

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

Anmälningkod: 27388

Termin: HT-16

Startvecka: 201645

Slutvecka: 201703

Studietakt: 50%

Studieform: Campus

Kursdata

Antal besvarade kursvärderingsenkäter: 17

Antal förstagsregistrerade på kurs^[1]: 57

Förändringar som föreslogs vid föregående kurstillfälles kursanalys:

From 2015:

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

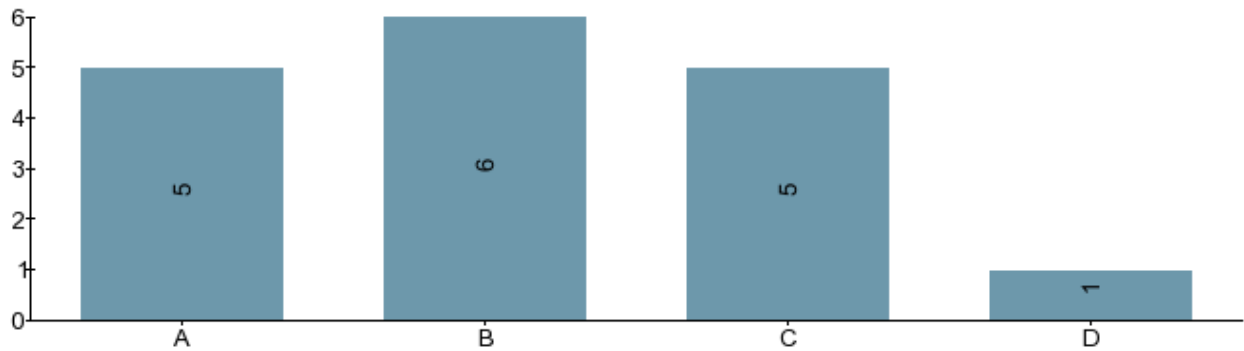
lab 3 would start a week earlier

Changes made for 2016:

intro (2 labs), Lab 1 (5 labs), Lab 2 (4 labs), Lab 3 (6 labs); total 17 labs.

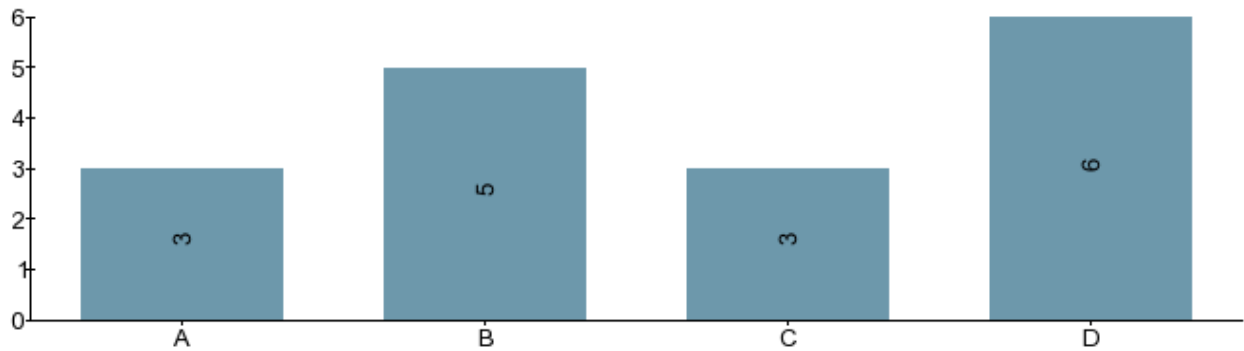
This was however a waste of time and resources since about only 50% of the students showed up for the labs and even fewer towards the end of the course!

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



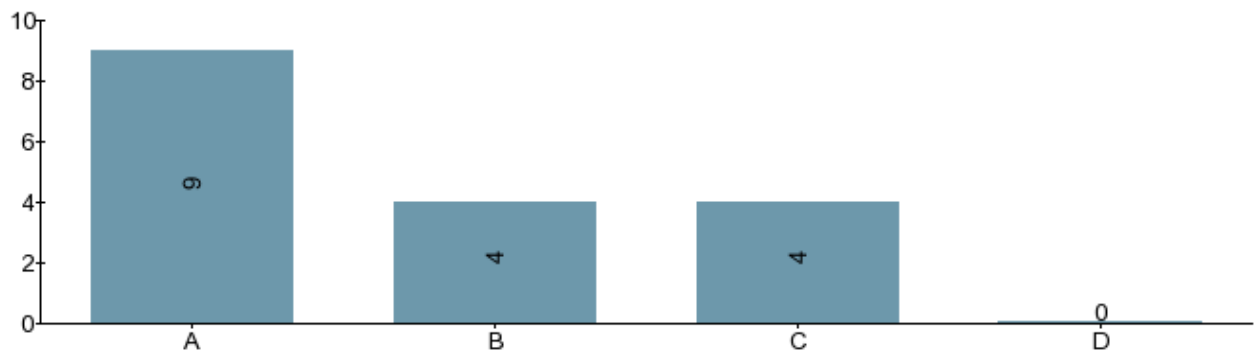
- A) I mycket hög utsträckning
- B) I hög utsträckning
- C) I viss utsträckning
- D) I endast ringa utsträckning/inte alls

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.



