Lecture 1 - Introduction

WELCOME TO COMPSCI 101
Principles of Programming

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

We are using Canvas

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

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

We will be using the Canvas Learning Management system this semester. All the material on the COMPSCI 101 website can be accessed through Canvas:

https://canvas.auckland.ac.nz

The COMPSCI 101 website

The COMPSCI 101 website can be reached by logging onto the Canvas website: https://canvas.auckland.ac.nz

OR by going directly to the COMPSCI 101 website:

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

- Here you will find all the information about our course set up.
- Get used to looking at this website for information about lecture slides, lab documents, assignment resources, assessment, people involved in the course and lots more.
The COMPSCI 101 website

Most of the resources you will need (e.g., lecture slides, lab material, assignments, course information) can be found on the COMPSCI 101 website:

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

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People in this course

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Open door policy – Visit any time

On the course information sheet there is a schedule of the lectures for COMPSCI 101.

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

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

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.

Labs start in the second week: March 5 – March 9

- 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.

More about labs

**Labs start in the second week:** March 5 – March 9

There are 9 labs and each lab is worth 1% of your final mark.

- At your lab time you will be given programming problems to solve within the 2 hours for your lab.

Lab Reflection Exercises

Every lab has two lab reflection exercises:

- Pre-lab reflection exercise to be done the weekend before the lab.
- Post-reflection exercise to be done by the end of Friday the week of the lab.

You will be asked to reflect on your understanding of the key topics covered in lectures the week before the lab.

- These topics will be assessed during the labs themselves.

Lab reflection exercises are not graded.

- They are part of the lab assessment and need to be completed.

All reflection exercises will be held on Code Runner 2

https://www.coderunner2.auckland.ac.nz/moodle/
Lab Reflection Exercises:

- List key topics covered in lectures the week before the lab.
- Let you keep track of the topics you understand well, those you need to work on a bit more and those you need to get help with.
- Compare your pre and post-lab reflection exercises to assess how your understanding has changed.

If there is a topic you still do not understand after a lab – come and see us for help 🙏.

The assignments are worth 11% of your final mark. Assignments give you the experience of solving problems on your own. Never share your code.

Assignments:

There are 5 assignments in total worth 11% of your final mark.

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

For three of these five assignments (7% of your final mark), you are required to write and submit one or more programs.

Three of the five assignments are handed in using the Assignment Drop Box:

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

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

There are 5 assignments in total worth 11% of your final mark. All assignments are due at 4:30pm on the due date.

For two of these five assignments (a total of 4%), you are required to use CodeRunner.

The CodeRunner tool is designed to help you practise by presenting you with a set of coding and other exercises. Students can work with on-line exercises using the Moodle learning system.

https://www.coderunner2.auckland.ac.nz/moodle/

Information about using CodeRunner is available on COMPSCI 101 assignments web page:
https://www.cs.auckland.ac.nz/courses/compsci101s1c/assignments/

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.

Policy
- All assignments will be checked for copying
- Everyone involved is penalised
- Disciplinary action will be taken in all cases of plagiarism

Advice
- Don't ever copy an assignment (or part of an assignment) from anyone.
- Don't ever allow anyone to copy your assignment.

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

Test

The test is worth 15% of your final mark

The test date and time is:

Tuesday 24th April 6:30pm - 7:45pm

Email Damir Azhar (dazh001@aucklanduni.ac.nz), the COMPSCI 101 course coordinator, if you are unable to attend the test.

The test is 75 minutes long plus 5 minutes of reading time. Arrive at 6:15 because your reading time starts at 6:25pm.

More about this closer to the time.

https://www.academicintegrity.auckland.ac.nz
The exam is worth 65% of your final mark.


Assessment

<table>
<thead>
<tr>
<th>PRACTICAL</th>
<th>THEORY</th>
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<tbody>
<tr>
<td>Labs</td>
<td>9%</td>
</tr>
<tr>
<td>Assignments</td>
<td>11%</td>
</tr>
<tr>
<td>Test</td>
<td>15%</td>
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<tr>
<td>Exam</td>
<td>65%</td>
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</tbody>
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To pass the course

- you MUST pass the PRACTICAL (i.e., get 10 / 20 or more)
- you MUST pass the THEORY (i.e., get 40 / 80 or more)

On Canvas you will find:

- your marks
- class announcements
- lecture recordings
- links to the COMPSCI 101 website
- Piazza

https://canvas.auckland.ac.nz

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!
Computing resources

Undergraduate Labs:
There are demonstrators in these labs to help you

FCL (room 191) – First Floor Computer Lab
This is a quiet lab

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,
- compose functions that perform a specified task 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?

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

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?

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

**HOW TO WALK TO THE BUS STOP**

- Open the front door
- **IF** it is raining **THEN** take an umbrella
- Walk down the driveway and turn left
- Walk 50m down the street

**HOW TO PAY THE BUS FARE**

- Open wallet
- **WHILE** you still haven't paid enough **g**ive the driver another coin
- Take a seat

Basic programming steps

1. *design*
2. *coding*
3. *testing*

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

Enter a letter: d

|   |
|   |
|   |
---------

Word: l a _ _ b o n e s

Letters Missed: r m k c u d
Letters Guessed: a e s n o l b
Letters Available: f g h i j p q t v w x y z

Sorry, you have lost in the game of Hangman...

The word was lazybones