THE UNIVERSITY of ADELAIDE

School of Computer Science

COMP SCI 2000 Computer Systems
Lecture 1

seek LIGHT

Outcomes for this course

- This course has the following outcomes
    - Demonstrate an understanding of the layered and modular nature of computer systems.
    - Design the core components of a computer from basic components.
    - Understand and Apply knowledge of how computers represent programs and data.
    - Explain how a computer executes a program.
    - Write assembler and machine code.
    - Understand the translation process from higher level representations into machine language
    - Explain how Input/output operations are implemented, and describe some basic I/O devices

- These align with the following graduate attributes as listed in the course outline.

The Core Body of Knowledge (CBOK)

- CS undergraduate degrees and Master's degrees are accredited at professional level by the Australian Computer Society.

- Accreditation guarantees that you have exposure to skills from the CBOK.

- The assessment in this course tests your knowledge in the following CBOK areas:

  abstraction, design, hardware and software, data and information and programming.

Assessment

- This course has 4 components:
  - Written examination, worth 50%.
  - 5 practical assignments, worth 30%:
    - Assignment 1, worth 5%
    - Assignment 2, worth 7.5%
    - Assignment 3, worth 5%
    - Assignment 4, worth 5%
    - Assignment 5, worth 7.5%
  - Workshops, worth 10%. (Marks for participation)
  - Quizzes, worth 10%.
- You are expected to participate in all activities, attend lectures and submit your assignments on time.

Grades

Mark	Grade		Notes
85-100%	High Distinction	HD	Great!
75-84%	Distinction	D	Very good
65-74%	Credit	C	Good
50-64%	Pass	P	Satisfactory
0-49%	Fail	F	Cannot count this course for points or as a pre-requisite.
0%	Fail No Submission	FNS	No work submitted for assessment
	Result Pending	RP	Mark has not yet been finalised.

If you see an RP on your transcript, it means that your mark is not currently available. If you don't know why, you should contact your course coordinator.

Minimum Performance

- The following assessment component will attract the minimum performance hurdle.
  - Written examination, worth 50%.
  - Note that the written examination contains some questions that will be based directly on coursework tasks such as assignments and workshops.
- If your final mark for the course is better than **44 F** but, your exam mark is less than **40%**, your final mark for the course will be reduced to **44 F**.
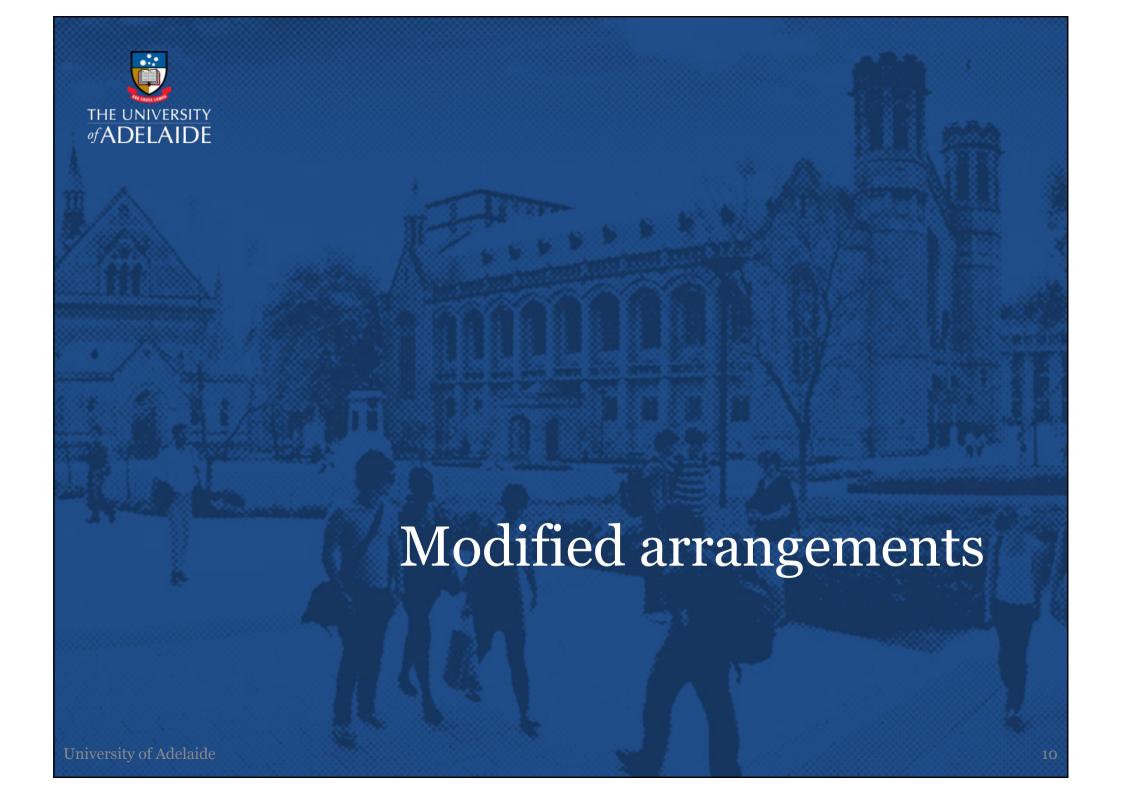
Late submission policy

