



COMP1010

Fundamentals of Computer Science

Session 2, Special circumstances 2021

School of Computing

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Macquarie University has taken all reasonable measures to ensure the information in this publication is accurate and up-to-date. However, the information may change or become out-dated as a result of change in University policies, procedures or rules. The University reserves the right to make changes to any information in this publication without notice. Users of this publication are advised to check the website version of this publication [or the relevant faculty or department] before acting on any information in this publication.

Session 2 Learning and Teaching Update

The decision has been made to conduct study online for the remainder of Session 2 for all units WITHOUT mandatory on-campus learning activities. Exams for Session 2 will also be online where possible to do so.

This is due to the extension of the lockdown orders and to provide certainty around arrangements for the remainder of Session 2. We hope to return to campus beyond Session 2 as soon as it is safe and appropriate to do so.

Some classes/teaching activities cannot be moved online and must be taught on campus. You should already know if you are in one of these classes/teaching activities and your unit convenor will provide you with more information via iLearn. If you want to confirm, see the list of [units with mandatory on-campus classes/teaching activities](#).

Visit the [MQ COVID-19 information page](#) for more detail.

General Information

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Credit points

10

Prerequisites

(COMP1000 or COMP115) or admission to (BActStud or BActStudBSc or BAppFinBActStud or BActStudBProfPrac)

Corequisites

Co-badged status

Unit description

This unit studies programming as a systematic discipline and introduces more formal software design methods. Programming skills are extended to include elementary data structures and abstract data types. There is a strong emphasis on problem solving and algorithms, including aspects of correctness, complexity and computability.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

Learning Outcomes

On successful completion of this unit, you will be able to:

ULO1: apply enhanced problem solving skills to develop algorithms

ULO2: implement programs from algorithms, showing an understanding of the underlying architecture of the computer

ULO3: adhere to standard software engineering practices, including documentation, unit testing and debugging

ULO4: compare different methods available for the same problem in terms of efficiency and other criteria

ULO5: demonstrate foundational learning skills including active engagement in their

learning process

General Assessment Information

Late Submission

For any assessment, extensions will only be granted if your askMQ application for Special Consideration is approved.

Weekly submissions

Late submissions are NOT accepted for weekly submissions unless you have special considerations approval.

Assignments

There will be a deduction of 20% (of the total marks) made from the total awarded mark for each 24 hour period or part thereof that the submission is late. For example,

- an assignment that is late by anywhere between one second and 24 hours will get a 20% penalty. Thus, if your raw mark is 68, it will become 48.
- an assignment that is late by anywhere between 24 hours 1 second and 48 hours will get a 40% penalty. Thus, if your raw mark is 68, it will become 28.
- and so on...

Submissions for assignments will NOT be accepted after the solutions have been posted.

Assessment Tasks

Name	Weighting	Hurdle	Due
Quizzes	20%	No	Week 6, 10, 12
Assignments	30%	No	Week 3, 8, 13
Weekly submissions	20%	Yes	Weeks 2 to 11
End-of-semester exam	30%	No	Exam period (weeks 14, 15)

Quizzes

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 16 hours

Due: **Week 6, 10, 12**

Weighting: **20%**

Online quizzes to assess the understanding of the several topics taught throughout the unit.

Students get only one attempt for each quiz.

On successful completion you will be able to:

- apply enhanced problem solving skills to develop algorithms
- implement programs from algorithms, showing an understanding of the underlying architecture of the computer
- compare different methods available for the same problem in terms of efficiency and other criteria
- demonstrate foundational learning skills including active engagement in their learning process

Assignments

Assessment Type ¹: Programming Task

Indicative Time on Task ²: 39 hours

Due: **Week 3, 8, 13**

Weighting: **30%**

Take-home assignments during the semester to assess problem-solving skills in the domain of the unit topics.

On successful completion you will be able to:

- apply enhanced problem solving skills to develop algorithms
- implement programs from algorithms, showing an understanding of the underlying architecture of the computer
- adhere to standard software engineering practices, including documentation, unit testing and debugging
- compare different methods available for the same problem in terms of efficiency and other criteria
- demonstrate foundational learning skills including active engagement in their learning process

Weekly submissions

Assessment Type ¹: Practice-based task

Indicative Time on Task ²: 20 hours

Due: **Weeks 2 to 11**

Weighting: **20%**

This is a hurdle assessment task (see [assessment policy](#) for more information on hurdle assessment tasks)

Weekly submissions from the practice package provided. To clear the hurdle, students must submit **at least 8 out of 10** submissions that satisfy the minimum requirements, which may be different for each week.

