Unit Outline

COMP1005 (V.1) Fundamentals of Programming
Semester 1, 2025

Unit study package number:	COMP1005
Mode of study:	Internal
Tuition pattern summary:	Note: For any specific variations to this tuition pattern and for precise information refer to the Learning Activities section. Lecture: 1 x 2 Hours Weekly Computer Laboratory: 1 x 2 Hours Weekly This unit does not have a fieldwork component.
Credit value:	25
Pre-requisite units:	Nil
Co-requisite units:	Nil
Anti-requisite units:	COMP1001 (v.0) Object Oriented Program Design or any previous version AND COMP1007 (v.0) Programming Design and Implementation or any previous version AND COMP5005 (v.0) Fundamentals of Programming or any previous version
Result type:	Grade/Mark
Approved incidental fees:	Information about approved incidental fees can be obtained from our website. Visit https://www.curtin.edu.au/students/essentials/fees/understanding-your-fees for details.
Unit coordinator:	**Name:** Associate Professor Valerie Maxville **Phone:** 08 9266 7241 **Email:** V.Maxville@curtin.edu.au **Location** Building: 314 - Room: 122 **Consult:**
Teaching Staff:	**Name:** Associate Professor Valerie Maxville **Phone:** 08 9266 7241 **Email:** V.Maxville@curtin.edu.au **Location** Building: 314 - Room: 122
Administrative contact:	**Name:** Curtin Connect **Phone:** 1300 222 888 **Email or Website:** https://students.connect.curtin.edu.au/app/ask **Location** Building: 102 - Room: .
Learning Management System:	Blackboard

Acknowledgement of Country

Curtin University acknowledges all First Nations of this place we call Australia and recognises the many nations who have looked after Country for more than 60,000 years. We are honoured and grateful for the privilege to maintain campuses operating in Boorloo (Perth) and Karlkurla (Kalgoorlie) in Australia. We pay our respects to Elders past and present as Custodians and Owners of these lands. We recognise their deep knowledge and their cultural, spiritual and educational practices, and aspire to learn and teach in partnership with them. Curtin also acknowledges First Nations peoples connected with our global campuses. We are committed to working in partnership with all Custodians and Owners to strengthen and embed First Nations' voices and perspectives in our decision-making, now and into the future.

Syllabus

This unit aims at equipping students with the ability to write simple programs as part of managing large volumes of data. Topics include data representation in a computer, algorithm design, submodules, Boolean expressions, selection and repetition control structures, basic Object Oriented programming design and File I/O. These will be discussed in the context of implementation in the Python programming language.

Introduction

This unit has been developed as an introduction to programming for engineering and science students. It responds to an increasing focus on data analytics and computational science in research and industry. You can’ t go far in science or engineering without using a computer. To do research, or anything that hasn’ t been done before, you need to be coding. The unit is not just "Fundamentals of Programming"… it will give you valuable simulation and research tools to apply and extend in your later studies and careers.

Unit Learning Outcomes

Curtin University's six Graduate Capabilities indicate to employers that graduates possess discipline knowledge and valuable skills. Each course unit addresses these capabilities through specific learning outcomes, which outline what students need to know and do to succeed. Assessments are designed to test these outcomes, ensuring that upon completion, students have met all learning objectives.

Your course has been designed so that on graduating you will have achieved all of Curtin's Graduate Capabilities through the assurance of the learning process in each unit.

	On successful completion of this unit student can:	Graduate Capabilities addressed
1	Describe data representation in a computer	
2	Design and implement and document simple algorithms	
3	Recognise the purpose of modularising computer programs	

	On successful completion of this unit student can:	Graduate Capabilities addressed
4	Compare and contrast design choices and communicate design and design decisions in a manner appropriate to the audience	

Curtin's Graduate Capabilities

	Apply discipline knowledge, principles and concepts		**Innovative, creative and entrepreneurial**		**Effective communicators with digital competency**
	Globally engaged and responsive		**Culturally competent to engage respectfully with local first people and other diverse cultures**		**Industry connected and career capable**
Find out more about Curtin's Graduate Capabilities.					