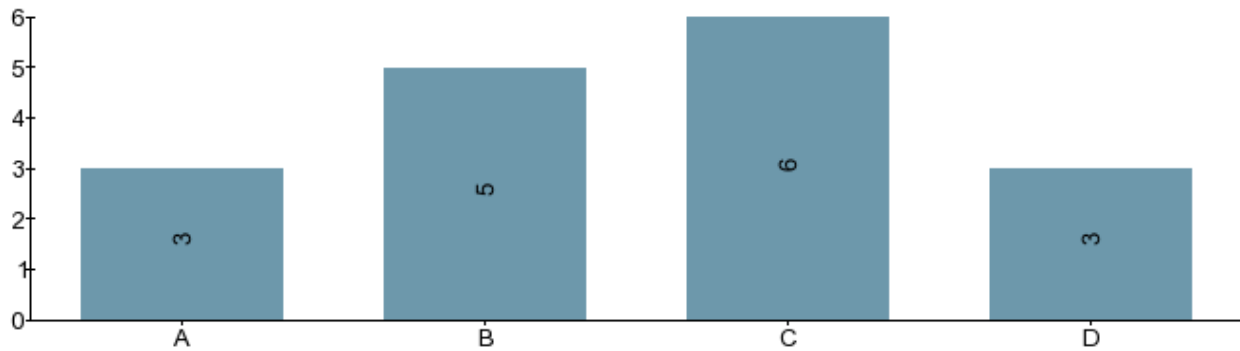
- A) I mycket hög utsträckning
- B) I hög utsträckning
- C) I viss utsträckning
- D) I endast ringa utsträckning/inte alls

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. 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:

Response rate 17 of 57 students (30%)

Course results:

- (1) Course throughput: 33% (2015 57%; 2014 34%)
- (2) Exam pass rate: 33% (2015 61%; 2014 33%)
- (3) Lab pass rate 85% (2015 83%; 2014 82%)
- (4) Grade 5 for the course: 1 student

Critical Comments

- (1) High workload - course & labs. Large difference in level from earlier courses.
- (2) Exam too hard.
- (3) Labs too big and too many.

Detailed course results:

Course: Passed 19 students (33%); Grade 3 8 (14%), Grade 4 10 (18%), Grade 5 1 (2%) Failed 38 students (67%)

Exam: Passed 19 students (33%); Grade 3 12 (21%), Grade 4 7 (12%), Grade 5 0 (0%)

Failed 38 students (67%)

Labs: Passed 52 students (85%); Grade 3 18 (30%), Grade 4 19 (31%), Grade 5 15 (25%)

Failed 15 students (15%)

Specific Comments (see above)

(1) Oinspirerande och röriga föreläsningar, kändes oplanerade. Dålig info om labbar och presentationer. Tentan var oerhört svår och testade snarare att man läst kurslitteraturen än ens kunskaper i ämnet.

Reply:

- The lectures and labs are in fact planned - introduction to sequences, trees and graphs with examples of common algorithms.
- Labs - if the information is unclear then why not ask for further information? My previous teaching experience has been in Scotland, Norway and the USA. In Sweden my experience is that very few students ask questions and that direct student/teacher communication is rather limited.

- Reading the course literature. How else are you going to study? The lectures give a framework for which areas to study but you must do some study on your own to understand the course content.

Since the course no longer has a course book, where else apart from the course literature are you going to acquire knowledge about the subject?

(2) Anser att övergången från tidigare kursen till denna är ett enormt steg som bör ses över

Reply:

- I'll pass your comment to the student coordinator (studentrektor)

(3) Antingen minska denna kurs eller göra tidigare kurser mer förberedande.

Reply:

- I'll pass your comment to the student coordinator (studentrektor) (see (2) above)

(4) Har lagt ungefär 20 timmar/veckan på kursen, men svarsalternativen tillåter endast strikt mer eller mindre än så.

Reply:

- 20 hours/week is the expected workload in Sweden however some students may require more or less.

- I did not understand the second part of your comment.

(5) Personligen gillar jag inte att tidspress är en stor del av tentamen, och anser inte ens förmåga att skriva ner en stor mängd information på kort tid nödvändigtvis reflekterar ens kunskaper om ämnet.

Reply:

- Exam questions do not always require a large amount of information in the answers. Some require detailed stepwise calculations (which it would seem many students refuse to do!) to show you understand the process (usually in applying an algorithm).

- how else can I test the students' knowledge? This is a 2nd year university course. From this and other comments (see the student comments) there seems to be an expectation that exams should be easy and the answers short - see the above comment about answers only requiring 1 page! This seems to indicate a naive view of university education.

- "tidspress" is a fact of life and working life - there are always deadlines to be met.

- I have put up the previous 5 years of exams together with facits (model answers). It should not come as a surprise IF you have read them, what is expected in my exams.