- You should hand your assignments in on time.
- If you hand in your work late, the mark for your late submission will be capped, based on how late it is.
  - up to 1 day late – mark capped at 75%
  - up to 2 days late – mark capped at 50%
  - up to 3 days late – mark capped at 25%
  - more than 3 days late – no marks available
- Very Important:
  - The late penalties remove excess marks.
  - Marks less than a late penalty cap are not affected.
  - You always get the best mark, including late submissions.
  - **A late submission will not reduce your current marks!**
- Hand in early!

Extensions

- You may be granted medical or compassionate extensions for an assessment.

- You must provide supporting evidence, such as medical certificates or counseling service letters.

- You should also apply for extensions as soon as you are aware that there might be a problem and you must apply for an extension before the assignment deadline passes!

- Extension requests must be made to the **course coordinator**.

- You will normally only receive an extension equivalent to the number of days covered by your documentation. Don't expect to get an extra week because you lost a day.

Examinations

- Go to the University Examinations Site for information on Examinations:

  - http://www.adelaide.edu.au/student/exams/

- This includes timetable information, and information on what you can take with you into the exam.

- Also includes policies for examinations and additional/replacement examinations

Modified arrangements

Assignment extensions

- Extensions will not be granted for circumstances including minor ailments; travel, employment, family, customary, sport or leisure commitments; problems with balancing workloads; normal exam stress or anxiety.
- If you think your situation is exceptional, contact your lecturer ASAP, who will then consult the Head of School.
- Students who deliberately submit false or fraudulent documentation may be referred to the Student Misconduct Tribunal.
- You will normally only receive an extension equivalent to the number of days covered by your documentation. Don't expect to get an extra week because you lost a day.

Additional assessment

- If your final result is 45-49, additional assessment (assignment, exam) is automatically granted <u>if you have completed all required course work.</u>
- If your final result is 40-44, an additional assessment may be offered by the examiners meeting.
- If you are capped at 44F due to failing the minimum performance criterion, an additional assessment may be offered by the examiners meeting.
- In the case where an additional exam is granted, the better of the primary or additional exam results is used for your final grade, but the overall result for the course is capped at 50P.
- You must make yourself available during the additional assessment period.

Replacement exams

- Replacement exams will not be granted for circumstances including minor ailments; travel, employment, family, customary, sport or leisure commitments; problems with balancing workloads; normal exam stress or anxiety.

- Students granted a replacement exam are not eligible to sit the primary exam.

- Students who sit the primary exam will not be eligible to apply for a replacement exam unless a major issue arose during the exam.

- Students must make themselves available during the replacement exam period.

Replacement exams (cont.)

- Students will not be entitled to an additional assessment if they have already sat a replacement exam, i.e., no supps on supps.

- Students granted a deferred replacement exam will not be eligible to sit the primary exam or the replacement exam (only under exceptional circumstances will a deferred replacement exam be granted).

- The University must notify students of the outcome of their replacement exam applications within 3 business days (if you already sat the primary exam, do not bother applying for a replacement exam).

Replacement exams (cont.)

- Students who deliberately submit false or fraudulent documentation may be referred to the Student Misconduct Tribunal.

