WCOM125

Fundamentals of Computer Science

MUIC Term 2 2019

Macquarie University International College

Contents

General Information	2
Learning Outcomes	2
General Assessment Information	3
Assessment Tasks	14
Delivery and Resources	17
Unit Schedule	21
Learning and Teaching Activities	23
Policies and Procedures	23
Graduate Capabilities	27
Course Contact Hours	30
Unit Specific Texts and Materials	30

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General Information

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Credit points 3
Prerequisites WCOM115
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:

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 (in particular documentation using Javadoc, testing using JUnit framework and debugging using Eclipse debugger)

Compare different methods available to solve the same problem in terms of efficiency and other criteria.

Use discipline specific terminology to communicate concepts and ideas relevant to this

unit

General Assessment Information

Requirements to Pass

In order to pass this unit a student must obtain a mark of 50 or more for the unit (i.e. obtain a passing grade P/ CR/ D/ HD).

For further details about grading, please refer to Schedule 1 of the Assessment Policy.

Students must also pass any hurdle assessments as stipulated in the Assessment Section of this Unit Guide.

Grading

The College will award common result grades as specified in Schedule 1 of the Assessment Policy.

Students will receive criteria and standards for specific assessment tasks, which will be aligned with the grading descriptors given in Schedule 1.

The attainment (or otherwise) of learning outcomes for a unit of study will be reported by grade and mark which will correspond to the Schedule 1 and be as outlined below.

Grade		Mark Range	Outcome	Description
HD	High Distinction	85-100	Pass	Provides consistent evidence of deep and critical understanding in relation to the learning outcomes. There is substantial originality, insight or creativity 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 program.
D	Distinction	75-84	Pass	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 or creativity in defining and analysing issues or problems and providing solutions; and the use of means of communication appropriate to the program and the audience.
CR	Credit	65-74	Pass	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 program.
P	Pass	50-64	Pass	Provides sufficient evidence of the achievement of learning outcomes. There is demonstration of understanding and application of fundamental concepts of the program; routine argumentation with acceptable justification; communication of information and ideas adequately in terms of the conventions of the program. The learning attainment is considered satisfactory or adequate or competent or capable in relation to the specified outcomes.

F	Fail	0-49	Fail	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 program.
FA	Fail		Did Not Attend	Student has failed for non-submission of an assessment task or non-attendance at a required assessment.
FH	Fail	49	Failed Hurdle	Student has obtained a raw mark over 50 yet failed all available attempts of at least one hurdle assessment (as described within Schedule 2 of the Assessment Policy).

Other grades (FW, I, IS, UD, UJ, UL) may be allocated where the student has withdrawn after the Census Date, not submitted or completed one or more components of the assessment, has been awarded a supplementary assessment, has applied for special consideration or because of an unresolved matter such as allegations of academic misconduct. These grades are outlined in Schedule 1 of the Assessment Policy.

Where to find information about assessment

General assessment information including the number and nature of assessments, due dates and weightings has been provided in this unit guide.

Specific assessment information including assignment instructions, questions, marking criteria and rubrics as well as examples of relevant and related assessment tasks and responses will be available in the Assessment section on iLearn. For units that have final examinations, students may access past final exam papers using MultiSearch.

Student Responsibilities

As per the Assessment Policy, students are responsible for their learning and are expected to:

- actively engage with assessment tasks, including carefully reading the guidance provided, understanding criteria, spending sufficient time on the task and submitting work on time;
- read, reflect and act on feedback provided;
- actively engage in activities designed to develop assessment literacy, including taking the initiative where appropriate (e.g. seeking clarification or advice, negotiating learning contracts, developing grading criteria and rubrics);
- provide constructive feedback on assessment processes and tasks through student feedback mechanisms (e.g. student surveys, suggestions for future offerings, student representation on committees);
- ensure that their work is their own; and
- be familiar with University policy and College procedures and act in accordance with

those policy and procedures.

Submission of Assessment Tasks

Assessments must be submitted in accordance with instructions provided in this unit guide. Assessment tasks which have not been submitted as required will not be marked; they will be considered a non-submission and zero marks will be awarded for the task.

Late Submissions and Penalties

Late submissions are possible but they will be penalised unless the student has been granted an approved extension (refer to the Special Consideration Policy). Late penalties will be calculated based on the marks allocated to the specific assessment task. The penalty for late submission is as follows:

- 5% of the total possible marks will be deducted if it is late by up to 30 minutes
- 10% of the total possible marks will be deducted if it is more than 30 minutes late and up to 24 hours late
- A further 10% of the total possible marks will be deducted for each 24-hour period up to 3 days (including weekends)
- 100% of the marks will be deducted after 3 days and zero marks will be awarded

Please note that online submissions are electronically tracked, and the electronic record of submission will be used to determine late penalties. This means that submitting your work even a few seconds after the allocated deadline will result in a late submission which will attract the penalty noted above. There is no flexibility with the applying of penalties as they must be applied fairly and consistently to all students. **It is your responsibility to allow sufficient time for submission of your work and any uploading of documents so try to avoid submitting your work just prior to the deadline**.

