Welcome to COMPSCI 101
Principles of Programming

Lecture 1 – Introduction

Learning outcomes

At the end of this lecture, students should be able to:

- understand where to obtain information about COMPSCI 101
- understand which parts of the COMPSCI 101 assessment contribute to the invigilated practical mark
- understand which parts of the COMPSCI 101 assessment contribute to the theory mark
- understand that to pass COMPSCI 101, both the invigilated practical part of the course and the theory part of the course need to be passed
- understand an algorithm

We are using Canvas

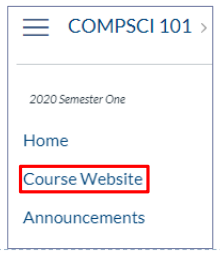
We will be using the Canvas Learning Management system this system which can be accessed by logging onto the Canvas website:

https://canvas.auckland.ac.nz

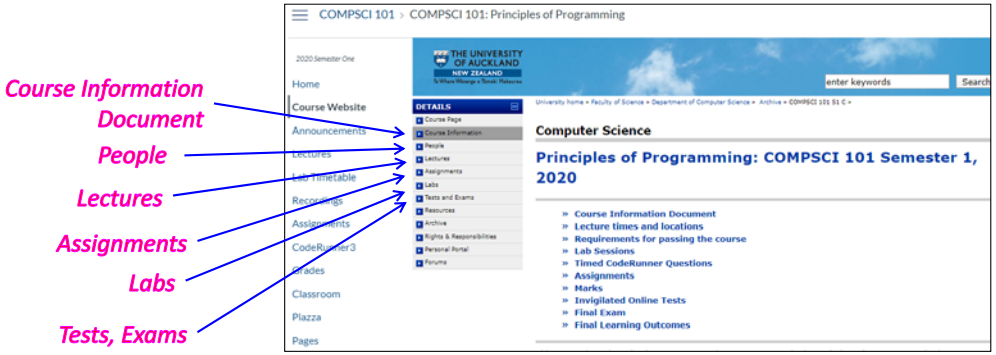
The COMPSCI 101 Website

As well as using Canvas, COMPSCI 101 has a course website:

- https://www.cs.auckland.ac.nz/courses/compsci101s1c/
- Here you will find information about how our course is set up.
- Get used to looking at this website for information about lecture slides, lab documents, assignment resources, assessments, people involved in the course and lots more.
- The COMPSCI 101 website can also be reached by through the COMPSCI 101 Canvas page.



The COMPSCI 101 Website



People in this Course

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People in this Course

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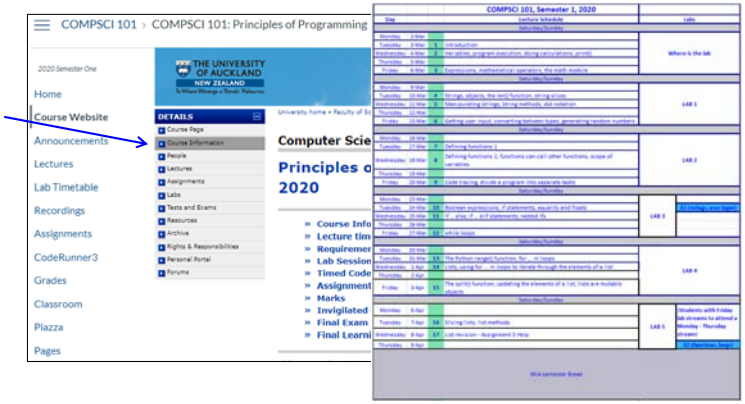
Office Hours

Open door policy – Visit any time

Lecture Schedule

The course information document gives an overview of the course assessment course along with a lecture schedule. Note that this is preliminary and may be subject to change

Course Information Document

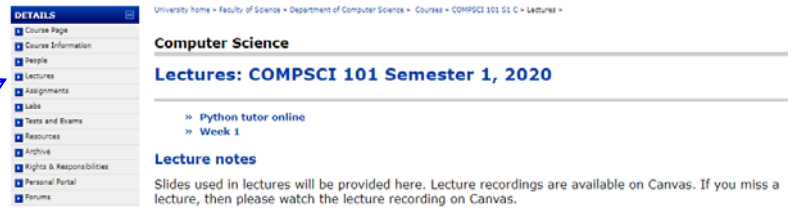


https://www.cs.auckland.ac.nz/courses/compsci101s1c/CourseInformation.pdf

Lecture Slides

Lecture slides will be available on the web before each lecture.

