

Algorithms and Data Structures - Course Outline

COMP 261: 2013 Trimester 2

This document sets out the workload and assessment requirements for COMP 261. It also provides contact information for staff involved in the course. If the contents of this document are altered during the course, you will be advised of the change by an announcement in lectures and/or on the course web site. A printed copy of this document is held in the School Office.

Introduction

The goal of COMP 261 is to introduce you to a wide range of algorithms and data structures.

Objectives

By the end of the course, students should be able to:

1. select, adapt, and implement a wide range of standard algorithms and data structures to construct software solutions to complex problems (BE [3\(a\)](#), [3\(d\)](#), [3\(f\)](#), BSc [1](#), [2](#));
2. understand algorithms described in pseudocode and to use analysis of an algorithm's time and space requirements to determine applicability to a problem (BE [3\(a\)](#), [3\(b\)](#), BSc [3](#));
3. recognise the distinction between "easy" problems, 'hard' (NP) problems, and uncomputable problems and the consequences for constructing algorithms and programs for such problems (BE [3\(b\)](#), BSc [3,4](#));
4. know and be able to implement important algorithms related to graphs, searching, parsing, basic graphics rendering, and B-Trees (BE [3\(a\)](#), BSc [2](#)).

Your understanding will be assessed by assignments, an in-lecture term test, and a final examination. Tutorial exercises and readings (not directly assessed) will reinforce lecture material.

Textbook

A recommended textbook for COMP 261 is: *"Algorithms and Data Structures", Compiled By: Alex Potanin, Addison-Wesley, 2011, RRP: \$119.99.*

Lectures, Tutorials, Laboratories, and Practical work

COMP 261 is a trimester 2 course. The trimester starts on 15 Jul. The examination period at the end of the course is 25 October - 16 November,

A [schedule](#) of lecture topics, readings, and assignment due dates is available online

Major topics will include graph algorithms, searching, B-Trees, basic graphics rendering, and parsing.

Lectures for COMP 261 are:

- Tuesdays, 4-5pm in MC 102 (overflow 5-6pm, same room)
- Wednesdays and Fridays 4-5pm in HU 323

Tutorials, which all students are expected to attend one of, will be held on:

- Monday 3-4, 4-5, or 5-6, in FT77 306

Tutorials start on Monday, 22th of July, (second week of lectures).

You should sign up for a tutorial slot at <https://signups.victoria.ac.nz/>.

A help desk will be run in on one of the labs, time and place TBA

A [Timetable](#) page is also available for your convenience.

Staff

The course organiser and lecturer for COMP 261 is

- [Peter Andreae](#).
- [Cotton 222](#)
- +64 4 463 5834

- Peter.Andreae@ecs.vuw.ac.nz

The tutors are [David Wang](#),

The Head of Engineering and Computer Science is [Dale Carnegie](#).

The School office is located on level three of the Cotton Building ([Cotton 358](#)).

Announcements and Communication

The main means of communication outside of lectures will be the COMP 261 web area at http://ecs.victoria.ac.nz/Courses/COMP261_2013T2/. There you will find, among other things, this document, the [lecture schedule](#) and [assignment handouts](#), and the [COMP 261 Forum](#). The forum is a web-based bulletin board system. Questions, answers, and comments can be posted to the forum; staff will read these posts and where appropriate respond to them.

Assignments and Projects

There will be 6 [assignments](#) for the course, all of which will include constructing programs that use particular algorithms. Each assignment will be approximately 2 weeks. The assignments will have to be submitted electronically using the [ECS Submission System](#). For each assignment, you must submit an executable jar file, all your source code, and (if required) a report. All of the assignments will address objectives 1 and 2 above. Some assignments will address objectives 3 and 4 above.

Assignments 1 - 5 due on a Monday at 12 noon,. Assignment 6 has a different deadline:

<u>Item</u>	<u>Due Date</u>
Assignment 1	29 Jul
Assignment 2	12 Aug
Assignment 3	9 Sep
Assignment 4	26 Sep
Assignment 5	18 Oct
Assignment 6	14 Nov

The assignments will be marked in person: you will need to sign up for a 10 minute session with one of the markers for you to demonstrate your program and to talk about key details of your program with the marker. Details about signing up for marking will be announced later.