Examples:

If the assessment task is due on a Friday at 5.00pm

Submission day/time	Deduction penalty
Before/at 5pm Friday	0%
After 5pm* to 5.30pm Friday	5%
After 5.30pm Fri to 5.00pm Saturday	10%
After 5.00pm Sat to 5.00pm Sunday	20%

After 5.00pm Sun to 5.00pm Monday	30%
After 5.00pm Monday	100%

If the assessment task is due on a Wednesday at 11.55pm

Submission day/time	Deduction penalty
Before/at 11.55pm Wednesday	0%
After 11.55pm* to 12.25 am Thursday	5%
After 12.25am Thurs to 11.55pm Thursday	10%
After 11.55pm Thurs to 11.55pm Friday	20%
After 11.55pm Fri to 11.55pm Saturday	30%
After 11.55pm Saturday	100%

Please see “In class assessment” section for further information on assessments that take place during class time.

Extensions

Extensions will only be granted as a result of a successful application for Special Consideration. To apply for an extension of time for submission of an assessment item, students must submit their application for Special Consideration via ask.mq.edu.au.

An **approved** extension will not incur late penalties. However, where a student has been granted an extension and submits late (i.e. after the stipulated due date following extension), late penalties will be applied as per the new due date. See the section “Late submission and penalties”.

Resubmissions

Students are responsible for ensuring that they make correct submissions. Following an initial submission, students may resubmit their work up to 3 days after the due date if, for example, they have submitted the incorrect document or forgotten to include information.

Resubmissions will be treated as late submissions and will be penalised. See the “Late submissions and penalties” section. After the third day, a record of submission will be made, and feedback will be provided on the new content, but the student will receive zero marks for the assessment task.

In order to resubmit your work, you will need to contact your teacher and ask them to delete your original submission so that you can upload a new one. Teaching staff contact details have been provided in this unit guide.

Retention of Originals

It is the responsibility of the student to retain a copy of any work submitted. Students must produce these documents upon request. Copies should be retained until the end of the grade appeal period each term.

In the event that a student is asked to produce another copy of work submitted and is unable to do so, they may be awarded zero (0) for that particular assessment task.

Requests for original documentation will be sent to the student email address. Students must retain all original documentation for a six (6) month period and must supply original documents to the University within ten (10) working days of such a request being made.

In-Class Assessments

Students must bring their Student ID Card to all assessment tasks, including in class assessments and produce this if requested. Students may be refused the opportunity to take an in-class assessment task when unable to show their student ID card.

When an assessment is to be held or submitted during a scheduled lesson, students must be ready to submit, present or sit the assessment task at the start of the lesson; however, not all assessments may commence at the beginning of the lesson. No additional time or adjustment will be made for late arriving students or students not ready to submit an assessment at the start of the lesson and late penalties will apply.

For example, if a one-hour test or quiz is due to take place in a 2-hour lesson, the test or quiz may start at any time in the first hour or at the start of the second hour, so students must be ready to take the test at the beginning of the lesson. No additional time will be given to or adjustment made for students who arrive late. While they may still be permitted to take the test, depending on the task, the student will have only the remaining time to complete the task. Similarly, when an assessment task is due in a given lesson, late penalties may apply to a student who submits the task at the end of the lesson, depending on submission instructions for the task.

Revision Sessions

When relevant, a revision session may be scheduled prior to the final examination. Revision sessions will usually be scheduled on Monday and/or Tuesday of Week 7. Details of the revision session will be provided in the teaching schedule section of the unit guide and reminders may be posted in iLearn. When revision sessions are available, students are strongly encouraged to attend.

Final Examinations

The final examination period is Week 7. Examinations will usually be scheduled on Tuesday and Wednesday of Week 7; however, students must be available to take exams and submit assessments on any day of this week.

For unit specific details please refer to the Assessment section of this unit guide.

Final Examination Timetable

The University will publish the College Final Examination Timetable at least 4 weeks before the commencement of the final examination period and students will be able to access their final examination schedule in Week 3 of the Term.

Final Examination Requirements

Schedule 4 of the Assessment Policy explains what students are responsible for:

- checking the final examination timetable;
- knowing the examination location (including seat number allocation) and arriving at allocated examination venue on time;
- knowing the structure and format of the examination;
- adhering to the final examination timetable; and
- ensuring they are available for the full duration of the final examination period and supplementary examination period.

Details of the structure and format of the final examination paper will be made available to students via iLearn prior to the start of the final examination period. These details will include:

- a copy of the examination coversheet, giving the conditions under which the examination will be held
- information on the types of questions the examination will contain, and
- an indication of the unit content the paper may examine.

Students must follow directions given by the Final Examination Supervisor.

Students will be required to present their Macquarie University Campus Card as photographic proof of identity for the duration of the final examination and may be refused the opportunity to take a final examination if unable to show their student ID card.

Students are not permitted to:

- Enter a final examination venue once one hour from the time of commencement (excluding any reading time) has elapsed.
- Leave a final examination venue before one hour from the time of commencement (excluding any reading time) has elapsed.
- Leave a final examination venue during the last 15 minutes of the examination.
- Be readmitted to a final examination venue unless they were under approved supervision during the full period of their absence.
- Obtain, or attempt to obtain, assistance in undertaking or completing the final examination script.

- Receive, or attempt to receive, assistance in undertaking or completing the final examination script (unless an application for reasonable adjustment has been approved).
- Communicate in any way with another student once they have entered the final examination venue.

Missed assessments and examinations

The Special Consideration Policy establishes the principles that support students seeking to notify the University when they experience short-term, unexpected, serious and unavoidable circumstances, which affect their performance in assessment. This Policy applies only to short-term, serious and unavoidable circumstances that arise after a study period has commenced, and where specific assessment task/s have been affected. Students with a pre-existing disability/ health condition or prolonged adverse circumstances are advised to seek support from Campus Wellbeing and should also refer to the Student Disability Support Policy.

