



**SCHOOL OF HISTORY, PHILOSOPHY, POLITICAL SCIENCE AND
INTERNATIONAL RELATIONS**

PHILOSOPHY PROGRAMME

PHIL 334 LOGIC AND COMPUTATION

TRIMESTER 2 2009

13 July to 15 November 2009

Trimester dates

Teaching dates: 13 July to 16 October

Study week: 19 to 23 October

Examination/Assessment period: 27 October to 15 November

COORDINATOR/LECTURER David Eng
OFFICE: Murphy Building (MY) 716
PHONE: 463-5699
EMAIL: david.eng@vuw.ac.nz
OFFICE HOURS: Wed., Thurs., 2-3

LECTURER Cei Maslen
OFFICE: MY 707
TELEPHONE: 463-6524
E-MAIL: cei.maslen@vuw.ac.nz
OFFICE HOURS: Mondays 1-2 and by appointment

LECTURES: Lectures are Mondays 12-1 and Thursday 12-2 in Hugh Mackenzie (HM) LT 104.

COURSE DELIVERY: This course will involve three hours of lecture per week. Attendance is strongly encouraged but not mandatory. There are no tutorials for this class.

COMMUNICATION OF ADDITIONAL INFORMATION: Additional information about the course will be conveyed to students via class Blackboard.

COURSE CONTENT: This course teaches students how to construct natural deduction proofs for theorems of classical propositional and predicate logic, how to prove the soundness and completeness of classical propositional proof systems, basic set theory and the basis of the theory of computation using Turing machines, such as the halting problem.

LEARNING OBJECTIVES: Students passing this course should be able to construct natural deduction proofs, prove the soundness and completeness of classical propositional proof systems, such as natural deduction, and be able to do problems in basic set theory, design Turing machines, prove that a given set is enumerable or nonenumerable, prove the existence

of Turing uncomputable functions, and demonstrate their understanding of the proof of the halting problem, the undecidability of first-order logic, and related results.

GRADUATE ATTRIBUTES: As with all PHIL courses, the learning objectives of this course contribute to the attainment of specific attributes in the areas of logical and critical thinking, conceptual analysis and rational and ethical decision-making. For more details please consult our website www.victoria.ac.nz/phil/degrees/index.aspx

EXPECTED WORKLOAD: In accordance with Faculty Guidelines, this course has been constructed on the assumption that during teaching weeks, students will devote 16 hours/week, which includes 3 hours of lecture. Outside teaching weeks, it is expected that students will devote a total of 48 hours to the course.

READINGS - ESSENTIAL TEXTS: Students must purchase the PHIL 334 Course Book. There is also an optional textbook for the second half of the course. This is *Computability and Logic*, Boolos, Burgess & Jeffrey (Eds), Cambridge University Press, 2007 (any edition). For the first two weeks of the trimester, all undergraduate student notes will be sold from the Memorial Theatre foyer. After week two, all undergraduate student notes will be sold from the Student Notes Distribution Centre on the ground floor of the Student Union Building.

Customers can order textbooks and student notes online at www.vicbooks.co.nz or can email an order or enquiry to enquiries@vicbooks.co.nz. Books can be couriered to customers or they can be picked up from the shop. Customers will be contacted when they are available. Opening hours are 8.00 am – 6.00 pm, Monday – Friday during term time (closing at 5.00 pm in the holidays). Phone: 463 5515.

ASSESSMENT REQUIREMENTS: There will be a series of assignments, a mid-term test and a final exam.

Assignments: There will be **four assignments each worth 7.5%** of your final grade, accounting for 30% of your final grade. Each assignment will require you to demonstrate that you understand the material in a particular section of the course. The assignments will be given to you 1 week before they are due.

Mid Term Test: The mid-term test is worth **35%** of your final grade. It is a **2-hr** test and will be on **Thursday, 20 August**. It will cover natural deduction and the soundness and completeness of classical propositional proof systems.

Final Exam: The final exam is worth **35%** of your final grade. It is a 2-hr exam and will cover basic set theory and the basis of the theory of computation using Turing machines, such as the halting problem. The final exam will be during the final examination period, which for second trimester 2009 runs from 27 October to 15 November. Information about the examination rules and timetable can be found at the following web address: <http://www.victoria.ac.nz/timetables/exam-timetable.aspx>. Please note that you must be available to attend an examination at any point during this period.

PENALTIES: Assignments that have been handed in late, without approval and on valid grounds, will be penalised and deducted 5% for each late day. A make-up for the mid-term will be granted only for valid grounds, such as a serious illness. In cases of valid grounds,

presentation of a medical certificate will be necessary and you must notify the course instructor as soon as a potential problem emerges.

MANDATORY COURSE REQUIREMENTS: There are no mandatory course requirements for this course.

ACADEMIC INTEGRITY AND PLAGIARISM

Academic integrity means that university staff and students, in their teaching and learning are expected to treat others honestly, fairly and with respect at all times. It is not acceptable to mistreat academic, intellectual or creative work that has been done by other people by representing it as your own original work.

Academic integrity is important because it is the core value on which the University's learning, teaching and research activities are based. Victoria University's reputation for academic integrity adds value to your qualification.

The University defines plagiarism as presenting someone else's work as if it were your own, whether you mean to or not. 'Someone else's work' means anything that is not your own idea. Even if it is presented in your own style, you must acknowledge your sources fully and appropriately. This includes:

- Material from books, journals or any other printed source
- The work of other students or staff
- Information from the internet
- Software programs and other electronic material
- Designs and ideas
- The organisation or structuring of any such material

Find out more about plagiarism, how to avoid it and penalties, on the University's website:
<http://www.victoria.ac.nz/home/study/plagiarism.aspx>

GENERAL UNIVERSITY POLICIES AND STATUTES

Students should familiarise themselves with the University's policies and statutes, particularly the Assessment Statute, the Personal Courses of Study Statute, the Statute on Student Conduct and any statutes relating to the particular qualifications being studied; see the *Victoria University Calendar* or go to the Academic Policy and Student Policy sections on:

<http://www.victoria.ac.nz/home/about/policy>

The AVC(Academic) website also provides information for students in a number of areas including Academic Grievances, Student and Staff conduct, Meeting the needs of students with impairments, and student support/VUWSA student advocates. This website can be accessed at:

<http://www.victoria.ac.nz/home/about/avcacademic/Publications.aspx>