Lectures



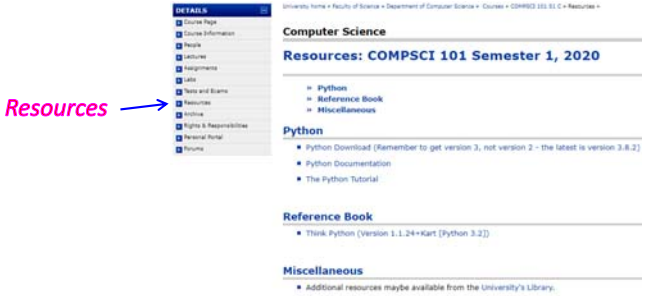
https://www.cs.auckland.ac.nz/courses/compsci101s1c/lectures

There is no Textbook for COMPSCI 101

There is **no textbook** but we do have an online reference book:

- **Think Python – How to think like a computer scientist.**

Please be aware that we are teaching the COMPSCI 101 material in a different order to the ordering in this book. This book is a reference book, not a textbook for this course.



https://www.cs.auckland.ac.nz/courses/compsci101s1c/resources/

Labs

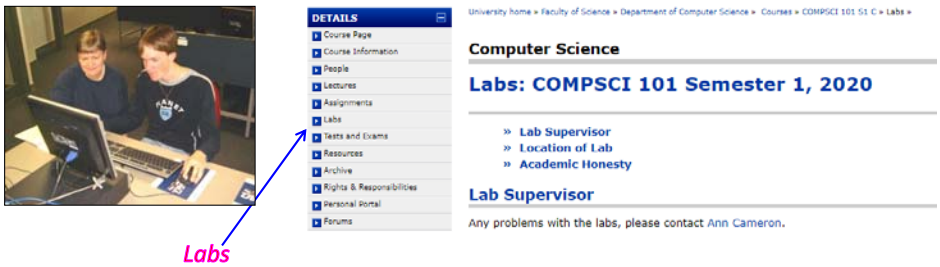
You must attend **one** 2 hour tutorial lab sessions each week. You will have enrolled in your lab time through Student Services Online. You should attend the same lab time each week.

- Labs are held in room 279 (Building 303S) which is on the second floor of the Computer Science building.
- **Labs start in the second week: March 9th – 13th**

https://www.cs.auckland.ac.nz/courses/compsci101s1c/labs/

More about labs

- **Labs start in the second week: March 9th – 13th**
- There are 9 labs worth 9% of your final mark.
  - At your lab time you will be given programming problems to solve within the 2 hours for your lab.

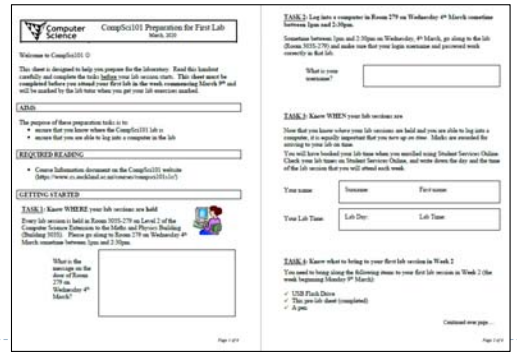


https://www.cs.auckland.ac.nz/courses/compsci101s1c/labs/

Before the First Lab

Visit the lab on **Wednesday** between 1:30pm and 3pm.