In order to support students who have experienced serious and unavoidable circumstances, the University will attempt to provide affected students with one (1) additional opportunity to demonstrate that they have met the learning outcomes of a unit or units. An additional opportunity provided under such circumstances is referred to as Special Consideration and may be granted after careful evaluation of the supporting evidence.

Students are expected to plan their work so that they can meet assessment deadlines at the same time as other obligations which they may have, both inside and outside the University. Special Consideration will not be granted when students are unable to complete an assessment task due to planned or foreseeable absence (e.g. holidays, recreational activities or normal work commitments or changes).

All applications for Special Consideration must be substantiated by original, independent documentary evidence in the format and by the deadline prescribed in the Procedure.

Please refer to the Special Consideration Policy section under Policies and Procedures below.

Supplementary Tests, Supplementary Examinations

When a student has been granted a supplementary test or examination as a result of an application for Special Consideration, they will be advised of the time, date and location for the supplementary task.

Supplementary interim assessments (i.e. assessments held during the term) will be held throughout the term and students who have been granted an opportunity to sit a supplementary exam will be informed of times and dates via ask.mq.edu.au.

The supplementary final examination period for formal, end- of- term examinations will be the fortnight following Week 7. Students who have requested special consideration for a final examination must be available to undertake examinations during the supplementary examination period.

No more than one (1) supplementary assessment will be offered to a student in each affected unit, so it is essential that the student makes themselves available for the alternative assessment activity. Please refer to the Special Consideration Policy for further details.

Results for supplementary final examinations may not be available for up to two weeks following the supplementary examination. Students in their final term of study who undertake supplementary final exams and students who apply for special consideration for a unit which is a prerequisite to another unit in their program should note that formal completion of their Program will not be possible until supplementary results are released, and this may impact on their ability to enrol in subsequent programs of study on time.

Second Attempts at Hurdle Assessments

In cases where students have made a serious first attempt at a hurdle requirement but failed to meet it, they will be given one further opportunity to meet the hurdle requirement if their performance in the unit is otherwise satisfactory.

When a student is eligible for **a second attempt at a hurdle assessment**, this will typically be scheduled during the supplementary interim/final examination periods unless stipulated otherwise in the assessment section of the unit guide. Students awarded second attempts at hurdles will be notified via email so please ensure you are checking your student email regularly.

Any second attempt at a hurdle assessment will be marked on a pass/fail basis. This means the mark for the second attempt at the hurdle will be capped at the designated hurdle pass mark. For example:

A hurdle task is a multiple-choice quiz marked out of 50 marks with a pass of 50% for the hurdle (25/50) and a serious attempt is defined as 40-49% (20-24.5 marks). In their first attempt, a student gets 45% in the quiz (22.5/50). The student will be granted a second attempt as they made a serious first attempt. If in the second attempt, the student scores 75% (37.5/50), the final mark that the student would receive for the hurdle assessment would be 50% for quiz (25/50) as this is the hurdle pass mark.

Accessing your Results

Students will be able to view their results for internal assessments via the Grades section in iLearn.

Marks for all assessment tasks will be released to students once marking has concluded.

Final results for the unit will be released at 00:01 on Thursday of Vacation Week. Students will be able to view their final result for the unit via eStudent.

Calculating your GPA

A Grade Point Average (GPA) is a calculation that reflects the overall grades of a student in a coursework program. Please refer to the GPA Calculator.

Obtaining Feedback

Teaching staff will provide students with feedback about their academic progress and performance in assessment tasks or a unit of study. When relevant, other staff such as Senior Teachers, Program Managers and members of the Student Administration and Services Team will provide feedback and advice to students about their performance in a program of study. Feedback may be provided to individual students, a group of students or a whole class and it may be written or verbal in nature.

Some examples of feedback include:

- Teaching staff member reviewing a draft submission and giving a student advice on how to improve their work before making a final submission
- Teaching staff member telling a class that they need to improve their editing of grammar in their recently submitted assignment
- Teaching staff member discussing progress of an individual student before census date to allow the student to decide whether they should remain enrolled in the unit
- Online feedback via announcements or forums, an online marking rubric or various iLearn activities employed in a unit. Please note that feedback on written assessments is usually provided via Feedback Studio in iLearn
- Written marks and comments on a marking sheet or essay
- Recorded voice comment in iLearn provided in response to an essay submitted online
- A student receiving advice that they should consider withdrawing from a unit because they have missed too many classes / too much work to be able to catch up or for other reasons

It is a student's responsibility to:

- Attend sessions, be present and actively engaged during times when feedback is provided in scheduled class times
- If absent from an in-class feedback session due to unavoidable circumstances, organise an alternative time with the teacher so that they can receive their feedback
- Ensure that they have received sufficient feedback prior to their next assessment task and/or final assessment in the unit
- Act promptly on feedback provided (e.g. incorporate advice provided into their work and study habits)

If you are unsure how or when feedback has been or will be provided, or you feel that feedback provided is not sufficient, you must approach relevant teaching or administrative staff and request additional feedback in a timely manner during the term and prior to any subsequent assessment task or the final assessment task for the unit. Claims that not enough feedback has been provided are not grounds for a grade appeal, especially when a student has not made any effort to approach staff about obtaining additional feedback in a timely manner. Students may seek general feedback about performance in a unit up to 6 months following results release.

If you have any problems contacting your teacher, you must seek help from administrative staff at the College Student Desk (Level 1, 8 Sir Christopher Ondaatje Avenue).