Learning Activities

The lectures provide the theoretical foundations for achieving the unit learning outcomes. The practical worksheet exercises further develop on the lecture concepts to give students hands-on experience of the underlying theories. Students should ensure that they stay current with the practical exercises since falling behind will likely prevent the successful completion of the unit.

We allow resubmission of the Practical Tests for two weeks after their scheduled date. The tests are about ensuring your competency in the skills and challenges that are key to this unit. By completing these challenges, most students find they learn and consolidate their knowledge with each Practical Test.

The assignment will extend these concepts in solving a challenging programming project, reinforcing the learning from the lectures and practicals.

Learning Resources

The text(s) for this unit are:

Scipy Lecture Notes: One document to learn numerics, science, and data with Python

Electronic: Yes **Essential:** No **Resource Type:** Website
Url: http://www.scipy-lectures.org/

Essential Software

All required software is available through the provided Virtual Machines: https://mydesktop.curtin.edu.au/
Students are encouraged to set up an alternative environment for home use, it should include:

- **Linux environment:**
  - Gitbash recommended for Windows users (https://gitforwindows.org/)

    - Mac users can use Terminal, which is available in MacOS
- **Python:** minimum Version 3 installed to allow programs to be run on the command line
    - Python Software Foundation (PSF) - https://www.python.org/downloads/
    - Anaconda distribution - https://www.anaconda.com/download
- **Jupyter Notebook:**
    - install for PSF via "pip install jupyter"
    - Installed by default in Anaconda distribution

Assessment

Assessment policy exemptions

There are no exemptions to the assessment policy

Assessment Schedule

	Task	Value %	Date Due	Unit Learning Outcome(s) Assessed	Late Assessments Accepted?	Assessment Extensions Considered? *
1	Assignment	40 %	**Week:** Week 12 **Day:** 12th May **Time:** 12pm (midday - WST)	1,2,4	Yes	Yes
2	Practical Test	20 %	**Week:** Weeks 3, 5, 7, 10, 13 **Day:** During assigned practical **Time:** During assigned practical	2,3	Yes	Yes
3	Final Examination	40 %	**Week:** Examination Period **Day:** TBA **Time:** TBA	1,2,3,4	No	Yes

*Please refer to the Late Assessment and the Assessment Extension sections below for specific details and conditions.

Detailed Information on assessment tasks

Assignment

You will have at least four weeks to complete the Assignment. After submission, you will be required to demonstrate the assignment during your practical to gain a proportion of the overall marks. Refer to the assignment specification for more details on the assignment task and assessment.

A satisfactory assignment submission (15%) is required to pass the unit.

Practical Test

There will be five (5) practical tests across the semester, each worth 4%, adding up to 20% or your mark.

Resubmissions are allowed and encouraged - you have two weeks to resubmit each test. We recommend you **complete tests as early as possible** to build your competence and confidence ready for subsequent topics and the assignment.

You must attend the practical to sit the test, have it marked by a tutor AND submit it to Blackboard to be awarded the marks.

Final Examination

The Final Exam will cover all aspects of the unit. It is written and closed-book.

Examples are available on the Assessments page in Blackboard.

Pass requirements

In order to pass the unit a student must:

- score at least 50% overall, and
- score at least 40% in the exam, and
- have submitted a reasonable attempt at the assignment i.e. >30%, before penalties

The **assignment** covers ULOs 1, 2 and 4. To pass the unit, the student has to make a reasonable attempt at putting code together and reflecting on decisions. A minimum of 30% is required in the assignment. If this is not achieved, an F grade will be given. If the assignment is not submitted, an F-IN grade will be given.

