
SCSSE

**School of Computer Science and Software Engineering
Faculty of Informatics**

**MCS9124 Applied Programming
Subject Outline
Spring Session 2009**

Head of School –Professor Willy Susilo, Student Resource Centre, Tel: (02) 4221 3606

GENERAL INFORMATION

Subject Coordinator

Telephone Number:

Email:

Location:

Mr Peter Castle

02 4221 3837

risqué@uow.edu.au

3.102

Mr Castle's consultation times during session:

Day

Tuesday

Friday

Time

08:30 - 10:30

08:30 - 10:30

Subject Organisation

Session:

Credit Points

Contact hours per week:

Lecture Times & Location:

Spring Session, Wollongong Campus

6 credit points

3 hours lectures, 1hr lecture/tutorial; 2 hours laboratory

Lecture A Tues 12:30 –14:30, 20-LT4

Lecture B Thurs 10:30-11:30, 20-LT1

Lecture C Thurs 11:30-12:30, 20.LT1

Tutorial Day, Time and Location can be found at:

<http://www.uow.edu.au/student/timetables/index.html>

Students should check the subject's web site regularly as important information, including details of unavoidable changes in assessment requirements will be posted from time to time via e-Learning space <http://www.uow.edu.au/student/>. Any information posted to the web site is deemed to have been notified to all students.

Subject Description

This subject develops a thorough understanding of program design using data structures. It extends CSCI114 and presents pointers, dynamic memory management and exception handling. Other topics include implementation of Sorting and Searching Algorithms including the use of typedefs, void pointers and indexes to generalise algorithms; Implementation of data structures: queues, stacks, linked lists, dequeues, trees; Use of arrays as an implementation structure - hashing, radix sort, heaps and Heapsort; Random Access files and internal I/O; Testing of programs: black and white box testing, and the use of debuggers; Use of multi-file organisation in encapsulation and data hiding, with make files; These concepts will be treated through formal lectures, tutorials, assignments and laboratory sessions employing an object oriented language.

Subject Description

On successful completion of this subject, students should be able to:

1. Use memory management and exception handling in software implementation
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This subject outline can be found at: <http://www.uow.edu.au/informatics/scsse/current>

2. Use dynamic memory allocation to create and maintain dynamic data structures
3. Identify and describe` structured data types, their implementation in C++, and use in problem solving
4. Design, implement, test and debug simple programs.
5. Write programs that display a working knowledge of good programming style.

Graduate Qualities

This subject will continue to the following graduate qualities:

Informed
Problem Solvers

Further information can be found at:

<http://www.uow.edu.au/informatics/scsse/current/SubjectInformation/UOW049401.html>

Attendance Requirements:

It is the responsibility of students to attend all lectures/tutorials/labs/seminars/practical work for subjects for which you are enrolled. It should be noted that the amount of time spent on each 6 credit point subject should be at least 12 hours per week, which includes lectures/tutorials/labs etc.

Satisfactory attendance is deemed by the University, to be attendance at approximately 80% of the allocated contact hours.

Method of Presentation:

In order to maximize learning outcomes, it is strongly recommended that students attend all lectures.

Lecture Schedule:

A proposed Lecture schedule for the subject is as follows:

Week	Topic	Due dates for Assignments
1	C++ Revision via Programming Case Study	
2	Sorting and Searching	
3	Sorting and Searching	
4	Multi File C++ Projects & Make Testing Techniques and Debuggers	Assignment 1
5	Pointers and Dynamic Memory Allocation	
6	Pointers and Dynamic Memory Allocation	Assignment 2
7	Advanced C++ Input/ Output (Random and Internal)	
8	Object Based Programming and Classes	Assignment 3
9	Classes by Example Advanced C++ Concepts	
10	Linked Lists	Assignment 4
11	Stacks, Queues, Dequeues and Hashing	
12	Binary Trees, Heaps and Heap Sort	Assignment 5
13	Revision and Looking Forward	

Changes to the above schedule will be posted via e-Learning space <http://www.uow.edu.au/student/>. Any information posted to the web site is deemed to have been notified to all students.

Subject Materials:

Any readings/references are recommended only and are not intended to be an exhaustive list. Students are encouraged to use the library catalogue and databases to locate additional readings

Notes on the lecture material will be available on the subject website. The presentations used in the lectures will not be published – lecture attendance is required. Examples covered in lectures may be placed on the website.

Textbook(s):

Not required to purchase.

Other Resources:

The following are suggested reading. Most are in the library. You can decide if you need to purchase.