Feedback Sessions

When relevant, a feedback session may be scheduled after the results release. Feedback sessions will usually be scheduled on Friday of Vacation Week. Details of the feedback session

will be provided in the teaching schedule section of the unit guide and reminders may be posted in iLearn. When feedback sessions are available, students are strongly encouraged to attend.

Contacting Teaching Staff to Obtain Help

Students may contact teaching staff at any time during the term by using the contact details provided in this guide. Students should expect a response within 1-2 business days. Teaching staff are unable to accept assessment submissions via email; all assessments must be submitted as outlined in the unit guide.

For all university related correspondence, students must use their official Macquarie University student email account which may be accessed via the Macquarie University Student Portal. Enquiries from personal email accounts will not be attended to.

Academic Integrity

All members of the University community must abide by the principles of academic integrity as per the Academic Integrity Policy. The fundamental principle is that all staff and students act with integrity in the creation, development, application and use of ideas and information. This means that:

- all academic work claimed as original must be the work of the person making the claim;
- all academic collaborations of any kind must be acknowledged;
- academic work must not be falsified in any way; and
- when the ideas of others are used, these ideas must be acknowledged appropriately.

All breaches of the Academic Integrity Policy are serious and penalties apply. Students should be aware that they may fail an assessment task, a unit or even be excluded from the University for breaching the Academic Integrity Policy.

Unacceptable activities include, but are not limited to, the following academic (including learning and teaching and research) activities:

- Cheating: is any attempt to dishonestly give or obtain assistance from another person, material, or device in an academic task.
- Contract-cheating: is having another person or entity conceive, research or write material for an assignment and submitting the work as one's own, irrespective of whether the other person or entity was paid for the material.
- Collusion: is unauthorised collaboration in producing an academic exercise that is designated as an individual task.
- Deception: is providing false or misleading information to the University.
- Fabrication: is to forge or falsify any information or citation in an academic task or report false or misleading results or conclusions of any research.
- Impersonation: is pretending or assuming another person's identity or using a substitute person for the purposes of providing an advantage.

- Obstruction: is intentionally impeding or interfering with another person's academic activity.
- Plagiarism: is adopting or reproducing the work or ideas of another person, whether intentionally or not, and presenting this as one's own without clearly acknowledging the source of the work or ideas.
- Sabotage: is acting to prevent or hinder another person from completing an academic exercise to the best of their abilities including by making information or material unavailable to others or disrupting or interfering with an academic task, experiments, research or other academic activity of any other person.
- Self-plagiarism: is unacknowledged use of material you have previously published or submitted.

The University may commence applicable disciplinary procedures if a person breaches the Academic Integrity Policy.

Penalties for Plagiarism and Collusion

The University may commence applicable disciplinary procedures if a person breaches the Academic Integrity Policy.

If your work is found to be similar to another source and considered to include instances of plagiarism or collusion, you will be penalised.

Plagiarism is taking someone else's work or ideas and presenting them as your own, that is, without acknowledging where they came from originally

Collusion takes place when a student copies work or ideas from another student with or without this student's consent to complete a task that is supposed to be done individually.

For example, if you were awarded 60/100 marks for an essay, which contained 30% similarity (i.e. 30% of the work was identified to be copied from another source), the 30% of the 100 marks allocated to the task (i.e. 30 marks) could be deducted as a penalty. The final score you would receive would be 30/100 marks.

Penalty calculations may vary by unit.

Turnitin

To uphold principles of Academic Integrity, Macquarie University employs an online anti-plagiarism Software called Turnitin. Turnitin compares electronically submitted papers to a database of academic publications, internet sources and other student papers that have been submitted to the system to identify matching text. It then produces an Originality Report which identifies text taken from other sources, and generates a similarity percentage.

All text-based assessments must be submitted through Turnitin as per instructions provided in the unit guide. It is the student's responsibility to ensure that work is submitted correctly prior to the due date. This includes verifying that correct files have been submitted as no special consideration will be given to students who have uploaded incorrect documents. No hard copies

of assessments will be accepted and only Turnitin records will be taken as records of submission.

Multiple submissions may be possible via Turnitin prior to the final due date and time of an assessment task and originality reports may be made available to students to view and check their levels of similarity prior to making a final submission. Students are encouraged to use these reports to ensure that they do not breach the Academic Integrity Policy through high levels of similarity (plagiarism).

Students should note that the report on the initial submission will be immediate but on a second or subsequent submission it will take at least 24-36 hours for the similarity report to be generated. This may be after the due date, so students should plan any resubmissions carefully. If you have not planned your submission time carefully and note high levels of similarity in your work after the due date, you can still resubmit your work; however, a late penalty (20% per day) will apply. For instructions on how to resubmit your work, please see the “Resubmissions after the due date” section in this unit guide.

Teaching staff will use the originality report to judge whether plagiarism has occurred and whether penalties should apply for breaches of the Academic Integrity Policy. Any similar text identified by Turnitin will be considered carefully to see if it is indeed a breach of the Academic Integrity Policy.

There is no set percentage which indicates whether plagiarism has occurred; all identified matching text should be reconsidered carefully. If plagiarism has occurred or is suspected and resubmission is possible prior to the due date, students are advised to edit their work before making a final submission. Help may be sought from teaching staff and students may also access research resources provided by the library or Learning Skills.

Please refer to these instructions on how to submit your assignment through Turnitin and to access similarity reports and feedback provided by teaching staff.

