

Computational Logic - Course Outline

COMP 425: 2016 Trimester 1

This document sets out the workload and assessment requirements for COMP 425. 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 and Objectives

This course is concerned with the application of formal logic to problems in Computer Science, and with techniques for mechanising logical reasoning. Topics may include: systems of reasoning; logic programming; the application of formal logic to program specification and verification.

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

1. Understand the syntax and semantics of several formal logics, including propositional, predicate, higher-order and temporal logic.
2. Understand the principal proof techniques used for these logics, and how they are embodied in proof/tools such as SAT solvers, SMT solvers, theorem provers and model checkers.

Prerequisites

The prerequisite for COP425 is COMP304 and one other 300-level course in COMP, SWEN or NWEN.

Some of the assignments may involve programming in Haskell or Prolog, and students are expected to be able to write and understand small programs in these languages.

Some familiarity with formal logic or similar formalisms would also be advantageous.

Textbook

There is no textbook for COMP 425. The course will be based around various papers and lecture notes handed out during the course.

Lectures

Lectures for COMP 425 are: Monday, Wednesday, Friday 4:10-5:00pm, 109A, 14 Kelburn Pde. The Friday time will only be used when needed.

Assignments

There will be between 4 assignments covering a mixture of written work (addressing objective 1 and 2) and some involving the use of tools such as Jape and Isabelle (addressing objective 2). The following are tentative topics and due dates:

Assignment	Topic	Due date
1	Boolean satisfiability	Friday 2 April
2	Theorem proving in first order logic	Friday 30 April
3	Program verification	Friday 14 May
4	Student-selected topic	Friday 3 June

For the last assignment, students will select their own topic. This must be approved by the course coordinator not later than Friday 14 May.

Assignments will be accepted up to noon on the day following the deadline, with a 10% penalty. Assignments will only be accepted for marking later than this in exceptional circumstances and by prior arrangement. If you have difficulties in completing the assignments, it is your responsibility to contact the course organiser as early as possible to discuss alternative arrangements.

Marked assignments will normally be returned during lecture.

Workload

In order to maintain satisfactory progress in COMP 425, 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
- Readings: 4
- Assignments: 3

School of Engineering and Computer Science

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

Staff

The course organiser and lecturer for COMP 425 is Lindsay Groves. His contact details are:

- Lindsay Groves
- [Cotton 257](#)
- +64 4 463 5656
- Lindsay.Groves@ecs.vuw.ac.nz

Announcements and Communication

The main means of communication outside of lectures will be the COMP 425 web area at http://ecs.victoria.ac.nz/Courses/COMP425_2016T1/. There you will find, among other things, this document, the [lecture schedule](#) and [assignment handouts](#), and the [COMP 425 Forum](#). The forum is a web-based bulletin board system. Questions and comments can be posted to the forum, and staff will read these posts and frequently respond to them.

Assessment

Your grade for COMP 425 will be determined based on the following assessment weightings:

<u>Item</u>	<u>Weight</u>
Assignments (15% each)	60%
Final Examination	40%

Tests and Exams

There will be a two hour exam at the end of the course.

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. No computers, electronic calculators or similar device will be allowed in the final examination. Paper non-English to English dictionaries will be permitted. The examination period for trimester 1 is 10 June - 29 June.

Mandatory Requirements

In order to pass COMP 425, students must achieve

1. at least 40% average in the assignments,
2. at least 40% in the final exam, and
3. at least 50% overall.

Passing COMP 425

To pass COMP 425, a student must satisfy mandatory requirements and gain at least a **C** grade overall.

Withdrawal

The last date for withdrawal from COMP 425 with entitlement to a refund of tuition fees is Friday 11 March 2016. The last date for withdrawal without being regarded as having failed the course is Friday 13 May 2016 -- though later withdrawals may be approved by the Dean in special circumstances.

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.

Rules & Policies

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](#)