The **exam** assesses student learning of concepts and skills for the entire unit in an invigilated environment. It covers ULOs 1, 2, 3 and 4. Students must achieve 40% or higher in the exam to pass the unit. If this is not achieved, an F grade will be given.

Assessment Moderation

Fair assessment through moderation

Moderation describes a quality assurance process to ensure that assessments are appropriate to the learning outcomes, and that student work is evaluated consistently by assessors. Minimum standards for the moderation of assessments are described in the Assessment and Student Progression Manual.

Pre-marking moderation

This unit complies with moderation of assessments as described in the Assessment and Student Progression Manual, available from policies.curtin.edu.au/findapolicy/

Intra-marking / Post-marking moderation

This unit complies with moderation of assessments as described in the Assessment and Student Progression Manual, available from policies.curtin.edu.au/findapolicy/

Late Assessment

Where the submission of a late assessment is permitted, late penalties will be consistently applied in this unit.

Where a late assessment **is** permitted for an assessment item or the entirety of the unit (refer to the Assessment Schedule table in this Unit Outline) and the student does not have an approved assessment extension:

1. For assessment items submitted within the first 24 hours after the due date/time, students will be penalised by a deduction of 5% of the total marks allocated for the assessment task;
2. For each additional 24 hour period commenced an additional penalty of 10% of the total marks allocated for the assessment item will be deducted; and
3. Assessment items submitted more than 168 hours late (7 calendar days) will receive a mark of zero.

Where late assessment **is NOT** permitted for an assessment item or the entirety of the unit (refer to the Assessment Schedule table in this Unit Outline) and the student does not have an approved assessment extension:

1. All assessment items submitted after the due date/time will receive a mark of zero.

Assessment Extension

Where an application for an assessment extension **is** permitted for an assessment item(s) within this unit (refer to the Assessment Schedule table in this Unit Outline):

1. A student who is unable to complete an assessment item by/on the due date/time as a result of exceptional circumstances beyond the student's control, may apply for an assessment extension on the Assessment Extension Form and within the student OASIS (My Studies tab – Quick Forms) account.
2. Submit the application for an Assessment Extension with supporting documentation via the online form.
3. An application may be accepted up to five working days after the due date/time of the assessment item where the student is able to provide a verifiable explanation as to why they were not able to submit the application prior to the assessment due date/time.

Where an application for an assessment extension **is NOT** permitted for an assessment item(s) within this unit (refer to the Assessment Schedule table in this Unit Outline):

1. All assessment items submitted after the due date/time will be subject to late penalties or receive a mark of zero depending on the unit permitting late assessment submissions.

Deferred Assessments

If your results show that you have been granted a deferred assessment you should immediately check OASIS for details.

Deferred examinations/tests will be held from 14/07/2025 to 19/07/2025. Notification to students will be made after the Board of Examiners' meeting via the Official Communications Channel (OCC) in OASIS.

Further Assessments

Further assessments, if granted by the Board of Examiners, will be held between 14/07/2025 to 19/07/2025. Notification to eligible students granted a further assessment will be made after the Board of Examiners meeting via the Official Communications Channel in OASIS.

It is the responsibility of the student to be available to complete the requirements of a further assessment. If your results show that you have been granted a further assessment you should immediately check OASIS for details.

Reasonable adjustments for students with disabilities/health circumstances likely to impact on studies

A Curtin Access Plan (CAP) is a document that outlines the type and level of support required by a student with a disability or health condition to have equitable access to their studies at Curtin. Carers for people with disability may also be eligible for support. This support can include alternative exam or test arrangements, study materials in accessible formats, access to Curtin's facilities and services or other support as discussed with an advisor from AccessAbility Services.

Documentation is required from your treating Health Professional to confirm your health circumstances or carer responsibilities.

If you think you may be eligible for a CAP, please contact AccessAbility Services. If you already have a CAP, please provide it to the Unit Coordinator in week 1 of each study period.