Should you have questions about Turnitin or experience issues submitting through the system, you must inform your teacher immediately. If the issue is technical in nature, you may also lodge a OneHelp Ticket; please refer to the IT help page.

Submission of Drafts through Turnitin.

In some instances, students may be required to submit drafts of written work via Turnitin **prior to the due date of the assessment** task so that they can receive feedback prior to making a final submission. If the student does not make a final submission prior to the due date, their draft will be counted as the final submission or late penalties applied.

Assessment Tasks

Name	Weighting	Hurdle	Due
Assignments	15%	No	W3, W7
Practical Exams	50%	Yes	W2, W5, W6

Name	Weighting	Hurdle	Due
Final Exam	35%	No	MUIC Final Examination Period

Assignments

Due: **W3, W7**
Weighting: **15%**

There are two Assignments in WCOM125. In Assignments, students are given a programming task including multiple sub-problems of incremental nature (such that they need to solve one sub-problem before moving on to the next). Students analyse the problem and solve each sub-problem to move on to the "next stage". JUnit tests indicate that their solutions are correct or not, as they implement their solution. Thus, 80% of the feedback is provided live to them, including where and what the mistake is. 20% of the marks are for coding style and the feedback for that is provided in the class after the due date.

Assignment 1 will be a programming assignment that will require students to write Java code to meet a set of requirements. The task will help students to practise concepts from lesson 1.1 to 1.6. Students' code will be assessed via automated tests that will be provided to students. Students will also be marked on code quality and completeness. This task is worth 5%.

Assignment 2 will be a programming assignment that will require students to write Java code to meet a set of requirements. The task will help students to practise concepts from session 2.4 to 4.6. Students' codes will be assessed via automated tests that will be provided to them. They will also be marked on code quality and completeness. This task is worth 10%.

NOTE: Submissions that do not compile correctly may not be marked, receiving a zero, or a penalty may be applied.

Assignments are submitted to links provided in iLearn. These are individual tasks. Further instructions are available in iLearn. Please refer to late submission section above.

Due dates are:

Assignment 1: Week 3, Monday 23:45 (11:45pm)

Assignment 2: Week 7, Monday 23:45 (11:45pm)

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 (in particular documentation using Javadoc, testing using JUnit framework and debugging using Eclipse debugger)
- Compare different methods available to solve the same problem in terms of efficiency

and other criteria.

- Use discipline specific terminology to communicate concepts and ideas relevant to this unit

Practical Exams

Due: **W2, W5, W6**
Weighting: **50%**
This is a hurdle assessment task (see assessment policy for more information on hurdle assessment tasks)

There are three Practical Exams in WCOM125. Practical exams include short programming tasks based on relevant content. Each practical exam is an Eclipse project containing the questions, with JUnit test provided for each question. These are closed-book online exams.

Students are allowed to use javadoc of libraries.

Practical Exam 1 (5%) may cover any unit material from Lesson 1.1 to 2.4. This is a 40-minute exam, conducted in Week 2

Practical Exam 2 (15%) may cover any unit material from Lesson 1.1 to 4.6. This is a 75-minute exam, conducted in Week 5

Practical Exam 3 (30%) may cover any unit material from Lesson 3.5 to 5.6. This is a 90-minute exam, conducted in Week 6.

Practical Exam 3 is a **hurdle assessment, and students must attain 40% or more in Practical Exam 3 in order to pass the unit**. Students will be given two opportunities to sit for Practical Exam 3, with the second attempt scheduled in Week 6. The highest mark of the two attempts will be the mark recorded.

Please note, Practical Exam 1 and Practical Exam 2 are NOT hurdle assessments.

Failure to attempt the **Practical Exam 3** scheduled in Week 6 and non-submission/non approval of a Special Consideration request will mean that the student has exhausted that attempt at the hurdle and only one further opportunity to pass the hurdle in the Week 6 will remain.

Instant feedback will be provided through Unit tests. This is an individual student task.

If students miss a practical exam, they should refer to the Special Consideration section above.

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 (in particular documentation using Javadoc, testing using JUnit framework and debugging using Eclipse debugger)
- Compare different methods available to solve the same problem in terms of efficiency

and other criteria.

Final Exam

Due: **MUIC Final Examination Period**
Weighting: **35%**

The Final Exam is a 2 (two) hours plus 10 (ten) minutes, closed book, paper-based, and individual assessment task. It includes a mix of short programming questions and code analysis questions.

The final examination period is Week 7. Examinations will usually be scheduled on Tuesday and Wednesday of Week 7. However, students must be available to take exams and submit assessments on any day of this week.

Students are **not** allowed to bring mobile phones and other electronic devices; notes and course materials; dictionaries (paper/electronic); and calculators. A reference sheet will be provided.

If students miss the final exam, they should refer to the Special Consideration section above.

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 (in particular documentation using Javadoc, testing using JUnit framework and debugging using Eclipse debugger)
- Compare different methods available to solve the same problem in terms of efficiency and other criteria.
- Use discipline specific terminology to communicate concepts and ideas relevant to this unit

Delivery and Resources

Term Dates & College Calendar

Details of key dates during the term can be found on the Important Dates calendar.

Enrolment and Timetables

General timetable information is available via Macquarie University's Timetable page.

Students will be able to enrol in units and register for classes via eStudent and also view their personal timetable. It is the student's responsibility to ensure that classes they have registered for do not clash.

Students are only permitted to attend classes in which they have registered via eStudent, unless they have written approval from the Students Services Manager. To seek approval, students must email muic@mq.edu.au or speak to a member of the Student Administration and Services

Team at The College Student Desk (Level 1, 8 Sir Christopher Ondaatje Avenue). Approval will only be granted in exceptional circumstances.

