (1 (7%)); fail (11 (73%))

Comments: Exam 31%, Labs 73%, Course 27% is not a good result
This group represents the weaker students. Many did not attend labs & lectures!

For the whole group of 73 students, the results were
EXAM: 61 students sat the exam (2 blank papers) i.e. 59 attempted 36 (61%) passed
grade 3 (24 (41%)); grade 4 (10 (17%)); grade 5 (2 (3%)); fail (23 (39%))
LABS: 57 students handed in labs, 47 (82%) passed
grade 3 (13 (23%)); grade 4 (15 (26%)); grade 5(19 (33%)); fail (10 (18%))
COURSE: 56 students completed the course, 32 (57%) passed
grade 3 (13 (23%)); grade 4 (14 (25%)); grade 5 (5 (9%)); fail (24 (43%))

COMMENTS: The throughput for 2014 was 34%. 57% is a considerable improvement
For the 48 ordinary students, the throughput was 68%, double that of 2014.
Exam 61%, Labs 82%, Course 57%. Compare this with the 48 ordinary students
Exam 71%, Labs 85%, Course 68% - the re-registered students lowered the result

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Förslag till förändringar inför nästa kurstillfälle.

(1) The 15 labs should be re-distributed in answer to the comments
Intro (2 labs); Lab 1 (4 labs); lab 2 (5 labs); lab 3 (4 labs) - an increase of 1 pass for lab 3
lab 3 would start a week earlier

(2) Consideration should be taken as to how many students may be re-registered in a particular course. In this course the 23 re-registered students increased the workload by nearly 50% and it is not really clear if we who teach and supervise are being paid for the extra workload, especially lab and exam grading.

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1. **Antal ffg-registrerade på kurs:**
   Förstagångsregistrering = den studerande registrerar sig för första gången på en kurs.
2. **Andel med slutbetyg på kurstillfälle vid analystillfället** = I vilken utsträckning studenterna tar de poäng de har registrerat sig för. Andel med slutbetyg på kurstillfälle räknas ut genom att antal godkända på hel kurs vid analystillfället divideras med antal förstagångsregistrerade studenter på kursen.