Referencing style

The referencing style of this unit is Chicago 17th Author-Date.

More information can be found on this style from the library web site
https://uniskills.library.curtin.edu.au/referencing/chicago17/introduction/

Privacy

Curtin's privacy statement describes how personal information is handled. Curtin may record or transmit your image or voice during learning activities or class participation, both on campus and internationally. Students may also record for study purposes but must not share these recordings publicly and must seek permission from those recorded. Recordings cannot be used for commercial purposes or shared beyond personal study. Breaching the privacy policy or procedures may lead to disciplinary action under Statute No 10. For privacy concerns, please contact your Unit Coordinator.

Copyright

Academic Integrity

Curtin's Student Charter, Academic Integrity Program (AIP), and core Values guide expectations regarding student behaviour and responsibilities. Information on these topics can be found on the Academic Integrity Website.

Appropriate Use of Generative Artificial Intelligence (Gen-AI) technologies

Curtin supports the philosophy of teaching students to appropriately use Gen-AI technologies in an ethical and responsible way. Gen-AI technology is rapidly evolving and being incorporated into software programs, so it is important to understand how it can and cannot be used within your studies.

Check your assessment instructions carefully before using any Gen-AI software (e.g. Chat GPT, Midjourney, GitHub Copilot, etc.). You are not permitted to use Gen-AI software in any assessment task unless written permission is explicitly granted by the Unit Coordinator (e.g. within Blackboard or the assignment specifications). Where use of Gen-AI is approved, you must use it in accordance with those instructions. Unapproved, inappropriate, or undisclosed use may be dishonest or unfair behaviour, and thus considered misconduct.

Visit the appropriate use of Gen-AI technologies website and library website on Gen-AI for more information.

Academic Integrity Warnings

An Academic Integrity Warning may be issued to a student in limited circumstances and only where misconduct is not involved.

Academic Misconduct

Staff members are required to report suspected misconduct. Academic misconduct means conduct by a student that is dishonest or unfair in connection with any academic work. This includes all types of plagiarism, cheating, collusion, falsification or fabrication of content, and behaviours like falsifying medical certificates for extension. Contract cheating, the use of file sharing, translation services/apps, paraphrasing tools (text-spinners), article generators, unapproved and inappropriate use of Gen-AI tools, and assignment help websites also may be considered academic misconduct. The longer term personal, social, and financial consequences of misconduct can be severe, so please ask your tutors or unit coordinator if you need clarification or are unsure what to do.

Information and Communications Technology (ICT) Expectations

Curtin students should ensure they have reliable internet access to connect to OASIS email, Blackboard or other Learning Management Systems, and Library Services. A computer or mobile device may be necessary for preparing and submitting assignments.

You may be required to use remote invigilation software like IRIS or Respondus Monitor with Lockdown Browser to verify your identity and monitor your behavior during online assessments. This requires a computer, webcam, microphone, and reliable internet access. If you don't have access to the necessary equipment, you can use the resources available at the Curtin University Library.

For general ICT assistance, please visit the IT tools and guides website. For study resources and assistance, check out the UniSkills website.

Additional information

FREE ONLINE GROUP STUDY SESSIONS in this Unit - UniPASS (University Peer Assisted Study Success)

UniPASS is free, interactive and positive face to face and/or online group study sessions and Facebook groups, run by trained, successful students for students. You can increase your grades by around 10 -15% by attending regularly! (That is a PASS to a CREDIT, or a DISTINCTION to a HIGH DISTINCTION – UniPASS benefits ALL students at ANY level). HOW? The active learning environment means you embed content and increase understanding, learning with and from other students, and gain valuable, transferrable academic skills. You can make friends and connect with study buddies – there are thousands of attendees each year at Curtin**. Go to the Blackboard page for this unit and see the UniPASS link for the timetable (posted by end of week 1)** – no registration necessary, just turn up either face to face or online! Search "unipass" on the Curtin website, or contact unipass@curtin.edu.au for more information. Timetables and session links and rooms on Blackboard by end of week 1, sessions start in week 2.