The last day to enrol, add or change units is Tuesday of Week 1. Swapping groups is not possible after the enrolment period has concluded. The last day to enrol and register into classes is Tuesday of Week 1 and this must be finalised by the student in eStudent by the end of the day.

Guest Lecturer Presentations and Workshops

One or two Guest Lecturer Presentations and/or workshops may be scheduled during the term. These sessions will take place outside of regular class time, usually in a lecture theatre on campus. In the session, a speaker (usually an expert or well-known academic in the field) will give a presentation on a particular topic related to the unit or field.

While attendance at guest lectures is not compulsory, and content covered is not examinable unless covered in regular classes, students are strongly encouraged to attend these sessions as they will:

- help them to engage with and broaden their understanding of the discipline;
- contextualise content covered in class by providing insights into recent research and workplace developments in the field;
- provide opportunities for networking; and
- provide experience of what lectures are like.

Specific details including time and venue for Guest Lecturer Presentations and workshops will be posted in iLearn announcements and provided in class.

Recordings of these sessions may also be made available to students via iLearn.

Attendance Requirements – All Students

All students are expected to attend 100% of scheduled class time.

Attendance will be monitored in each lesson & students will be able to see their current attendance percentage to date and potential attendance percentage for each unit they have enrolled in via iLearn.

- **Current Attendance Percentage** will reflect the percentage of classes a student has attended so far (based only on the lessons held to date).
- **Potential Attendance Percentage** will reflect the percentage of classes a student can potentially attend by the end of the term, taking into consideration lessons attended and assuming the student also attends all future lessons scheduled (based only on the total number of lessons in the Term).

When a student is present for a part of a lesson (for example arrives late, leaves early, leaves the class frequently, particularly for lengthy periods), the teacher reserves the right to mark a student absent for that part of the lesson.

Public Holidays and Make-up Lessons

If any scheduled class falls on a public holiday, a make-up lesson will be scheduled, either online or face to face. Please check the iLearn announcements and your emails for details of the make-up lessons.

In term 2, there will be three public holidays:

- Good Friday, 19/4/2019
- Easter Monday, 22/4/2019
- Anzac Day, 25/4/2019

Technology Used and Required

- Access to internet (Available on Campus using Macquarie OneNet and in designated 10MW Self-Access Computer Laboratories);
- iLab - iLab is Macquarie University's personal computer laboratory on the Internet. It enables students to use the Microsoft Windows applications they require to do their university work from anywhere, anytime, on any device;
- Access to Access to Macquarie University Library catalogue (MultiSearch); and
- Access to Microsoft Office Suite (available in E3A Self-Access Computer Laboratories and via iLab) software downloads page for full instructions.

Bringing Your Own Device (BYOD)

Macquarie University is BYOD (Bring Your Own Device) friendly and it encourages students to bring their Windows or Mac devices to use on campus and during classes.

In some classes in this unit, you will need to have access to a mobile device, Office applications (Word, Excel and PowerPoint) and an Internet Browser of your choice. If you do not have your own device and computer access is required in a particular lesson, you may be able to borrow a laptop to use for the duration of the lesson.

As a Macquarie University student, you are entitled to free access to the Microsoft Office Suite, which you can download for use on your device. Please visit the University's software downloads page for full instructions.

If you do bring your own device, you will need to ensure that it is sufficiently charged as access to power points will not be available in the classrooms.

iLearn

iLearn is Macquarie's online learning management system and a principal teaching and learning resource which will be used throughout the term. Students must log in to iLearn at least 3 times per week to access important information including:

- Announcements and News Forums - Teaching staff will communicate to the class using iLearn announcements. Announcements may also be emailed to students' Macquarie

University email address, but students should also check the News Forum regularly;
- Attendance – current and potential attendance percentage for the Term;
- Unit Guide and staff contact details;
- Set unit readings available through MultiSearch (library);
- Lesson materials and recordings where available;
- Learning and teaching activities and resources, questions and solutions;
- Assessment instructions, questions, marking criteria and sample tasks;
- Assessment submission links such as Turnitin;
- Links to support materials and services available at the University; and
- Evaluation Surveys for the unit.

For any resource related iLearn questions contact your teacher. For any technical or support issues using iLearn, please contact the IT helpdesk (Ph. 02 9850 4357) or lodge a ticket using OneHelp.

Useful Study Resources

StudyWise is an iLearn resource created by the Learning Skills Unit. This resource is specifically designed to help you to manage your studies, strengthen your study techniques, write effective assignments and improve your English language proficiency. Once you enrol in StudyWise, you can access it from your iLearn course list under the category "Student Support."

InfoWise will help you improve your research skills by teaching you how to use MultiSearch, decode citations, identify key search terms and use advanced search techniques.

Lib Guides provide students with links to electronic sources and websites that are good starting points for research in different fields or disciplines.

MultiSearch will connect you to Macquarie University Library and allow you to search library resources, databases, unit readings and past exam papers.

Macquarie University Library has released a mobile device app called libMQ . The app allows students to easily access MyLibrary (be notified about loans, renewals, holds and fees owing), book a computer, Library floor maps, see new books lists and Search MultiSearch.

It can be downloaded from either Google Play or the App store.

Academic Language and Learning Workshops are designed to help you with Study Skills, Assignment Writing, Referencing and Academic Language.