- For the full policy on Modified Arrangements, see:

  https://www.adelaide.edu.au/policies/3303
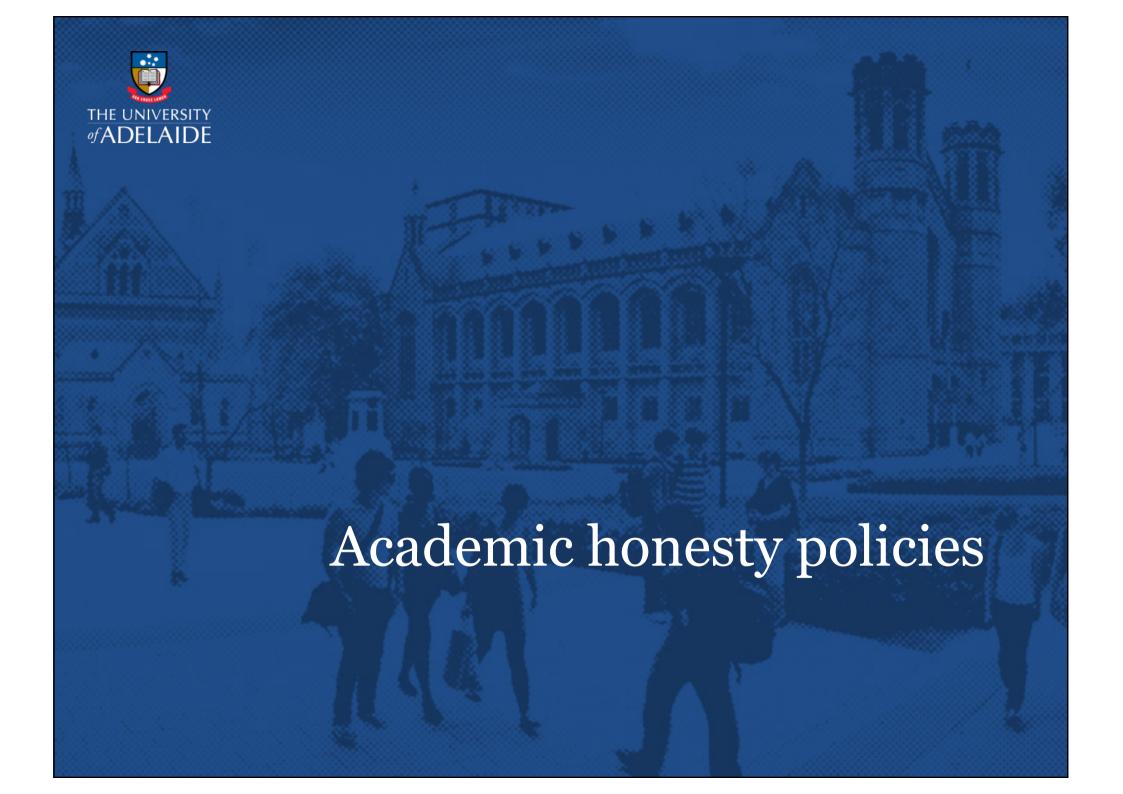
Additional/Replacement exam dates

- Go to the University Examinations Site for information on Additional/Replacement exams:
    - http://www.adelaide.edu.au/student/exams/

Absence during the semester

- We expect you to be able to attend all coursework, lectures, examinations and, if required, supplementary examinations. You should be here, in Adelaide, and on campus or at the designated location at all of these times.

- If you leave Adelaide, or the state, or the country, without making prior arrangements with the course coordinator, we will not provide extensions or move examinations just to accommodate you.

- Even if you contact the course coordinator, we may still not be able to help you unless you have an exceptionally good reason for your absence. Examinations, in particular, effectively never move. It may be possible to arrange extensions, with enough notice and reason.

- If you have a genuine medical or compassionate reason that requires you to leave the University during the academic year, you should get in contact with the course coordinator immediately to discuss your options.

Repeating Students

- Students who repeat a course are expected to attempt all of the aspects of the course again. This includes making **fresh** attempts at all coursework assessment items.

- You may apply to the course coordinator to have your previous work counted but this is not usually granted.

- Make sure that you attend all of the lectures, do all of the work and study hard for the exam – you don't want to get stuck repeating the same course over and over.

