Unit Outline

COMP1006 Foundations of Computer Science

Semester 2, 2020

Unit study package code:	COMP1006
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 Workshop: 1 x 2 Hours Weekly This unit does not have a fieldwork component.
Credit Value:	25.0
Pre-requisite units:	COMP1001 (v.0) Object Oriented Program Design or any previous version *OR* COMP1007 (v.0) Programming Design and Implementation or any previous version *AND* MATH1015 (v.0) Linear Algebra 1 or any previous version *OR* MATH1004 (v.0) Mathematics 1 or any previous version *OR* MATH1017 (v.0) Advanced Mathematics 1 or any previous version *OR* MATH1019 (v.0) Linear Algebra and Statistics for Engineers or any previous version *OR* MATH1021 (v.0) Accelerated Mathematics for Engineers or any previous version
Co-requisite units:	Nil
Anti-requisite units:	Nil
Result type:	Grade/Mark
Approved incidental fees:	Information about approved incidental fees can be obtained from our website. Visit fees.curtin.edu.au/incidental_fees.cfm for details.
Unit coordinator:	**Title:** Dr **Name:** Antoni Liang **Phone:** - **Email:** Antoni.Liang@curtin.edu.au **Location:** Building: 314 - Room: 418
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Learning Management System: Blackboard (lms.curtin.edu.au)

Acknowledgement of Country

We respectfully acknowledge the Indigenous Elders, custodians, their descendants and kin of this land past and present. The Centre for Aboriginal Studies aspires to contribute to positive social change for Indigenous Australians through higher education and research.

Syllabus

This unit introduces the mathematical theory that underlies the computing profession. It introduces proof and logic concepts central to computer science and programming methodology, including an introduction to set theory and mathematical relations, graph theory. Computational and mathematical recursion is also addressed, along with the paired concept of induction proofs. Finally, the analysis of software using discrete statistics is also addressed, including univariate statistics and confidence intervals.

Introduction

Welcome to Foundations of Computer Science (FCS). This unit is designed for students who are interested on the Discrete Mathematics field and its application to computing areas such as but not limited to complexity theory, cryptography, algorithm design, combinatoric, and recurrence relations. In this unit as a developing professional, you will develop the knowledge and skills necessary to perform analytical computing from mathematical perspective.
To be successful in your field of study, you are required to participate actively in the learning process. To get a sound understanding of FCS, it is essential that you demonstrate your skills and abilities in this area by completing all learning activities and assessment tasks yourself. Your classes have been designed to allow you to gain knowledge of the concepts and then engage in learning activities where you will apply this knowledge and develop your skills in FCS.

It is important to be aware of updates to the delivery and assessment of this unit due to COVID-19 and social distancing restrictions. You have enrolled in the internal availability for this unit. All students enrolled in the internal availability use the specific unit Blackboard site for all their resources.

All students in this unit will have an online WEEKLY lecture which will be recorded (available through Collaborate Ultra on Blackboard) and a weekly online practical class (via Collaborate as well, but not recorded). It is important to note that in addition to the weekly classes, all students have the opportunity to contact us for additional consultation via appointment.

Unit Learning Outcomes

All graduates of Curtin University achieve a set of six Graduate Capabilities during their course of study. These inform an employer that, through your studies, you have acquired discipline knowledge and a range of other skills and capabilities which employers would value in a professional setting. Each unit in your course addresses the Graduate Capabilities through a clearly identified set of learning outcomes. They form a vital part in the process referred to as assurance of learning. The learning outcomes notify you of what you are expected to know, understand or be able to do in order to be successful in this unit. Each assessment for this unit is carefully designed to test your knowledge of one or more of the unit learning outcomes. On successfully completing all of the assessments you will have achieved all of these learning outcomes.

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

	On successful completion of this unit students can:	Graduate Capabilities addressed
1	Apply methods of mathematical proof to run correctness proofs	
2	Explain inductive and recursive techniques	
3	Analyse complex data structures	
4	Analyse computational solutions using statistical methods	

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 Peoples and other diverse cultures		Industry connected and career capable
Find out more about Curtin's Graduate Capabilities at the Curtin Learning and Teaching website: clt.curtin.edu.au					

Learning Activities

All students in this unit are expected to participate in every weekly learning activity. For the online contents, please access the Collaborate sessions on the Blackboard. Each week, there is an expectation that you will arrive having completed the previous assigned work.

Weekly activities:

- 2-hours online lecture for detailed discussion on each topic.
- 2-hours online practical for further exercises.