- Just as a point of interest, most international students I have spoken to at KAU comment on how easy the Swedish exams are. Swedish students who study abroad also make similar comments.

(6) För stora labbar som tar för mycket tid. Det räcker med 1 eller 2 labbar. Tentan var alldeles för stor, för många uppgifter och för stora uppgifter. Det finns sätt att förenkla tenta skrivandet för eleven. Uppgifter som kräver mer än 1 sida lösning, är för stora

Reply:

- "Det finns sätt att förenkla tenta skrivandet för eleven." OK an assertion but no suggestions as to how. I am open to suggestions.

- the labs: this criticism has been repeated over the years and I have (1) reduced the content of the labs over successive years and (2) finally the number of labs from 4 to 3 (in 2014). The logical conclusion over time is that there should be no labs (argumentum ad absurdum).

- in my view, the labs are where you learn by implementing. Programming is binary and unforgiving - either the program works or it does not.

- In labs (2) AVL-tree and (3) Graph Algorithms, students are given a framework and have "only" to implement the back-end operations.

For lab (2) the add operation and rotation operations were given in the course notes leaving find (4 lines of code), count (1 line of code) and delete (about 20 lines of code) plus the balance function (4 lines of code). Plus the tree to array function (about 4/5 lines of code) and the 2D tree display (about 15-20 lines of code)

Total about 55 lines of code to be written.

For lab (3) most of the basic operations (add, find, remove, count) were provided in the sequence example lab given at the beginning of the course. Students are not even required to design the back-end - this has been done for you.

Code for Floyd and Warshall was given in the course notes leaving Dijkstra_SPT (about 35 lines of code) and Prim (about 35 lines of code). Total 70 lines of code.

Many students wrote more lines of code since they did not follow the patterns for recursive programming (sequence and tree).

Lab 1 requires more independent programming but again the model is provided in the sequence example.

- it is interesting to note that in general 83%-85% of students pass the labs but this knowledge does not seem to transfer to the exam! Question 6 of the exam - describe how to remove an element from a BST - 40 students passed the lab but only 20 students got ≥ 2.5 points (pass grade) on the question.

(7) Tentamen är mycket svår, men av helt fel anledningar.

Reply:

- What were the "wrong reasons" - you did not specify.

(8) Mycket tidskrävande kurs som krävde långt över 100% fart. Har aldrig tidigare lagt så mycket tid på en kurs, och har heller aldrig tidigare känt att jag vid slutförd kurs fortfarande inte känner att jag hunnit med att plugga in/lära mig allt. Till slut fanns ingen tid eller ork till att göra det ordentligt längre utan det blev bara till att "plugga in saker inför tentan" istället för att faktiskt lära sig och förstå saker.

Reply:

- OK I accept your comment

- can you analyse why this is?

- it would seem from previous comments that much of what is wrong is the course's/lab's/lecturer's fault. I would doubt that this is the whole explanation.

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My own comments

(1) Attendance at lectures and labs is around 50% although in Sweden attendance is not obligatory - but then why choose to study in a course and not attend? The course is NOT a distance course although many students seem to treat it as such. This is also happening in other courses and not just in DSA. The reasons for this remain unknown. The result is that I have little or no contact with some students. I had 70 registered students in DSA - it is also up to the students to make an effort.

(2) Exams - see my previous comments in the 2015 course evaluation. Things have not changed. See also

<http://www.cs.kau.se/cs/DFR/index.php?examcomm=1>

Again I restate that previous exams and facts should not come as a surprise.

For this exam:-

Question 1 - general knowledge from the course notes

Question 2 - based on the sequence example and course notes from the beginning of the course

Question 3 - based on lab 1 - Performance

Question 4 - Heaps - taken directly from the course notes

Question 5 - Hashing - taken directly from the course notes

Question 6 - Remove an element from a BST - taken from lab 2 and the course notes

Question 7 - Dijkstra_SPT and Prim - taken directly from the revision notes examples

(3) Exam Answers

Many students do not read the questions carefully. I ask for A and get pages on B!

In some/several cases it is clear that the student does not know the material and seems not to have read the course notes.

The answers for example on Dijkstra_SPT and Prim are clearly "by inspection" without any calculations or applications of the given algorithms - the course is DSA - Data Structures and Algorithms.

Some answers are barely legible and often contain no explanation whatsoever. I am left guessing. Part of a university education is to be able to articulate ideas in writing and orally.

(4) I had 2 presentations on exam technique and what is expected in the exam. Again with 50% (or fewer) in attendance it is

difficult to communicate information to students.

(5) Communication with students

50% non-attendance and few questions are not good preconditions for good communication.

I estimate that I get some feedback during the course from about 20% of the students.

By the end of the course it is too late to change anything.

Förslag till förändringar inför nästa kurstillfälle.

The course will be given by a new lecturer / new lecturers next year.

The course content may be modified. This is up to the new course coordinator.

1. Antal ffg-registrerade på kurs:

Förstagångsregistrering = den studerande registrerar sig för första gången på en kurs.