Unit Outline

Data Structures and Algorithms (CITS2200)

6 points / Semester 1
Location: UWA (Crawley)

Handbook Description

At the core of most computer applications is the storage and retrieval of information. The way that the stored data is structured has a strong impact on what can be retrieved, how quickly it can be retrieved and how much space it occupies. The use of generic structures, or abstract data types (ADTs), to encapsulate the data also facilitates software engineering principles of independent modification, extension and re-use. This unit studies the specification, implementation and time and space performance of a range of commonly used ADTs and corresponding algorithms in an object-oriented setting.

Prerequisites: CITS1200 Java Programming or CITS1220 Software Engineering

Corequisites:

Unit Aims

Students have an understanding of the fundamentals of data structure selection, analysis, design, implementation and application, and in-depth technical knowledge of key abstract data types; have the ability to undertake problem identification, formulation and solution using ADT components for storing and retrieving data; and possess the ability to both implement their own ADTs where necessary, and select and use appropriate ADTs for object-oriented libraries where suitable.

Teaching Staff

Unit Co-ordinator: Dr Tim French

Textbook


Contact Hours
61 (lectures: 26 hrs; tutorials: 11 hrs; labs: 24 hrs)

**Assessment**

This comprises tests during semester, laboratory exercises, a programming project and a final examination. Assessed laboratory work tests students’ ability to identify problems and formulate solutions by building, testing and applying the fundamental data structures covered in the unit. The examination additionally tests technical competence in the selection, analysis and comparison of abstract data types. Supplementary assessment is not available in this unit except in the case of a bachelor's pass degree student who has obtained a mark of 45 to 49 and is currently enrolled in this unit, and it is the only remaining unit that the student must pass in order to complete the course.

The assessment is made up of the following components:

- Mid-semester Test 10%
- Laboratory Submissions 10%
- Project 20%
- Exam 60%

**Unsatisfactory Progress**

Any student who does not demonstrate satisfactory progress in this unit, as defined in the FECM Policy on Assessment Practices and Procedures, may be refused admission to the final examinations. The final deadline for notification of unsatisfactory progress is the last day of Week 10.

**Penalties**

The School of Computer Science and Software Engineering has adopted a policy on minimum penalties for late items of assessment. This is the default policy of all units unless indicated otherwise, in writing, by the specific unit coordinator.

This policy shall apply to all items of continuous assessment, whether submitted either physically or electronically. Immediately after the submission deadline for an item of continuous assessment, a penalty of 20 percent will be applied PER DAY or PART THEREOF. The minimum mark possible for late submission is zero. The percentage is based on the item’s total contribution to the unit’s assessment. For example, a project contributing 40% to the unit’s assessment will incur a penalty of 8 marks for each day late until it is submitted or a mark of zero results.

A more detailed description is given in this School’s Policy on Late Submission. The Faculty does have an appeals procedure, the details of which can found at the Policy for
**Appeals.**

**Plagiarism**

Plagiarism is broadly defined to be when any portion of the work presented for assessment, can be attributed to another party. The student making the submission should acknowledge what aspects of the presented work is not directly derived by them. For the purposes of plagiarism it is irrelevant that you have been given permission by someone to copy their work and present it as your own.

You are directed to the School of Computer Science and Software Engineering Policy on Plagiarism and the Faculty of Engineering, Computing and Mathematics Policy on Plagiarism.

**Academic Conduct Essentials (ACE)**

All students who have not previously been enrolled at UWA are required to complete a short compulsory online module called Academic Conduct Essentials (ACE) within the first 10 weeks of semester. ACE introduces students to essential knowledge regarding ethical scholarship, helps prepare them for the expectations of their university career and informs them of correct academic conduct.

The unit can be accessed via WebCT. The final unit quiz must be completed with a mark of 80% or greater. Students may attempt the quiz as many times as they wish to gain the required pass mark. Completion of the unit will be recorded as an Ungraded Pass (UP) on students’ academic records. Non-completion (NC) within the required timeframe will also be documented on formal academic records. More information on ACE is available at ace.uwa.edu.au

**Special Consideration**

Applications for consideration, deferral of tests or exams or extensions of time for assignments on medical, personal or other grounds must be lodged with the faculty office no later than three working days after the due date for the assessment in question. This rule will apply to all students, except in exceptional circumstances.

**Faculty Marks Adjustment Policy**

Final assessment is subject to the Faculty Scaling Policy.

**Supplementary Examinations**

Supplementary examinations will be awarded in accordance with Faculty Policy on supplementary assessment.

**Student Rights**
The University's charter of student rights is available at http://www.secretariat.uwa.edu.au/home/policies/charter

**Academic misconduct**

The University of Western Australia strongly supports teaching and learning that promotes academic literacy and ethical scholarship for **all** students. As part of this commitment, UWA has recently developed new guidelines relating to Academic Misconduct (including plagiarism). It is also developing a range of resources for students and staff to further strengthen academic literacy and ethical scholarship at UWA. Further details are available on the Teaching and Learning website.