COMP1521 21T3 — Course Review, Final Exam

https://www.cse.unsw.edu.au/~cs1521/21T2/

Course Goals

At the end of COMP1521, we hope that you ...

- can think like a *systems programmer*,
  with an understanding of the structure of computer systems;
- can describe how computers/programs work at a low-level,
  with a deep understanding of run-time behaviour; and
- are better able to reason about and debug your C programs

Major themes ...

- software components of modern computer systems
- how C programs execute (at the machine level)
- how to write (MIPS) assembly language
- Unix/Linux system-level programming
- how operating systems are structured
- introduction to concurrency, concurrent programming

Course Syllabus and Topics

- bit-level operations
- representation of integers & doubles
- the basic components of a (MIPS) CPU
- representation of programs as (MIPS) machine code
- how to write programs in (MIPS) assembler
- how C programs are implemented as (MIPS) instructions
- systems programming, including:
  - file operations
  - processes
- representation of characters as Unicode
- introduction to virtual memory
- introduction to threads/concurrency

Assessment

- 15% Labs
- 10% Weekly Programming Tests
- 15% Assignment 1 — due week uhhhh
- 15% Assignment 2 — due week 10
- 45% Final Exam

... above marks may be scaled to ensure an appropriate distribution.

To pass, you must:

- score 50/100 overall
- score 18/45 on final exam

For example ... 55/100 overall, 17/45 on final exam $\Rightarrow$ **55 UF** not 55 PS

Assessment: Labs, Tests

- Labs, in weeks 1-5,7-10:
  - max lab mark: 2 marks with challenge exercises
  - max lab mark ~1.6 marks without challenge exercises
  - labs marks summed and capped to give mark /15.
  - you can get 99% for lab mark without challenge exercises
  - expectation: most people will get 12+/15
- Tests, in weeks 8...10:
  - max test mark 1.7
  - best 6 of 8 test marks summed and capped to give mark /10.
  - expectation: most people will get 7+/10

Past Paper: 21T2 Final Exam

- The 21T2 COMP1521 Final Exam is available at:
  https://cgi.cse.unsw.edu.au/~cs1521/21T3/exam/21t2final/questions
- You can complete it as a practice exam. Autotests available.
- Sample answers released Friday 26th November, 12:00pm
- 21T3 exam will use a format similar for at least some questions.

The 21T3 Final Exam

- Exam will be **Monday 29 November 2021, 14:00 — 17:00**
- Exam will be released on class web site at **13:50**, allowing you some time to read the paper.
- You will be emailed a link just before 13:50
- Announcements before and during exam will be sent to your UNSW email.
- Questions during exam can be sent to **`cs1521.exam@cse.unsw.edu.au`**
- You will not be able to ask question in the class forum
- We will place copies of emailed announcements in the class forum
  - as an alternative for students whose email is not working
- Should look a lot like a weekly test...
  - except three hours long, and with slightly relaxed conditions.

Exam Conditions

During the exam...

- you must not communicate with anyone via any medium, except for COMP1521 staff;
- you must not get help from anyone during this exam, except for COMP1521 staff;
- you must not use code-synthesis tools;
- you must not communicate your exam answers to any other person, even after the end of the exam.

This is an *open-book examination*:
you **may** use your papers or books; you **may** refer to the course website.
You **may not** create or modify materials on the Internet.

UNSW has exam prep materials about open-book examinations —
student.unsw.edu.au/open-book-and-take-home-exams

Deliberate violation of exam conditions will be treated as serious misconduct.

Exam Format

- 8-15 questions ... *not* of equal difficulty, *not* worth equal marks.
- Each question answered in a separate file.
- Some questions may involve writing programs ...
  - some questions may ask you to write C;
  - some questions may ask you to write MIPS;
  - other languages *not* permitted (e.g., Python, C++, Java, Rust, ...)
- Some questions may not involve coding ...
  - some questions may ask for a short answer,
  - similar to tutorial questions.
- Answers will be submitted with *give*.

Exam Format — Programming Questions

For questions that require you to write C or MIPS ...

- Questions will usually include examples.
- You may, or may not, be given starting code, test data, or other files.
- Autotests may be available on submission for some questions.
  Passing autotests does not guarantee any marks; do your own testing.
  There may be no submission tests for some questions.
- It is *not* sufficient to match any supplied examples.

Programming Questions — Assessment and Marking

- Answers will be run through automatic marking software.
  - Please follow the input/output format shown exactly.
  - Please make your program behave exactly as specified.
- All answers are hand marked, guided by automarking.
  - *no* marks awarded for style or comments ...
  - but a human marker will be reading your program.
  - comments only necessary to tell the marker something.
- Minor errors will result in only a small penalty.
  - e.g., an answer correct except for a missing semi-colon would receive almost full marks.
- No marks will given unless an answer has a substantial part of a solution (> 33%).
- No marks just for starting a question and writing some code.