- Before the first lab you need to complete the lab preparation sheet (I will hand this out).
- In order to fill the sheet you need to visit the COMPSCI 101 lab on Wednesday. Immediately after the lecture today I will be taking people across to the COMPSCI 101 lab.

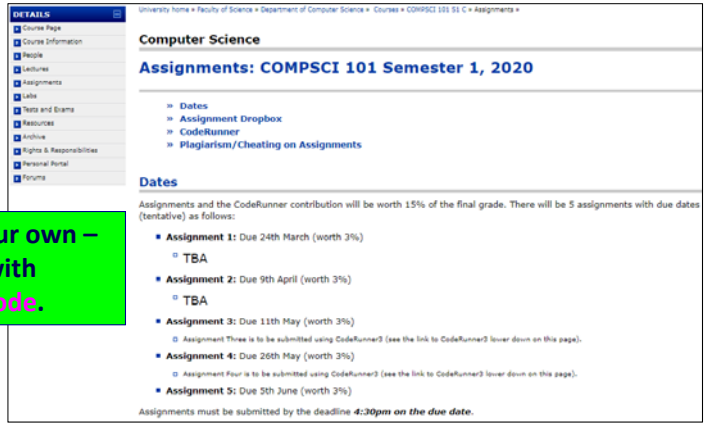


Assignments

The assignments are worth 15% of your final mark.

Assignments give you the experience of solving problems **on your own.**

Assignments



Solve the problem on your own – discuss the assignment with others but never share code.

https://www.cs.auckland.ac.nz/courses/compsci101s1c/assignments/

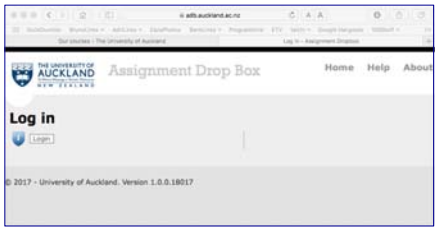
Assignments – Assignment Drop Box

There are 5 assignments in total worth 15% of your final mark.

All assignments are due at **4:30pm on the due date**.

For **parts** of these five assignments you are required to write and submit one or more programs.

- These parts of the five assignments are handed in using the **Assignment Drop Box**



https://adb.auckland.ac.nz/Home/

Assignments – CodeRunner 3

For **parts** of these five assignments (a total of 6%), you are required to use **CodeRunner 3**.

https://coderunner3.auckland.ac.nz/moodle

The CodeRunner 3 tool is designed to help you practice by presenting you with a set of coding and other exercises. Submissions are graded by running a series of test cases on your code (or short answers) and comparing the output of your code (or short answers) with the expected output. CodeRunner3 uses the Moodle learning system.

Information about using CodeRunner 3 is available on COMPSCI 101 assignments web page:

https://www.cs.auckland.ac.nz/courses/compsci101s1c/assignments/

Timed CodeRunner Exercises

There are 9 timed CodeRunner 3 exercises. Each exercise consists of 1 or more questions and is worth 1%.

- Only the best 6 marks will be counted towards your final grade.

These exercises are timed which means that you will have to develop and implement your solution within a certain amount of time.

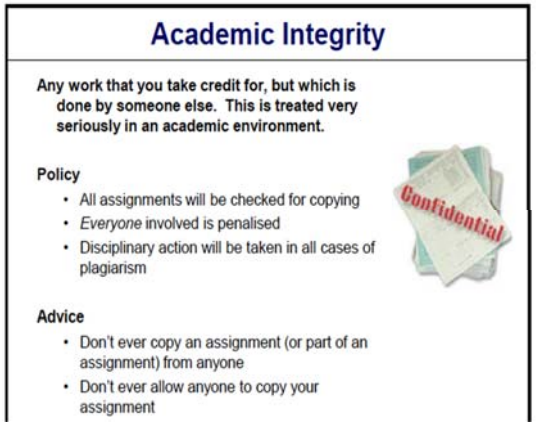
- Usually 15 minutes are allocated per question.