On successful completion you will be able to:

- apply enhanced problem solving skills to develop algorithms
- implement programs from algorithms, showing an understanding of the underlying architecture of the computer
- compare different methods available for the same problem in terms of efficiency and other criteria
- demonstrate foundational learning skills including active engagement in their learning process

End-of-semester exam

Assessment Type ¹: Examination

Indicative Time on Task ²: 10 hours

Due: **Exam period (weeks 14, 15)**

Weighting: **30%**

End of semester exam to assess achievement of learning outcomes from the entire session.

On successful completion you will be able to:

- apply enhanced problem solving skills to develop algorithms
- implement programs from algorithms, showing an understanding of the underlying architecture of the computer
- compare different methods available for the same problem in terms of efficiency and other criteria
- demonstrate foundational learning skills including active engagement in their learning process

¹ If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

² Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

CLASSES

Each week you should attend

- two hours of lectures (delivered online, details to be announced via iLearn),
- two hour practical class

For details of days, times and rooms, consult the [timetables webpage](#).

Note that Lectures and Practical classes commence in week 1.

You should have selected a practical class during enrolment. **You should attend the practical class in which you are enrolled.** You won't always get the class of your choice. Check availabilities via **eStudent** regularly. If ALL practical classes are full, only then, contact the convenor.

Please note that you are **required** to submit work regularly. You will get the help that you need by attending your practical class. Failure to submit work may result in you failing the unit (see the precise requirements in the "Grading Standards" section) or being excluded from the final examination.

TEXTS AND/OR MATERIALS

Lecture notes: <https://rebrand.ly/COMP1010LectureNotes>

Practical classes: <https://rebrand.ly/COMP1010practicals>

Video tutorials: <https://rebrand.ly/COMP1010VideoTutorials>

Recommended Textbooks:

1. **T. Gaddis, Starting out with Java: From control structures through objects (Pearson), Global edition (6th). ISBN 9781292110653**
 - [Online edition](#) of this book is available through MQ Library. There can be up to 5 simultaneous accesses. Click on "Full text available at: [2018 eTextbooks](#)" and login with OneID and password.
2. **Kathy Siera, Bert Bates, Head First Java, 2nd edition. ISBN 9780596009205**

TECHNOLOGY USED AND REQUIRED

Audio and Video Lecture

Digital recordings of lectures are available from within iLearn via **Active Learning Platform**.

Technology

- [Java SE](#) - download the latest Java SE to be compatible with the labs.
- [Eclipse](#) (preferred, troubleshooting provided) or [Visual Studio Code](#) (if you are proficient, independent) - the IDEs we shall be using during the session.
- Learning Management System [iLearn](#).
- <https://code2flow.com/> for better understanding of control flow.
- <http://codingbat.com/> for programming exercises.

Discussion Boards

The unit makes use of forums hosted within [iLearn](#). Please post questions there, they are monitored by the unit staff.

Unit Schedule

Note that three important themes will pervade the entire unit:

1. **Problem-solving.** A crucial skill for all of the weekly topics will be to write appropriate code to meet a given problem specification. This theme relates to the first two learning outcomes for this unit.
2. **Software development.** The use of JUnit testing framework is an important development practice that will be taught from the beginning and used throughout the unit. This theme relates to the third learning outcome of this unit.
3. **Comparing different solution methods.** Very often different algorithms are available for the same problem. Another important skill to develop throughout this unit is the ability to compare different algorithms in terms of efficiency and other criteria. This theme relates to the fourth learning outcome of this unit.

NOTE: This is a tentative schedule and subject to minor changes.