Research resources provide information about:

- Researching for your assignments
- How to manage your references
- Referencing style guides
- Subject and research guides

Numeracy Support is provided by the Numeracy Centre. Students can attend these support

classes on a drop in basis as required.

Studiosity is a one-to-one personal study support service which may be made available via your iLearn unit. If available, you may use this service to get online study help and/or feedback on your assignment usually within 24 hours. If you are unsure whether this service is available in your unit or how to use this service, please check with your teacher. Please note that this is an external service and feedback provided is generic in nature (for example comments on grammar and cohesion) and may not be specific to the requirements of the task. If you require specific feedback on how your work aligns with the expectations of the unit or marking criteria, you should consult your teacher.

Unit Schedule

The four modules in WCOM125 are,

1. Classes and objects (CO)
2. Searching and sorting (SS)
3. Recursion and time complexity (RTC)
4. Data structures (DS)

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. Use of the Java JUnit testing framework is an important development practice which 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.

Week		Topic	Learning objectives	Learning outcomes addressed	Readings	Assessment dates
1		Introduction	Introduction the java programming language, compiler, and program structure.	1,2,3,4	Textbook Chapters 1, 2, 3	

	Problem solving with arrays and methods (functions)	Revise WCOM115/ COMP115 arrays and functions. Introduction to Eclipse IDE and Debugg er.	1,2,3,4,5	Readings on arrays and functions provided	
	Classes and objects - Java as an imperative programming language.	Processing environment and Pure Java. Static methods and variables. Class, method, block and loop scoping	1,2,3,4,5	lecture notes	
2	Classes and objects - OO programming in Java.	Classes and objects - analysis, design, Instance variables and methods, class instantiation, calling instance method and Constructors (default and parameterized)	1,2,3,4,5	Textbook Chapter 4	
	Classes and objects - class visibility, common OO pattern.	public and private visibility. Common programming pattern in Java (setter, getter, toString and compareTo method). The *this* keyword. Array of objects.	1,2,3,4,5	Textbook Chapter 4	
	Searching Algorithms and Time Complexity	Algorithm and time complexity. Linear and binary search.	1,2,3,4,5	Textbook Chapter 4	**Practical Exam 1**
3	Sorting Algorithms and Time complexity .	Algorithm and time complexity. Selection and Insertion sort.	1,2,3,4,5	Textbook Chapter 6 Section 2	**Assignment 1 Due on Monday 11.45 pm**
	Searching and Sorting in an array of objects.	Searching and Sorting an array of objects. Merge Sort (concept)	1,2,3,4,5	Textbook Pages 420-423	
	Recursion - 1	Introduction to Recursion.	1,2,3,4,5	Textbook Pages 420-423	
4	Recursion - 2	Recursion and time complexity analysis.	1,2,3,4,5	Textbook Chapter 11	
	Java Generic Container	Java list classes. ArrayList and its methods	1,2,3,4,5	Textbook Chapter 11	
	Iterator Pattern	Iterator pattern for Java collection. Case Study: java List and iterator application.	1,2,3,4,5	Textbook Chapter 14 Section 1	
5	Recursive Data Structure.	Linked node data. Operation on chain of nodes.	1,2,3,4,5	lecture notes	
	Linked List Data Structure.	Wrapping nodes into a Linked list class. Methods of the linked list class.	1,2,3,4,5	Textbook Chapter 15 Section 1	**Practical exam 2**

		Java List (Linked and Array List) class methods time complexity.	Java List class. Comparison of time complexity between Java ArrayList and LinkedList methods. Recursive operations on list.	1,2,3,4,5	lecture notes	
6		Review - 1		1,2,3,4,5		
		Review - 2				**Practical Exam 3 Attempt 1**
		Review - 3				**Practical Exam 3 Attempt 2**
7	Public Holiday make-up. Final Exam.					**Assignment 2 due Monday 11.45 pm** **Final Exam**
Vacation						

Learning and Teaching Activities

Lessons

Lessons will include a mixture of learning and teaching activities. New content and topics will be presented in lessons, and students will be given problems, practice questions and other interactive activities to apply the knowledge and the skills gained in the lesson. Students will be required to take notes, complete set class tasks and engage in discussion and individual and group activities. In class, specific time may be dedicated to work on assessment tasks and students will be given guidance and feedback to complete these. Certain lessons may be dedicated to independent research and reading related to the unit whether in the classroom or a computer lab.

Active Participation

Students will be required to not only attend but also actively participate in lessons. Active participation entails: - active engagement in class activities - contribution to class discussions by asking and answering questions - coming to class prepared and having completed required pre-readings and activities - completion of set class and homework activities - collaboration with other students - adhering to Macquarie University Student Codes of Conduct

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-centr

al). 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 *(**Note:** The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)*

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

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/study/getting-started/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

Academic Integrity

Using the work or ideas of another person, whether intentionally or not, and presenting them as your own without clear acknowledgement of the source is called Plagiarism.

Macquarie University promotes awareness of information ethics through its Academic Integrity Policy. This means that:

- all academic work claimed as original must be the work of the person making the claim;
- all academic collaborations of any kind must be acknowledged;
- academic work must not be falsified in any way; and
- when the ideas of others are used, these ideas must be acknowledged appropriately.

All breaches of the Academic Integrity Policy are serious and penalties apply. Students should

be aware that they may fail an assessment task, a unit or even be excluded from the University for breaching the Academic Integrity Policy.

Assessment Policy

Students should familiarise themselves with their responsibilities under the Assessment Policy, and notably Schedule 4 (Final Examination Requirements).