Academic honesty policies

Academic Honesty Policies

- The University has strict policies prohibiting students from presenting other people's work as their own, whether that of students or from outside the University.
- You may not copy code from another student or give another student your code to copy from, unless specifically authorised to do so by the course coordinator.
- You may not copy code from anywhere else, without permission.
- If caught, you may receive zero for the assignment or 1 F for the course. In addition you may be fined and / or be expelled.
- We don't give you assignment work just to keep you busy, we do it to develop your understanding and ability to apply important techniques.
- If you don't do the work yourself, you won't be able to do it in the examination and you won't be able to do it in the work force.
- Links to the full policy are available in the course outline.

Violations to policy

- Plagiarism
  - Using another person's ideas, designs, words or works without appropriate acknowledgment.

- Collusion
  - Another person assisting in the production of an assessment submission without the express requirement, or consent, or knowledge of the assessor.

1. Do not submit any work or part thereof which is not yours.
2. Do not submit any work for which you have received unfair assistance.

Example 1

- I had finished my assignment, and a classmate was asking for help. Since I am a kind person, I
  - Gave the classmate a copy of my code (or part thereof).
  - Posted my solution on an online forum for his/her reference.
  - Allowed the classmate to have a look at my code on paper/screen.

Example 2

- I had finished my assignment, and a classmate was asking for help. Since I am a kind person, I
  - Gave a few high-level tips to my classmate.
  - Discussed high-level concepts regarding the assignment with my classmate.

Example 3

- My good friend/housemate/brother/twin and I are taking the same course. We have always worked together. When doing the assignment, we
  - Exchanged solutions to verify/compare our answers.
  - Divided the assignment work amongst ourselves to speed up progress.
  - Sat side-by-side and looked at each other's answers when doing the assignment.

Example 4

- The assignment seems to be the same as the one given last year. I contacted my friend who took the course last year and got a copy of his solution.

Example 5

- The assignment seemed to be similar to another given at a different university. So, I
  - Copied and submitted the model answers available at that university's website.
  - Took parts of the model answers and integrated them into my solution.

Example 6

- The assignment seemed to be similar to one I found on the internet. So, I
  - Read the solution from the internet and worked hard to understand it.
  - Then I tried to write my own solution.

Example 7

- I studied at a school/college/university where doing _____ is acceptable. So I assumed doing this at The University of Adelaide is also acceptable.

How to avoid plagiarism/collusion

- If you get stuck, seek help from the lecturer, or workshop demonstrator rather than copying from someone else.

- Starting your work early will help you to avoid getting stuck at the last minute.

When in doubt, ask your lecturer.

Now for actual content!

- There is a machine below the software.
- The machine by itself won't do anything.
- A computer system is all of the components, hardware and software, that are required to make a computer function, including:
  - Processors
  - Memory
  - Interfaces
  - Peripherals
  - Microcode
  - Operating System
  - …

In this course!

- We are going to:
    - Develop an understanding of how hardware and software systems are constructed and how they work together
    - Build complex systems from simpler ones
    - Develop an understanding of what has to happen at the language level to work with a hardware system
    - Build small working pieces of computers in a simulation environment. (No soldering irons required.)

- How it will work
    - We cover material in lectures and readings, you get to practice them in workshops and assignments with some quizzes to help you test your knowledge.

This course – how to succeed

- We will be asking you to keep a journal of your software development process that will be used by us to track how you're going.

- Use your journal and get into the habit of DESIGN BEFORE CODE. It's easy to make mistakes at this level and hacking is a slow and random path to success.

- Do all your work in SVN and make regular commits.

- Do all of the work and do it yourself. We are teaching you **effective** techniques at the moment – the goal is your learning rather than just getting projects done!

- Start early, test lots, ask questions, keep writing, have fun!

References

- This course is based on the Nand2Tetris course and the accompanying text, "Elements of Computing Systems", Nisan & Schocken, MIT Press.

- The readings for the course are available for free on the course website – you do not have to buy the book although you will probably find it useful.

This week

- You have a workshop this week on the tools you'll need for the course and some binary and hexadecimal arithmetic.

- After this lecture, go and read the tutorial and grab the reading for this week "Chapter 1" from the course forum.

- You can also look at the first assignment "Basic Gates", which is due at the end of **week 2**. You'll find that on the course website as well.