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

1

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

2

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 $\Rightarrow$ **55 UF** not 55 PS

Labs and Tests

- 9 labs - weeks 1-5,7-10
  - max lab mark 2 marks with challenge exercises
  - max lab mark ~1.6 marks without challenge exercises
  - 9 labs marks summed and capped at 15
  - you could get 99% 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 $7+/10$

20T2 COMP1521 Final Exam

- The 20T2 COMP1521 Final Exam is available at:
  https://cgi.cse.unsw.edu.au/~cs1521/20T3/exam/practice/questions

- You can complete it as a practice exam

- Autotests available

- Sample answers will be released noon Wednesday 25th

- 20T3 exam will use similar format similar for at least some questions

Exam

- Run under same conditions as Weekly Tests

- Except 3 hours and some questions may not be coding

- Saturday 28 November 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

- 10-15 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, . . .)
- Some questions may not involve coding
- 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

- any extra time specified in your ELS exam conditions is allowed in this exam

- all student see the same exam questions text

- the text shows the standard exam deadline, any extra time is additional to it

- give should be configured to allow your extra time

- give should show a deadline **including** your extra time

- email `cs1521@cse.unsw.edu.au` immediately during exam if you have have concerns regarding ELS conditions

- if ELS conditions prevent you taking exam, alternative will be supp in January

Exam On Same Day

- a small number of students have exams on the same day

    - MARK1012 & COMP9517

- these exams are timetabled as all day exams

- special consideraions have advised they will not give special consideration for clashes with all day exams

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 befor 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 exercises
    - topics not covered in labs, tests or assignments
    - may still be questions on these topic but not many
- Even Less Important Areas
    - creating pipes and other complex aspects of creating processes
    - complex signal handling
    - semaphores & file locking
    - might or might not be a question on these topic

Provisional Results

- 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 January 11-15, 2021

- Similar format to final exam

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, . . .

- Liked Networking?
  $\Rightarrow$ COMP3331, COMP4336, COMP4337, . . .

- Liked Unix shell?
  $\Rightarrow$ COMP2041

Course Offerings

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

- 2021: term1

COMP1521- The Bad

- MIPS and its relation to C needs to be better explained

- 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

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.