The policy on late submission is as follows:

- Each assignment will be marked out of 100.
- Each assignment that is late (ie, submitted on the submission system after the deadline) will be penalised by 20 marks if it is up to 24 hours late, and penalised by 40 marks if it is between 24 hours and 48 hours late. Any work submitted more than 48 hours after the deadline **will receive 0 marks**.
- Each student will have 3 "late days" which you may choose to use for any assignment or assignments during the course. There will be no penalty applied for these late days. You do not need to apply for these - any late days you have left will be automatically applied to assignments that you submit late.
- The late days are intended to cover minor illnesses or other personal reasons for being late. You should only ask for extensions in the case of more significant or longer lasting problems (and you may need documentation). Do not waste "late days" on procrastination!

Workload

In order to maintain satisfactory progress in COMP 261, you should plan to spend an average of at least 10 hours per week on this paper. A plausible and approximate breakdown for these hours would be:

- Lectures and tutorials: 4 hours,
- Review and readings: 1 hour,
- Assignments: 5 hours.

Note: A 15 point course maps to 150 hours spread over the 12 weeks of lectures, the mid-trimester break, study week, and the exams period. We assume that you will be able to spend at least 10 hours on the course during the mid-trimester break.

As 200-level students, you are expected to acquire the ability to apply your knowledge and skills to the analysis and design of basic problems; you will develop the skills to explain your analysis and design to your peers and to staff. Please refer to [ECS Expectations of Students](#) for more information.

Assessment

Tests and Exams

There is one terms test, held during the lecture slots on Tue 10 Sep (half the students will have the test 4-5pm; the other half, 5-6pm).

The timetable for final examinations will be available from the University web site and will be posted on a notice board outside the faculty office. The final examination will be three hours long. Paper non-English to English dictionaries will be permitted but programmable calculators will not be permitted. The examination period for trimester 2 is 25 October - 16 November.

Grade Computation

Your grade for COMP 261 will be determined based on the following assessment weightings:

<u>Item</u>	<u>Weight</u>
Assignment 1	6%
Assignment 2	6%
Assignment 3	6%
Assignment 4	6%
Assignment 5	6%
Assignment 6	5%
Terms Test	15%
Final Examination	50%

Typically, each assignment will cover material presented in the preceding few weeks of the course. Each assessment item will address all or most of the course objectives.

Mandatory Requirements

1. Achieve at least 40% average for the assignments.
2. Achieve at least 40% in the exam.

Passing COMP 261

To pass COMP 261, a student must satisfy the mandatory requirements and gain at least a **C** grade overall.

Withdrawal

The last date for withdrawal from COMP 261 with entitlement to a refund of tuition fees is Friday 26 July 2013. The last date for withdrawal without being regarded as having failed the course is Friday 27 September 2013 -- though later withdrawals may be approved by the Dean in special circumstances.

Rules & Policies

Plagiarism

Working Together and Plagiarism

We encourage you to discuss the principles of the course and assignments with other students, to help and seek help with programming details, problems involving the lab machines. However, any work you hand in must be your own work.

The School policy on Plagiarism (claiming other people's work as your own) is available from the course home page. Please read it. We will penalise anyone we find plagiarising, whether from students currently doing the course, or from other sources. Students who knowingly allow other students to copy their work may also be penalised. If you have had help from someone else (other than a tutor), it is always safe to state the help that you got. For example, if you had help from someone else in writing a component of your code, it is not plagiarism as long as you state (eg, as a comment in the code) who helped you in writing the method.

Find key dates, explanations of grades and other useful information at <http://www.victoria.ac.nz/home/study>.

Find out about academic progress and restricted enrolment at <http://www.victoria.ac.nz/home/study/academic-progress>.

The University's statutes and policies are available at <http://www.victoria.ac.nz/home/about/policy>, except qualification statutes, which are available via the Calendar webpage at <http://www.victoria.ac.nz/home/study/calendar> (See Section C).

Further information about the University's academic processes can be found on the website of the Assistant Vice-Chancellor (Academic) at <http://www.victoria.ac.nz/home/about/avcacademic>

All students are expected to be familiar with the following regulations and policies, which are available from the school web site:

[Grievances](#)

[Student and Staff Conduct](#)

[Meeting the Needs of Students with Disabilities](#)

[Student Support](#)

[Academic Integrity and Plagiarism](#)

[Dates and Deadlines including Withdrawal dates](#)

[School Laboratory Hours and Rules](#)

[Printing Allocations](#)

[Expectations of Students in ECS courses](#)

The School of Engineering and Computer Science strives to anticipate all problems associated with its courses, laboratories and equipment. We hope you will find that your courses meet your expectations of a quality learning experience.

If you think we have overlooked something or would like to make a suggestion feel free to talk to your course organiser or lecturer.

[Course Outline as PDF](#)