Exam Format — Non-coding Questions

- Answers must be an specified file, e.g. **`q1.txt`**
- Question may specify format of file:
  - e.g., 5 integers, one per line ...
  - follow this format **exactly**
- Question will give you an initial file to complete.
- Submit completed file with *give*.

Special Exam Conditions

- Any extra time specified in your ELS exam conditions is allowed in this exam.
- All students see the same exam question text.
- The text shows the standard exam deadline, any extra time is additional to it.
- *give* configured to know about extra time ...
  should show a deadline that *includes* your extra time
- email **cs1521@cse.unsw.edu.au** immediately during exam
  if you have concerns regarding ELS conditions
- If ELS conditions prevent you taking exam, let us know.
  Likely outcome: supp in January.

Exam clashes

About 30 students have morning exams.

UNSW policy is that you may be required to take two exams in one day.

Three students have an all-day INFS1602 exams

Exams have advised this is not considered a clash and special consideration will not be offered.

Otherwise there are no clashes that exams arec aware of.

If It All Goes Wrong...

If a problem occurs during the exam, e.g., internet failure:

- Please document the problem as much as possible; e.g., take screenshots
- email **`cs1521.exam@cse.unsw.edu.au`**

If the problem is of short duration, we may be able to give you extra time.
Otherwise, you will need to apply for special consideration

Special Consideration ("Fit-to-Sit")

This exam is covered by UNSW's Fit-to-Sit policy.

By starting the exam, you are saying **"I am well enough to sit it."**

- If you are unwell *before* the exam:
  see a doctor, apply for Special Consideration.
- If you become unwell *during* the exam:
  email **`cs1521.exam@cse.unsw.edu.au`**.
  - If you cannot continue the exam, you will need to see a doctor, and apply for Special Consideration.

What should you study for?

- Important Areas to Focus Your Study On...
  - anything covered in a standard lab exercise
  - anything covered in a weekly test
  - anything covered by the assignments
- Less Important Areas
  - challenge lab exercises
  - topics not covered in labs, tests or assignments
  - may still be questions on these topic but not many
- Even Less Important Areas
  - complex aspects of creating processes
  - creating and manipulating pipes
  - complex signal handling
  - mutexes, semaphores
  - (might or might not be a question on these)

Timeline: Provisional Results

- Marking will take time — likely 10-12 days.
- When marking is complete, exam marks will be available via class marks database.
  I'll send email announcing this.
- You *will* receive marks for individual exam questions.
- You *will* have an opportunity to have your marking reviewed.
- Final results will appear on myUNSW.
  T3 Release of Results: Thursday 16th December.

Supplementary Assessment

- If you miss the original exam due to illness/misadventure,
  you may be eligible for a supplementary exam; apply for special consideration.
  Schools and individual courses cannot offer supps.
- Students with borderline results are **not** offered supps.
  (... except potential graduands.)
- Similar format to final exam
- Supp exams centrally timetabled for 10-14th January

What did you like?

One aim of COMP1521 is to give a taste of many topics:

- liked MIPS, Assembly?
  $\Rightarrow$ COMP3222, COMP3211 ...
- curious about programming languages?
  $\Rightarrow$ COMP3131, COMP3141, COMP3161, ...
- liked operating systems?
  $\Rightarrow$ COMP3231/3891, COMP9242, ...
- liked concurrency?
  $\Rightarrow$ COMP3151, COMP3153, COMP6721, ...
- liked *nix shell?
  $\Rightarrow$ COMP2041
- liked communicating between processes?
  $\Rightarrow$ COMP3331, ...

Upcoming Course Offerings (2022)

- COMP1531: Software Engineering Fundamentals
  - 22T1, 22T2, 22T3, ...
- COMP2511: Object-oriented Programming
  - 22T2, 22T3, ...
- COMP2521: Data Structures and Algorithms
  - 22T1, 22T2, 22T3, ...
- COMP3231: Operating Systems
  COMP3891: Extended Operating Systems
  - 22T1,

COMP1521 — The Bad

- Not enough time to cover so many things...!
- Tuts and Labs need to integrate better.
- Labs: a lot of work, but you learnt a lot
- Assignments: a **lot** of work, but you learnt a lot
- MIPS and its relation to C needs to be better explained

COMP1521 — The Good

- Many lab exercises and test questions ... do you agree?
- Tutors and teaching staff
- Discourse as a course forum
- Students

myExperience

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How did we do?

What worked well?

What could we do better?

Let us know.

myexperience.unsw.edu.au

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And that's all!

Good Luck!

- I hope what you've learnt in this course will be useful.
- I hope you get the mark you're aiming for!