Learning Resources

Essential texts

The required textbook(s) for this unit are:

- Rosen Kenneth H., "Discrete Mathematics and its Applications", 6th Edition. McGraw-Hill.
  (ISBN/ISSN: 0073229725)

Other resources

Lecture notes and practical worksheets are available in the Blackboard. The topics are also widely covered through the online resources.

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	Quiz	25%	**Week:** 7 **Day:** Friday, 18 September 2020 **Time:** 5 PM	1,3	No	No
2	Quiz	25%	**Week:** 12 **Day:** Friday, 23 October 2020 **Time:** 5 PM	1,2,4	No	No
3	Final examination	50%	**Week:** Examination Week **Day:** TBA **Time:** TBA	1,2,3,4	No	No

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

Detailed information on assessment tasks

1. Please note that due to Covid-19 impacts, the assessment schedule for this unit has been modified.

   The "Quiz 1 (weight 25%)", shown in the assessment schedule above, is replaced with "Assignment 1 (weight 25%)." It will cover Lecture 1-4. Please check the academic calendar for the detailed schedule.
2. Please note that due to Covid-19 impacts, the assessment schedule for this unit has been modified.

   The "Quiz 2 (weight 25%)", shown in the assessment schedule above, is replaced with "Assignment 2 (weight 25%)." It will cover Lecture 5-8. Please check the academic calendar for the detailed schedule.
3. Final Assessment covering all topics.

Pass requirements

To pass this unit, a student must:
1. Completes both assignments.
2. Achieves a minimum mark of 45% for the final exam.
3. The overall mark must be at least 50%.

Assessment Moderation

Fair assessment through moderation

Moderation describes a quality assurance process to ensure that assessments are appropriate to the learning outcomes, and that students work is evaluated consistently by assessors. Minimum standards for the moderation of assessments are described in the Assessment and Student Progression Manual, available from policies.curtin.edu.au/findapolicy/

Pre-marking moderation

This unit complies with moderation of assessments as described in the Assessment and Student Progression Manual.

Intra-marking / Post-marking moderation

This unit complies with moderation of assessments as described in the Assessment and Student Progression Manual.

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 Application Form as prescribed by the Academic Registrar. The form is available on the Forms page at https://students.curtin.edu.au/essentials/forms-documents/forms/ and also within the student's OASIS (My Studies tab – Quick Forms) account.
2. The student will be expected to submit their application for an Assessment Extension with supporting documentation:
    a. Australian Campuses: via the online form
    b. Offshore campuses: to the School representative nominated below
3. Timely submission of this information supports the assessment process. For applications that are declined, delayed submission may have significant ramifications on the possible marks awarded.
4. 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.

Unit Coordinator

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 15/02/2021 to 19/02/2021 . Notification to students will be made after the Board of Examiners' meeting via the Official Communications Channel (OCC) in OASIS.

Further assessment

Further assessments, if granted by the Board of Examiners, will be held between 15/02/2021 and 19/02/2021 . Notification to students 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 for this unit is Chicago 17th B.

More information can be found on this style from the Library web site:
http://libguides.library.curtin.edu.au/referencing.

Privacy

As part of a learning or assessment activity, or class participation, your image or voice may be recorded or transmitted by equipment and systems operated by Curtin University. Transmission may be to other venues on campus or to others both in Australia and overseas.

Your image or voice may also be recorded by students on personal equipment for individual or group study or assessment purposes. Such recordings may not be reproduced or uploaded to a publicly accessible web environment. If you wish to make such recordings for study purposes as a courtesy you should always seek the permission of those who are impacted by the recording.

Recording of classes or course materials may not be exchanged or distributed for commercial purposes, for compensation, or for any other purpose other than personal study for the enrolled students in the unit. Breach of this may subject a student to disciplinary action under Statute No 10 – Student Disciplinary Statute.

If you wish to discuss this please talk to your Unit Coordinator.

Copyright

Academic Integrity (including plagiarism and cheating)

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 Student Essentials Website or the Academic Integrity tab in Blackboard.

Academic Integrity Warnings

An Academic Integrity Warning may be issued to a New-to-Curtin student if they have inadequately acknowledged sources or collaborated inappropriately. The Management of Academic Integrity Warnings for New to Curtin Students Procedures provide further information and explain who is considered to be New-to-Curtin.

Academic Misconduct

Students with an academic breach that do not meet the New-to-Curtin criteria will be managed through the misconduct process. 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 data or other content, and Academic Misconduct Other, such as falsifying medical certificates for extension. More details can be found on the Student Essentials Website or on the Academic Integrity Website.

Staff members are required to report suspected misconduct and an inquiry may take place. If misconduct is determined it will result in penalties, which may include a warning, a reduced or nil grade, a requirement to repeat the assessment, an annulled grade (ANN) or termination from the course. Some penalties may impact on future enrolment.