Enrolment

It is your responsibility to ensure that your enrolment is correct - you can check your enrolment through the eStudent option on OASIS, where you can also print an Enrolment Advice.

Student Rights and Responsibilities

Students must be aware of all relevant legislation, policies, and procedures concerning their rights and responsibilities. This information is available on the student rights and responsibilities website.

Student Equity

Several factors might hinder students from performing their best in studies or assessments, such as disabilities, medical conditions, significant caring responsibilities, pregnancy, religious practices, remote living, or other reasons. If you believe you are unfairly disadvantaged, contact the appropriate service. University staff can only assist if they are aware of your circumstances, so please reach out for help.

To discuss your needs in relation to:

1. Disability or medical conditions, contact AccessAbility Services
2. Elite athletes, contact Elite Athlete Coordinator
3. All other grounds, contact the Student Wellbeing Advisory Service

Recent Unit Changes & Response to Student Feedback

Students are encouraged to provide feedback through student surveys (such as Insight and the annual Student Experience Survey) and interactions with teaching staff.

Listed below are some recent changes to the unit as a result of student feedback.

- In 2022, the assessment weighting changed from 30% to 40% for the Assignment, and from 50% to 40% for the Final Assessment/Exam.
- In response to the widespread use of Generative AI, the unit returned to written, closed-book, face to face exams in 2023.
- In Semester 1, 2023, significant numbers of students delayed having all of their Practical Tests marked until Study Week, causing long delays and disrupting the demonstration of assignments. In response to complaints, we now have a two-week limit on submissions/assessments.
- The assignment due date is now earlier in semester to reduce clashes with other assessments at the end of semester (Sem 1, 2024). This clashed with even more assignments, so we will stay with week 11/12.
- The hurdle requirement for the assignment has been increased from 15% to 30% to emphasise its importance for the outcomes of the unit. The assignment is highly scaffolded, with code and templates being provided as a base, making it easy to gain 15% without much extension of the given material.

Program Calendar

Program Calendar – Semester 1 2025

Week	Begin Date			
Orientation	17 February	**Orientation Week**		
1.	24 February	L1: Introduction - Linux and Python	P0: Introduction to Linux	-
2.	3 March	L2: Strings and Lists	P1: Introduction to Python	-
3.	10 March	L3: Arrays and Plotting	P2: Lists and Strings	**Prac Test 1 (4%)** [Pracs 0-1]
4.	17 March	L4: Multi-dimensional Arrays and Functions	P3: Arrays and Plotting	-
5.	24 March	L5: Files and Grids	P4: Multi-dimensional Arrays and Functions	**Prac Test 2 (4%)** [Pracs 0-3]
6.	31 March	L6: Modelling the World with Objects	P5: Files and Grids	-
7.	7 April	L7: Object Relationships and Exception Handling	P6: Modelling the World with Objects	**Prac Test 3 (4%)** [Pracs 0-5, and using objects]

8.	14 April	L8: Scripts and Automation	P7: Object Relationships and Exception Handling	-
9.	21 April	**Tuition Free Week**		
10.	28 April	L9: Quality and Testing	P8: Scripts and Automation	**Prac Test 4 (4%)** [Pracs 6-7]
11.	5 May	L10: Applications: Data Processing and Analytics	P9: Quality and Testing	
12.	12 May	L11: Applications: Engineering and Science	P10: Applications: Data Processing and Analytics	**Assignment (40%)** Demonstrations during Practicals
13.	19 May	L12: Revision and Beyond	P11: Applications: Engineering and Science	**Prac Test 5 (4%)** [Pracs 9-10]
14.	26 May	**Study Week**		
15.	2 June	**Examinations**		
16.	9 June	**Examinations**		

Schedule is subject to change