

# 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

- 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.

- 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](http://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*.

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*.

- 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 are 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

*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.

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

- 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

{—  
How did we do?  
What worked well?  
What could we do better?  
Let us know.  
[myexperience.unsw.edu.au](https://myexperience.unsw.edu.au)  
—}



## Good Luck!

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