1. Savitch, Walter, Absolute C++, Addison-Wesley, 2002
2. Malik, D.S., C++ Programming: From Problem Solving to Program Design, Thomson Learning, 2002
3. Main, Michael & Savitch, Walter, Data Structures and Other Objects using C++, 2nd Edition, Addison-Wesley, 2001
4. Hubbard, John R., Data Structures with C++, Schaum's Outlines, McGraw-Hill, 2000
5. Sedgewick, Robert, Algorithms in C++, Addison-Wesley Pub. Co., c1992
6. Bjarne Stroustrup, The C++ Programming Language, 3rd edition, 2000, Addison-Wesley
7. Adams, Joel, Leestma, Sanford & Nyhoff, Larry, C++: An Introduction to Computing
8. Forouzan, Behrouz A. & Gilberg, Richard F., Computer Science: A Structured Programming Approach Using C++, 2000, Brooks/Cole
9. Friedman, Frank L. & Koffman, Elliot B. Problem Solving, Abstraction and Design Using C++, 3rd edition, 2000, Addison-Wesley

Assessment:

This subject has the following assessment components.

ASSESSMENT ITEMS & FORMAT	% OF FINAL MARK	GROUP/INDIVIDUAL	DUE DATE
10 x Laboratory Work each worth 1 mark	10%	Individual	Each week from Week 2 – Week 13 (10 of these weeks) during Lab time. <i>Refer to note h below.</i>
5 x Assignments each worth 6 marks	30%	Individual	See Lecture Schedule
Examination	60%	Individual	Formal Examination Period

Notes on Assessment:

All assignments are expected to be completed independently. Plagiarism may result in a FAIL grade being recorded for that assignment.

- a. There will be 5 programming assignments, which will be assessed. Assignment must compile on the platform used in the lab.
- b. Unless otherwise notified by the subject coordinator, all written assignments must be submitted electronically.
- c. Unless otherwise indicated, assignments are due by Thursday 11:59pm of the week due.
- d. Assignments are to be submitted electronically via Unix/Linux system before the scheduled time. Submission via email/fax/printed form is not acceptable. Receipts for submitted work are e-mailed to the student and should be kept by the student as evidence of submission. The receipt will contain compilation messages. It is the student's responsibility to ensure that any errors reported are corrected.
- e. It is student's responsibility to keep a backup of his/her work. There will be no extension granted due to any circumstance related to the failure of students' own equipment.
- f. Students who copy an assignment may receive **zero** for that assignment. This also covers assignments which may be the product of community effort by several students. Working together is acceptable, but the final coding should be the work of the individual student, as assessment is a measure of your ability. **All students involved in plagiarism will have zero marks for that assessment task.**
- g. Programs submitted which do not produce the required result cannot be awarded more than half marks. Programs which do not compile due to syntax errors will receive no marks, but may still be commented upon. Proper documentation and program style are needed in the assignments to receive full marks.

- h. Students must complete lab tasks by the end of their selected lab, and submit (via submit) before that time, whether or not they are completed. The work required will be available before the lab so that the student may prepare (or even complete) the work required. Marks will **ONLY** be awarded if the student attends the lab. The mark for an individual lab task will be based on a Satisfactory (1) or Unsatisfactory (0) attempt. The aim must be for all lab tasks to work on the platform used in the lab.

Electronic Submission of Assessment Items:

Unless otherwise notified by the subject coordinator, all written assignments must be submitted electronically.

All assignments will be returned within 2 weeks of their submission.

To be eligible for a Pass in this subject a student must achieve a mark of at least 16 marks (40%) in the Assignments/Lab Work. Students who fail to achieve this minimum mark & would have otherwise passed will be given a TF (Technical Fail) for this subject.

Procedures for the return of assessment items:

Assessment items will be returned via email.

Marks will be available from SOLS. Students should check the website regularly for changes and updates to subject information.

Penalties for late submission of assessment items:

Penalties apply to all late work, except if student academic consideration has been granted. Late submissions will attract a penalty of 1 mark per day.

The ability to submit will close three days after the due time and date.

Tutorial/Lab Closure Policy

If for any reason, the number of students in a tutorial or lab falls below a sustainable enrolment level, as determined by the Head of School, tutorials/labs offered for that subject may be collapsed or deleted.

You will have to attend the new tutorials/lab if this closure affects the one you are attending.

We will endeavour to make this decision no later than Week 4 of session.

Supplementary Exams

Supplementary Exams will be dealt with in accordance with student academic consideration policy (<http://www.uow.edu.au/about/policy/studentacademicconsiderationpolicy.pdf>) 9.2 Timing of Supplementary Exams.

While the School normally grants supplementary exams when the student does not sit the standard exam for an acceptable reason, each case will be assessed on its own merit and there is no guarantee a supplementary exam will be granted. If a supplementary exam is granted, you will normally be notified via SOLS Mail the time and date of this supplementary exam. You must follow the instructions given in the email message.