The timed CodeRunner exercises will become available after the end of the sessions for each lab (i.e. after 7pm on Fridays) and each exercise will be available for 24 hours only.

- These exercises are closely aligned to their corresponding lab

Plagiarism

Plagiarism: Any work that you take credit for, but which is done by someone else. This is treated very seriously in an academic environment.



https://www.academicintegrity.auckland.ac.nz

Academic Integrity

https://www.academicintegrity.auckland.ac.nz

Two Invigilated Online Tests

There are two practical invigilated tests. The tests are answered and validated on CodeRunner 3.

Test 1: Morning of Saturday 2nd May – 20% of your final mark

Test 2: Morning of Saturday 6th June – 25% of your final mark

The tests are 90 minutes. You should arrive 15 minutes before the test start time.

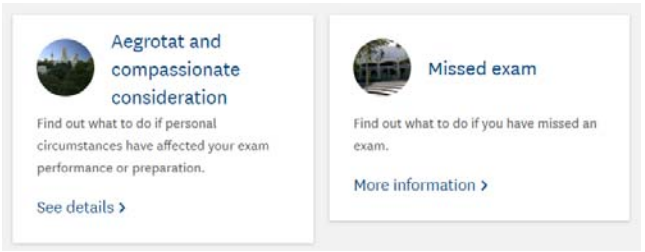
There is more information about the invigilated tests on the "Tests and Exams" web page:

https://www.cs.auckland.ac.nz/courses/compsci101s1c/exams/

Written Exam

The exam is worth 25% of your final mark.

Information about missed exams, aegrotats, etc. →



https://www.auckland.ac.nz/en/students/academic-information/exams-and-final-results/during-exams.html

Passing COMPSCI 101

Assignments, Timed Exercises, Labs – 30%	
Labs	9%
Assignments	15%
Timed Exercises	6%

Two online tests – 45%	
Test 1	20%
Test 2	25%

Exam – 25%	
Exam	25%

To pass the course you need:

- To **pass the invigilated online test component**. You need to obtain at least 22.5 marks out of 45 as the combined total mark for both tests.
- To **pass the invigilated final written exam**. You need to obtain at least 12.5 marks out of 25 marks for the exam.
- An **overall mark of at least 50%** out of the full course total of 100%

Computing Resources

Undergraduate Labs

- There are demonstrators in these labs to help you

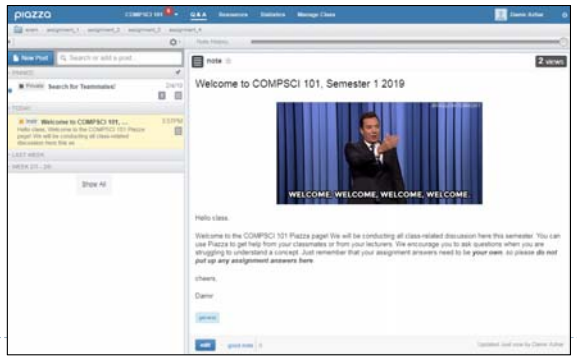
GCL (room 303S.G91) – Ground Floor Computer Lab

Piazza

Piazza is a Q&A web service integrated into Canvas.

You can use Piazza to ask questions that the lecturers and your classmates can discuss and answer.

Please never post your own code up on Piazza!