Week	Topic	Lecture Notes	Assessments Due	Weekly submission
1	Programming environment	14		No

2	Problem-solving, JUnit testing	15, 16		Yes
3	Classes and Objects - 1	17, 18, 19	Assignment 1 (Arrays) - 5%	Yes
4	Classes and Objects - 2	20, 21, 22		Yes
5	Recursion - 1	23, 24, 25		Yes
6	Recursion - 2	26, 27	Quiz 1 (Classes) - 5%	Yes
7	List Interface, ArrayList class	28		Yes
2 weeks' recess				
8	Iterators	29, 30	Assignment 2 (Classes) - 10%	Yes
9	Custom-built ArrayList	31		Yes
10	Recursive data structures - 1	32	Quiz 2 (Recursion) – 7%	Yes
11	Recursive data structures - 2	33		Yes
12	Advanced topics	34	Quiz 3 (ArrayList class) - 8%	No
13	Revision		Assignment 3 (Recursive data structures) - 15%	No
14, 15			Final Exam – 30%	No

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies \(https://students.mq.edu.au/support/study/policies\)](https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au) and use the [search tool](#).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/student-conduct>

Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- [Getting help with your assignment](#)
- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

Changes from Previous Offering

The number of assignments has been reduced from 4 to 3, weights have been adjusted.

The number of quizzes has been reduced from 4 to 3, weights have been adjusted.

Grading Standards

The unit will be graded according to the following general descriptions of the letter grades as specified by Macquarie University. In the course of the unit, these grade descriptions will be discussed with respect to example projects.

High Distinction (HD, 85-100): provides consistent evidence of deep and critical understanding in relation to the learning outcomes. There is substantial originality and insight in identifying, generating and communicating competing arguments, perspectives or problem solving approaches; critical evaluation of problems, their solutions and their implications; creativity in application as appropriate to the discipline.

In the context of this unit, the project has a good design, and has used some data that is interesting or non-obvious, or has required some effort to obtain or use. It involves a good analysis of the data, and fairly extensively draws on the techniques and tools presented in the unit and possibly on others discovered independently by the student. The project is described in a report and a presentation that are well-structured and essentially free from errors; these would be of a standard that could be presented at a conference with little or no polishing.

Distinction (D, 75-84): provides evidence of integration and evaluation of critical ideas, principles and theories, distinctive insight and ability in applying relevant skills and concepts in relation to learning outcomes. There is demonstration of frequent originality in defining and analysing issues or problems and providing solutions; and the use of means of communication appropriate to the discipline and the audience.

In the context of this unit, the project has a good design, and has used some data that is interesting or non-obvious, or has required some effort to obtain or use. It involves a good analysis of the data, and fairly extensively draws on the techniques and tools presented in the unit. The project is described in a report and a presentation that are well-structured and mostly free from errors; these would be of a standard that could be presented at a conference with some polishing.

Credit (Cr, 65-74): provides evidence of learning that goes beyond replication of content knowledge or skills relevant to the learning outcomes. There is demonstration of substantial understanding of fundamental concepts in the field of study and the ability to apply these concepts in a variety of contexts; convincing argumentation with appropriate coherent

justification; communication of ideas fluently and clearly in terms of the conventions of the discipline.

In the context of this unit, the project has a sound design, and demonstrates some thought in the choice of data. It involves a good analysis of the data, and uses a reasonable number of the techniques and tools presented in the unit. The project is described in a report and a presentation that are well-structured and mostly free from errors.

Pass (P, 50-64): provides sufficient evidence of the achievement of learning outcomes. There is demonstration of understanding and application of fundamental concepts of the field of study; routine argumentation with acceptable justification; communication of information and ideas adequately in terms of the conventions of the discipline. The learning attainment is considered satisfactory or adequate or competent or capable in relation to the specified outcomes.

In the context of this unit, the project has a satisfactory design and uses some easily accessible data. It involves a successful, or nearly successful, analysis of data, and shows some familiarity with tools or techniques presented in the unit. The project is described in a satisfactory report and presentation.

Fail (F, 0-49): does not provide evidence of attainment of learning outcomes. There is missing or partial or superficial or faulty understanding and application of the fundamental concepts in the field of study; missing, undeveloped, inappropriate or confusing argumentation; incomplete, confusing or lacking communication of ideas in ways that give little attention to the conventions of the discipline.

Changes since First Published

Date	Description
01/09/2021	Mistake in bernard's name fixed. Nothing else changed.