Please note that if this is your last session and you are granted a supplementary exam, be aware that your results will not be processed in time to meet the graduation deadline.

Student Academic Consideration Policy

The School recognises that it has a responsibility to ensure equity and consistency across its subjects for all students. Sometimes, in exceptional circumstances, students need to apply for student academic consideration in order to complete all assessable work.

The University applies strict criteria to the granting of student academic consideration. Before applying for student academic consideration, students should carefully read the University's policy which can be found at: <http://www.uow.edu.au/about/policy/studentacademicconsiderationpolicy.pdf>.

Plagiarism

When you submit an assessment task, you are declaring the following

1. It is your own work and you did not collaborate with or copy from others.
2. You have read and understand your responsibilities under the University of Wollongong's policy on plagiarism.
3. You have not plagiarised from published work (including the internet). Where you have used the work from others, you have referenced it in the text and provided a reference list at the end of the assignment.

Students must remember that:

Plagiarism will not be tolerated.

Students are responsible for submitting original work for assessment, without plagiarising or cheating, abiding by the University's policies on Plagiarism as set out in the University Handbook under University Policy Directory and in Faculty handbooks and subject guides. Plagiarism has led to the expulsion from the University.

Student Academic Grievance Policy

The School aims to provide a fair, equitable and productive learning environment for all its students. The Student Academic Grievance Policy seeks to support the achievement of this goal by providing a transparent and consistent process for resolving student academic grievances.

Any student who has a grievance over a result should obtain a Faculty of Informatics Appeal Against Decision or Action Affecting Academic Experience form from the Informatics Student Enquiry Centre. (<http://www.uow.edu.au/content/groups/public/@web/@inf/@faculty/documents/doc/uow017433.pdf>) The student should firstly take the form to the marker/lecturer to discuss the matter and, if the student is still not satisfied, s/he should take the next step as outlined on the form.

Once the grievance has been considered by the Faculty, if the student still feels the situation has not been fully resolved s/he may consult the Dean of Students. However, the Dean of Students can have no input into the academic judgment of the lecturer and can only review the grievance to ensure proper procedure has been followed.

Relevant University Policies, procedures and students services:

For more information students must refer to the Faculty handbook, online references or consult the UOW policy in full at <http://www.uow.edu.au/handbook/courserules/studacgrievpol.html> which contains a range of policies on educational issues and student matters.

This subject outline can be found at: <http://www.uow.edu.au/informatics/scsse/current>

This outline should be read in conjunction with the following documents:

Code of Practice - Teaching and Assessment http://www.uow.edu.au/handbook/codesofprac/teaching_code.pdf	Code of Practice - Students http://www.uow.edu.au/handbook/codesofprac/cop_students.html
Code of Practice-Honours http://www.uow.edu.au/handbook/CodeofPractice-Honours.pdf	Acknowledgement Practice Plagiarism will not be tolerated: http://www.uow.edu.au/handbook/courserules/plagiarism.html
Key Dates http://www.uow.edu.au/student/dates.html	Student Academic Consideration Policy: http://www.uow.edu.au/about/policy/studentacademicconsiderationpolicy.pdf
Course Progress Requirements: http://www.uow.edu.au/student/mrp/index.html	Graduate Qualities Policy: http://www.uow.edu.au/about/teaching/qualities/index.html#_The new UOW
Academic Grievance Policy (Coursework and honours students) http://www.uow.edu.au/handbook/courserules/studacgrievpol.html	Non-Discriminatory Language Practice and Presentation http://staff.uow.edu.au/eed/nondiscrimlanguage.html
Occupational Health and Safety http://staff.uow.edu.au/ohs/commitment/ohspolicy/index.html	Ownership of Work & Intellectual Property Policy: http://www.uow.edu.au/handbook/generalcourserules/UOW028651.html
Human Research Ethics Committee: http://www.uow.edu.au/research/rso/ethics/human/	Rules for student conduct: http://www.uow.edu.au/handbook/generalrules/StudentConductRules.pdf
Independent Learners' Introductory Program http://www.uow.edu.au/student/attributes/ilip/	Informatics Faculty Librarian, Ms Annette Meldrum, phone: 4221 4637, email: ameldrum@uow.edu.au
Student Support Services: http://www.uow.edu.au/student/services/ Informatics Faculty SEDLO (Student Equity and Diversity Liaison Officers) Virginie Schmelitschek, phone 4221 3833, virginie@uow.edu.au	SCSSE Internet Access & Student Resource Centre http://www.uow.edu.au/informatics/common/uow024466.html
SCSSE Computer Usage Rules http://www.uow.edu.au/informatics/common/uow024457.html	SCSSE Subject Outlines http://www.uow.edu.au/informatics/scsse/current