Learning Outcomes for COMPSCI 101

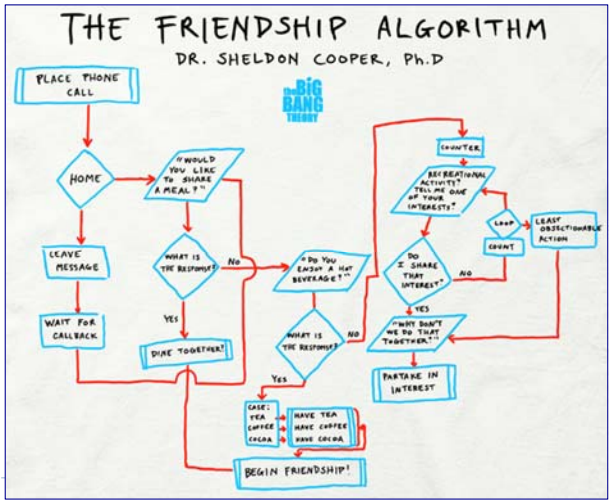
- Determine the state of the program both during and after execution, given a code listing that may include functions and parameters, loops, conditionals and sequences.
- Implement a given algorithm using Python,
- Show that a program meets given specifications by writing appropriate tests.
- Provide a useful level of documentation, in the form of program comments, for all programs developed.
- Decompose a simple problem into several smaller tasks, given a brief textual description of the problem.
- Compose functions that perform specified tasks into a program that solves a given problem.

Algorithms

A finite set of steps that specify a sequence of operations to be carried out in order to solve a specific problem.

A better definition:

An algorithm is a well-defined, unambiguous sequence of steps



Algorithms – What Kind of Steps?

HOW TO GET TO UNI

An algorithm is a well-defined, **unambiguous** sequence of steps

sequential operations

Walk to the bus stop at the shops up the road

Get on bus number "101"

Pay the bus driver $4.50

Get off at the Symonds St bus stop

Walk 200m to the Computer Science building

Algorithms – What Kind of Steps?

HOW TO WALK TO THE BUS STOP

An algorithm is a well-defined, **unambiguous** sequence of steps

conditional operations

Open the front door

IF it is raining **THEN**

take an umbrella

Walk down the driveway and turn left

Walk 50m down the street

Algorithms – What Kind of Steps?

HOW TO PAY THE BUS FARE

An algorithm is a well-defined, **unambiguous** sequence of steps

iterative operations

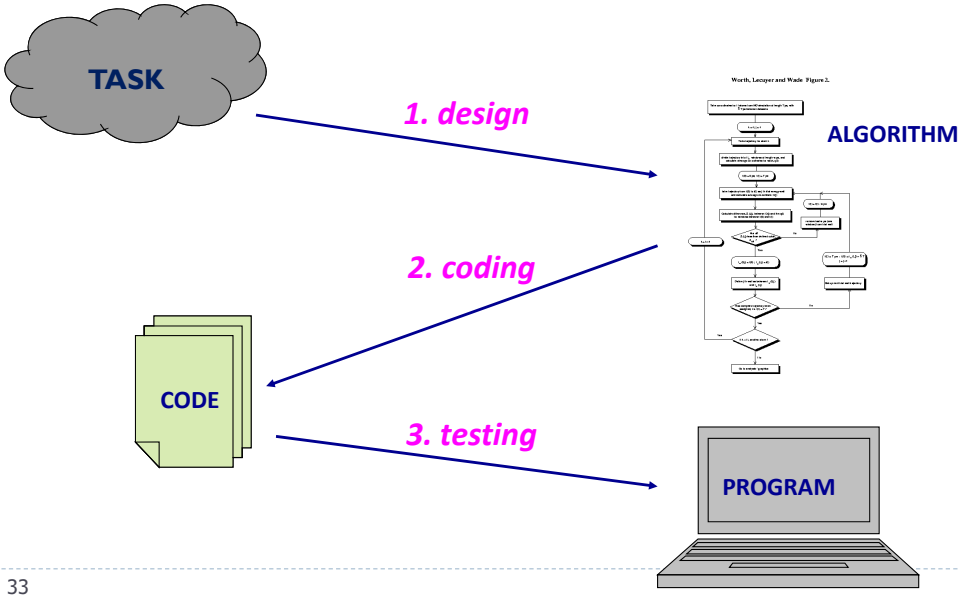
Open wallet

WHILE you still haven't paid enough

give the driver another coin

Take a seat

Basic Programming Steps



Programming - Step 2 - write the code

We will use the **Python programming language** to implement our algorithms