Course Goals

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

- understand the structure of computer systems
- can describe how computers/programs work at a low-level
- are better able to reason about and debug your C programs

Major topics . . .

- components of modern computer systems
- how C programs execute (at the machine level)
- how to write (MIPS) assembly language
- Unix/Linux system-level programming
Syllabus/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 7
- 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 ⇒ $55 \text{ UF}$ not 55 PS
Labs and Tests

- 8 labs - weeks 2-5, 7-10
  - max lab mark 2.3 marks with challenge exercises
  - max lab mark ~1.8 marks without challenge exercises
  - 8 labs marks summed and capped at 15
  - you could get 98% for lab mark without challenge exercises
  - most people will get 12+/15

- 8 tests - weeks 3...10:
  - max test mark 1.7
  - best 6 of 8 test marks summed and capped at to give mark out of 10.
  - most people will get 7+/10
Exam

- Run under same conditions as Weekly Tests
- Except 3 hours and some question may not be coding
- Wednesday 19 August 13:00 — 16:00
- Exam will be released on class web site at 12:50
- Announcements before & during exam will be sent to your UNSW email
- Questions during exam can be sent to cs1521.exam@cse.unsw.edu.au
- We may also announce a 2nd place you can ask questions during exam.
Exam Conditions

- You are not permitted to communicate (email, phone, message, talk, ...) to anyone but COMP1521 staff during exam.
- You are not permitted to get help from anyone but COMP1521 staff during the exam.
- This is a closed book exam: you are not permitted to access papers, books, files on your computer or the internet.
- You are permitted to access the exam web pages on the class web site.
- You are permitted to access the online language cheatsheets & documentation on the class web site.
- Deliberate violation of exam conditions will be treated as serious misconduct.
Exam Format

- 12-15 questions
- Each question answered in a separate file.
- Some questions will ask you to write C.
- Some questions will ask you to write MIPS.
- Other languages not permitted (e.g., Python, C++, Java, Rust, ...)
- Answers will be submitted with give.
- Questions not equal difficulty
- Questions may not be worth equal marks
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 must give you an initial file to complete
- File will be submitted with give.
Coding Questions

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

- Questions will usually include examples.
- You may or may not be given starting code.
- You may or may not be given test data or other files.
- 1 or more autotests may be available on submission.
- 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.
Marking of Coding Questions

- 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 use decent formatting so the marker can read the 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 contains a substantial part of a solution (> 33%).
- No marks just for starting a question and writing some code
Special Exam Conditions

- extra time specified in ELS exam conditions is provided in this exam
- other ELS exam conditions will also be allowed
- email cs1521@cse.unsw.edu.au if you have concerns regarding ELS conditions
Problems During Exam

- if a problem occurs during the exam, e.g. internet failure
- please document the problem as possible, e.g. take screenshot
- 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’ll need to apply for special consideration
Special Consideration — ‘Fit to Sit’

- By starting the exam, you are saying "I am well enough to sit it".
- If unwell before exam, see a doctor, apply for Special Consideration.
- If you become unwell during the exam
  - email cs1521.exam@cse.unsw.edu.au
  - if you can’t continue the exam you will need to see a doctor and apply for Special Consideration.
What to study

- 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 exercise
  - topics not covered in labs, tests or assignments
  - may still be questions on these topic but not many

- Not examinable
  - creating pipes and other complex aspects of creating processes
  - complex signal handling
  - semaphores & file locking
Exam marks will be made available via class database when marking is complete.

I’ll send email announcing this.

Marking will probably take 12 days.

Your will receive marks for individual exam questions.

You will be opportunity to have marking reviewed.

Final results will appear on myUNSW.
Supplementary Assessment

- UNSW supplementary exams are run centrally.
- Supplementary exams are for students who miss original exam due to illness/misadventure.
- If this is you — apply for special consideration.
- Lecturers & schools can not offer supps.
- Students with borderline results are not offered supps. . . except potential graduands
- Supp exams centrally timetabled for week of 7-11
- Similar format to final exam
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, ...

- Liked Networking?
  ⇒ COMP3331, COMP4336, COMP4337, ...

- Liked Unix shell?
  ⇒ COMP2041
COMP1531 Software Engineering Fundamentals
- 2021: term1, term3

COMP2511 Object-oriented Programming
- 2021: term2, term3

COMP2521 Data Structures and Algorithms
- 2021: term1, term2, term3

COMP3231 Operating Systems
- 2020: term1
COMP1521 - The Bad

- MIPS and its relation to C needs to be better
- Not enough time to cover (so) many things
- Labs need more motivation.
- Tuts need to integrate better.
- Labs a lot of work - but you learnt a lot
- Assignments a lot of work - but you learnt a lot
COMP1521 - The Good

- Most labs exercises (do you agree??)
- Weekly Tests (do you agree??)
- Tutors
- Discourse
- Students
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 deserve.