

COMP361 (2017) - Design and Analysis of Algorithms

Prescription

This course examines techniques for developing correct and efficient algorithms for some important classes of problems in Computer Science. It explores methods for designing algorithms, including greedy algorithms, divide and conquer, dynamic programming and graph algorithms. It covers techniques for demonstrating the correctness of algorithms and for analysing their efficiency.

Course learning objectives

Students who pass this course will be able to:

1. Describe some important categories of algorithms
2. Design an appropriate algorithm for a given problem
3. Demonstrate that an algorithm provides a correct solution to a given problem
4. Calculate and compare the efficiencies of different algorithms
5. Explain the concepts of computational complexity and computability, and how they apply in practice

Course content

The goal of COMP 361 is to learn how to design correct and efficient algorithms to solve problems. There are two parts to this: finding a correct solution (*design*), and determining how efficient it is (*analysis*). To achieve these goals, the course explores various general methods for designing algorithms, for demonstrating their correctness, and for analysing their efficiency. To illustrate the mechanisms and issues involved with each of the methods, we examine a number of well-known algorithms found in computer science and classify them according to the algorithm design technique used to develop them.

Withdrawal from Course

Withdrawal dates and process:

<http://www.victoria.ac.nz/students/study/course-additions-withdrawals>

Lecturers



Alex Potanin (Coordinator)

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262 Cotton, Kelburn

Teaching Format

During the trimester there will be two lectures and a tutorial every week. The tutorials are on Thursday 12pm in AM104 and on Friday 11am in CO118 - you are welcome to attend either one of them but we may need to track the sign up in myAllocator due to VUW requirements for tutor evaluations.

Dates (trimester, teaching & break dates)

- Teaching: 17 July 2017 - 20 October 2017
- Break: 28 August 2017 - 08 September 2017
- Study period: 24 October 2017 - 26 October 2017
- Exam period: 27 October 2017 - 18 November 2017

Class Times and Room Numbers

17 July 2017 - 27 August 2017

- **Monday** 13:10 - 14:00 – 306, 77 Fairlie Tce, Kelburn
- **Friday** 13:10 - 14:00 – 306, 77 Fairlie Tce, Kelburn

11 September 2017 - 22 October 2017

- **Monday** 13:10 - 14:00 – 306, 77 Fairlie Tce, Kelburn
- **Friday** 13:10 - 14:00 – 306, 77 Fairlie Tce, Kelburn

Set Texts and Recommended Readings

Required

There are no required texts for this offering.

Mandatory Course Requirements

In addition to achieving an overall pass mark of at least 50%, students must:

- **Mandatory Requirements**
 - Achieve at least 40% in exam.

Passing COMP 361

To pass COMP 361, a student must satisfy mandatory requirements and gain at least a **C-** grade overall.

If you believe that exceptional circumstances may prevent you from meeting the mandatory course requirements, contact the Course Coordinator for advice as soon as possible.

Assessment

There will be 4 assignments worth 10% each and exam worth 60%.

Assignments (4) worth 10% each	CLO: 1,2,3,4,5	40%
Final examination (2 hours)	CLO: 1,2,3,4,5	60%

Submission & Return

See our web site at ECS: http://ecs.victoria.ac.nz/Courses/COMP361_2017T2/. We do not use blackboard.

Workload

In order to maintain satisfactory progress in COMP 361, 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: 3 hours,
- Readings: 2 hours,
- Assignments: 5 hours.

Teaching Plan

Links to General Course Information

- Academic Integrity and Plagiarism: <http://www.victoria.ac.nz/students/study/exams/integrity-plagiarism>
- Academic Progress: <http://www.victoria.ac.nz/students/study/progress/academic-progress> (including restrictions and non-engagement)
- Dates and deadlines: <http://www.victoria.ac.nz/students/study/dates>
- Grades: <http://www.victoria.ac.nz/students/study/progress/grades>
- Special passes: Refer to the Assessment Handbook, at <http://www.victoria.ac.nz/documents/policy/staff-policy/assessment-handbook.pdf>
- Statutes and policies, e.g. Student Conduct Statute: <http://www.victoria.ac.nz/about/governance/strategy>
- Student support: <http://www.victoria.ac.nz/students/support>
- Students with disabilities: http://www.victoria.ac.nz/st_services/disability/
- Student Charter: <http://www.victoria.ac.nz/learning-teaching/learning-partnerships/student-charter>
- Terms and Conditions: <http://www.victoria.ac.nz/study/apply-enrol/terms-conditions/student-contract>
- Turnitin: <http://www.cad.vuw.ac.nz/wiki/index.php/Turnitin>
- University structure: <http://www.victoria.ac.nz/about/governance/structure>
- VUWSA: <http://www.vuwsa.org.nz>

Offering CRN: [26060](#)

Points: 15

Prerequisites: COMP 261; one of (MATH 261, SWEN 224);

Restrictions: COMP 303

Duration: 17 July 2017 - 19 November 2017

Starts: Trimester 2

Campus: Kelburn