Academic work under inquiry will not be graded until the process has concluded. If your work is the subject of an inquiry you will be notified by email and Official Communication with an opportunity to respond. Appropriate support will be provided. For more information refer to Statute No.10 Student Discipline and Academic Misconduct Rules.

Information and Communications Technology (ICT) Expectations

Curtin students are expected to have reliable internet access in order to connect to OASIS email and learning systems such as Blackboard and Library Services.

You may also require a computer or mobile device for preparing and submitting your work.

Due to the online teaching delivery, you are expected have the access to any workstation with internet access where you can join the Collaborate Ultra session for lecture and practicals (library is one option you can choose). You can use free mobile apps such as Adobe Scan or Microsoft Office Lens to scan hand-written papers into PDF. You might be required to have a webcam for assessment interview purpose.

As a Curtin student, you are eligible for a free copy of Microsoft Office 365. You can access it through your OASIS email on any internet browser. Click on "Office 365" in the top left corner and select "Install Office".

For general ICT assistance, in the first instance please contact OASIS Student Support:
oasisapps.curtin.edu.au/help/general/support.cfm

For specific assistance with any of the items listed below, please contact The Learning Centre:
life.curtin.edu.au/learning-support/learning_centre.htm

- Using Blackboard, the I Drive and Back-Up files
- Introduction to PowerPoint, Word and Excel

Additional information

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

It is the responsibility of every student to be aware of all relevant legislation, policies and procedures relating to their rights and responsibilities as a student. These include:

- the Student Charter
- Values and Signature Behaviours
- the University's policy and statements on plagiarism and academic integrity
- copyright principles and responsibilities
- the University's policies on appropriate use of software and computer facilities

Information on all of the above is available through the University's "Student Rights and Responsibilities" website at: students.curtin.edu.au/rights.

Student Equity

There are a number of factors that might disadvantage some students from participating in their studies or assessments to the best of their ability, under standard conditions. These factors may include a disability or medical condition (e.g. mental illness, chronic illness, physical or sensory disability, learning disability), significant caring responsibilities, pregnancy, religious practices, living in a remote location,or another reason. If you believe you may be unfairly disadvantaged on these or other grounds please contact the appropriate service below. It is important to note that the staff of the University may not be able to meet your needs if they are not informed of your individual circumstances, so please get in touch with the appropriate service if you require assistance.

To discuss your needs in relation to:

- Disability or medical conditions, contact AccessAbility Services: https://students.curtin.edu.au/personal-support/disability/
- Elite athletes, contact Elite Athlete Coordinator: https://stadium.curtin.edu.au/sport/academy/elite-athlete-program/
- All other grounds, contact the Student Wellbeing Advisory Service: https://students.curtin.edu.au/personal-support/counselling-guidance/wellbeing/

Recent unit changes

Students are encouraged to provide unit feedback through ***e*VALUate**, Curtin's online student feedback system. For more information about ***e*VALUate**, please refer to evaluate.curtin.edu.au/info/.

	To view previous student feedback about this unit, search for the Unit Summary Report at https://evaluate.curtin.edu.au/student/unit_search.cfm. See https://evaluate.curtin.edu.au/info/dates.cfm to find out when you can ***e*VALUate** this unit.

Recent changes to this unit include:

Due to the current pandemic situation, the teaching delivery will be fully online this semester. The change on the assessment structure can be viewed on "Assessment Tasks" section.

Program calendar

Week	Begin Date	Lecture	Tutorial	Assessments
Orientation	27 July	Orientation Week		
1.	3 August	Propositional Logic	-	
2.	10 August	Predicates & Quantifiers	Propositional Logic	
3.	17 August	Proof Techniques	Predicates & Quantifiers	
4.	24 August	Mathematical Induction	Proof Techniques	Assignment 1 released at the end of the week
5.	31 August	**Tuition Free Week**		
6.	7 September	Set Theory	Mathematical Induction	
7.	14 September	Relations	Set Theory	Assignment 1 due on Friday
8.	21 September	Counting	Relations	Assignment 2 released at the end of the week
9.	28 September	**Tuition Free Week**		
10.	5 October	Probability	Counting	
11.	12 October	Recurrence Relations	Probability	
12.	19 October	Graph Theory	Recurrence Relations	Assignment 2 due on Friday
13.	26 October	Path, Circuit & Trees	Graph Theory	
14.	2 November	Revision	Path, Circuit & Trees	
15.	9 November	Study Week		
16.	16 November	Examinations		
17	23 November	Examinations		