Final Examination Script Viewings

A student may request to view their final examination script once results have been released but scripts remain the property of Macquarie University.

Students should view their final examination paper prior to submitting a grade appeal, if this is relevant to their case. The viewing will be conducted in a secure location under supervision.

To request a final examination script viewing, please email muic@mq.edu.au and write 'script viewing' in the subject heading.

Scripts may be reviewed for up to 6 months following the results release date for the relevant Term.

Grade Appeals

A student who has been awarded a final grade for a unit has the right to appeal that grade as outlined in the Grade Appeal Policy. Grade appeals apply to the final mark and the grade a student receives for a unit of study. They do not apply to results received for individual assessment tasks.

Grade appeals must be submitted via ask.mq.edu.au within 20 working days from the published result date for the relevant unit. Before submitting a Grade Appeal, please ensure that you read the Grade Appeal Policy and note valid grounds for appeals.

Students are expected to seek feedback on individual assessment tasks prior to the award of a final grade. Students also have the right to request generic feedback from the teaching staff on their overall performance in the unit, including in a final examination. This can be done at any time in the six month period starting from the day on which the final grade of the relevant unit is published.

Course Progression

The College closely monitors students' academic progress as per the Progression Policy for Programs delivered by Macquarie University International College.

To maintain Satisfactory Academic Progress, a student must successfully complete (pass) 50% or more of their enrolled units in a Term of study. To successfully complete a unit, students must obtain a passing grade and meet any other requirements to pass listed in the unit guide.

Students who fail to make Satisfactory Academic Progress will be classified as "at risk" and will be notified in writing. At-risk students may be required to undergo academic counselling, undertake certain initiatives or have conditions placed upon their enrolment to help them make satisfactory progress.

Students must also pass 50% or more of the units in two or more terms in order to meet Minimum Rate of Progress (MRP) requirements. A student is deemed not to be making Minimum Rate of Progress if they fail more than 50% of their enrolled units in two consecutive Terms of study, or if they have failed more than 50% of their units after studying two or more terms.

Any domestic student who has been identified as not meeting Minimum Rate of Progress requirements will be issued with a Notice of Intention to Exclude letter and may subsequently be excluded from the program.

Any international student who has been identified as not meeting MRP will be subject to exclusion from the program and be issued with a Notice of Intention to Report letter and may subsequently be reported to the Department of Home Affairs for not meeting visa requirements. International students must comply with the Progression Policy of the College in order to meet the conditions of their visa.

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 improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

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.

Graduate Capabilities

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcomes

- Apply enhanced problem solving skills to develop algorithms
- Adhere to standard software engineering practices (in particular documentation using Javadoc, testing using JUnit framework and debugging using Eclipse debugger)
- Use discipline specific terminology to communicate concepts and ideas relevant to this unit

Assessment tasks

- Assignments
- Practical Exams

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcomes

- Implement programs (from algorithms), showing an understanding of the underlying architecture of the computer
- Compare different methods available to solve the same problem in terms of efficiency and other criteria.

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary

solutions to problems.

This graduate capability is supported by:

Learning outcomes

- 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 (in particular documentation using Javadoc, testing using JUnit framework and debugging using Eclipse debugger)
- Compare different methods available to solve the same problem in terms of efficiency and other criteria.
- Use discipline specific terminology to communicate concepts and ideas relevant to this unit

Assessment tasks

- Assignments
- Practical Exams
- Final Exam

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- 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 (in particular documentation using Javadoc, testing using JUnit framework and debugging using Eclipse debugger)
- Compare different methods available to solve the same problem in terms of efficiency and other criteria.

Assessment tasks

- Assignments
- Practical Exams

- Final Exam

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

- 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 (in particular documentation using Javadoc, testing using JUnit framework and debugging using Eclipse debugger)
- Compare different methods available to solve the same problem in terms of efficiency and other criteria.
- Use discipline specific terminology to communicate concepts and ideas relevant to this unit

Assessment tasks

- Assignments
- Practical Exams
- Final Exam

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcome

- Use discipline specific terminology to communicate concepts and ideas relevant to this unit

Assessment task

- Final Exam

Course Contact Hours

Weekly face to face contact for this unit will be 12 hours 72 hours per term).

There will be 6 lessons per week consisting of 3 X 2 hour lessons in a classroom and 3 X 2 hour lessons in the MUIC PC Laboratory.

Unit Specific Texts and Materials

The following text has been prescribed for this unit.

- **T. Gaddis, Starting out with Java: From control structures through objects (Pearson), Global edition (6th). ISBN 9781292110653**

Texts will be available for purchase from the Co-Op Bookshop located in the Campus Hub Building C10A, Level One, Phone: 8986 4000.

All students should ensure that they have access to the prescribed text(s) from the start of the Term as failure to do so could jeopardise their academic progress in this unit.

Other editions or formats of the above resource(s) may be acceptable, but you must students must consult teaching staff prior to purchasing these.

The following books are helpful references:

- W. Savitch, Absolute Java (Pearson) 5th edition. ISBN 9780132830317
- B. Eckel, Thinking in Java (electronic book, 3rd edition available within iLearn is fine and is free but does not cover data structures)
- A. Drozdek, Data Structures and Algorithms in Java (Cengage) 2nd edition. ISBN 9780534492526 (this book will also be used in COMP225)
- D. Carlson, Eclipse Distilled (Addison-Wesley) 1st edition. ISBN 9780321288158 (extensive coverage of the software development platform eclipse)