Postgraduate Study in Mathematical Logic

School of Mathematics, Statistics and Operations Research

KNOW YOUR MIND

Leading in Research

The School of Mathematics, Statistics and Operations Research at Victoria University of Wellington, New Zealand, is home to one of the leading Mathematical Logic research groups in the world.

Recent graduates in mathematical logic have won national and international prizes for their thesis research.

The group conducts research in all the major fields of mathematical logic:

- ⊞ Set Theory
- ⊞ Computability Theory
- ⊞ Proof Theory
- ⊞ Model Theory
- ⊞ Complexity Theory

Postgraduate Study in Mathematical Logic

The School offers supervision for PhD and Master's degrees in Mathematics. Students with an undergraduate degree in Mathematics who wish to develop expertise in mathematical logic can also enroll in a BSc Honours degree or a Postgraduate Diploma in Science and undertake advanced-level coursework before a research degree. A prospectus giving details of these study options is available at **www.victoria.ac.nz/smsor**

For information on Masters by Thesis, see the following page at the website of the Faculty of Graduate Research: **www.victoria.ac.nz/fgr/masters**

Admission to the PhD

The PhD programme consists of the preparation of a research thesis under individual supervision for a minimum of two years full-time study, although three years is usual, and four is the maximum.

The process of doctoral study, including application and admission, is managed by the Faculty of Graduate Research. Full information, including how to apply for admission, is available at **www.victoria.ac.nz/fgr**

The University offers a limited number of PhD scholarships, covering tuition fees and a living allowance. Competition for these is strong and requires a high GPA in a Master's degree or equivalent postgraduate qualification to be successful. Applicants are asked to supply documents and information including their full academic transcript, a statement of their research interest and experience, a writing sample, a research proposal if available and contact details for referees.

There are three application rounds each year, with closing dates of 1 March, 1 July and 1 November. Potential students are advised to make preliminary contact with a member of the academic staff with whom they may be interested in working. Staff email addresses have this format: **firstname.lastname@vuw.ac.nz**

School of Mathematics, Statistics and Operations Research

The School is an academic unit within the Faculty of Science, with around 30 academic staff, a diverse and multicultural group of postgraduate students and a large body of undergraduate students in its majors. The School's teaching and research are highly regarded by current students, alumni and the international community. Academic staff consistently attract national and international grant funding, recognition through awards, invitations as plenary speakers at conference and membership of professional organisations.

Victoria is recognised as New Zealand's leading university for research quality and the School has strong links with other highly regarded disciplines within the University including philosophy, computer science, digital engineering, biological sciences, psychology, physics, and geophysics.

Students benefit from our central location in Wellington— a compact and cosmopolitan capital city by the sea, with a wide variety of social and cultural activities at hand. Our proximity to government and research institutes enables staff to build collaborations with a variety of organisations.

International students

Students come to study at Victoria from all over the world—each year students from more than 100 countries make up the student population. There are many international communities in the city—Malaysian, Thai, Indonesian, Japanese, Chinese—that help to make international students feel at home in their new learning environment.

Victoria International

Victoria International looks after the needs and welfare of international students, provides support and advice, and will meet you at the airport, then introduce you to Victoria and Wellington.

Victoria International runs an orientation programme one or two weeks before the beginning of each trimester. This includes a tour of Wellington and an introduction to Kiwi culture.

Study to Work

If you are a student who has completed a qualification in New Zealand, you may be eligible for a Graduate Job Search Work Visa for a maximum of 12 months. Having found a job, you can apply for a further visa for up to two or three years under the Study to Work category.

Application procedures

International students should apply through Victoria International: visit **www.victoria-international.ac.nz** for more information.

If your application is successful, you will be advised of all subsequent procedures, such as obtaining a student visa. Information is also available from New Zealand diplomatic or trade offices.

Competence in English

If your first language is not English, you must show evidence of competence in English by taking a recognised test of English language proficiency—either IELTS overall band of 6.5, no sub-score below 6, or TOEFL 90 on the internet-based test with at least 20 in writing. If you need to study English before beginning your programme of study, it is highly recommended that you attend the November–February English Proficiency Course at the English Language Institute on campus.

Academic staff in mathematical logic

Professor Rod Downey: Computability, complexity, combinatorics, algebra.

Co-author of *Parameterized Complexity* and *Algorithmic Randomness and Complexity*.

New Zealand Mathematical Society Research Award; Maclaurin and James Cook Fellowships; Fellow of Royal Society of New Zealand, American Mathematical Society, Australian Mathematical Society, New Zealand Mathematical Society, Association of Computing Machinery, Isaac Newton Institute; Royal Society of New Zealand Hamilton Memorial Prize and Hector Medal; New Zealand Association of Scientists Research Medal; Association for Symbolic Logic Shoenfield Prize; Editor Theory of Computing Systems, Archive for Mathematical Logic and Computability.

Professor Rob Goldblatt: Mathematical and philosophical logic, including model theory of modal and other intensional logics and algebraic logic.

Author of seven books including *Topoi: The Categorical Analysis of Logic, Logics of Time and Computation* and *Quantifiers, Propositions and Identity*. New Zealand Mathematical Society Research Award; Fellow of Royal Society of New Zealand; Royal Society of New Zealand Jones Medal for lifetime achievement in mathematics; editor for the Journal of Symbolic Logic, Studia Logica, Notre Dame Journal of Formal Logic, Journal of Applied Logic.

Associate Professor Noam Greenberg: Computability theory, algorithmic randomness, reverse mathematics, higher recursion theory, computable model theory, set theory.

Author of American Mathematical Society Memoir *The Role of True Finiteness in the Admissible Recursively Enumerable Degrees*. Rutherford Discovery Fellow; John Templeton Fellow; Turing Research Fellow; Royal Society of New Zealand Hamilton Memorial Prize; New Zealand Mathematical Society Early-Career Research Award.
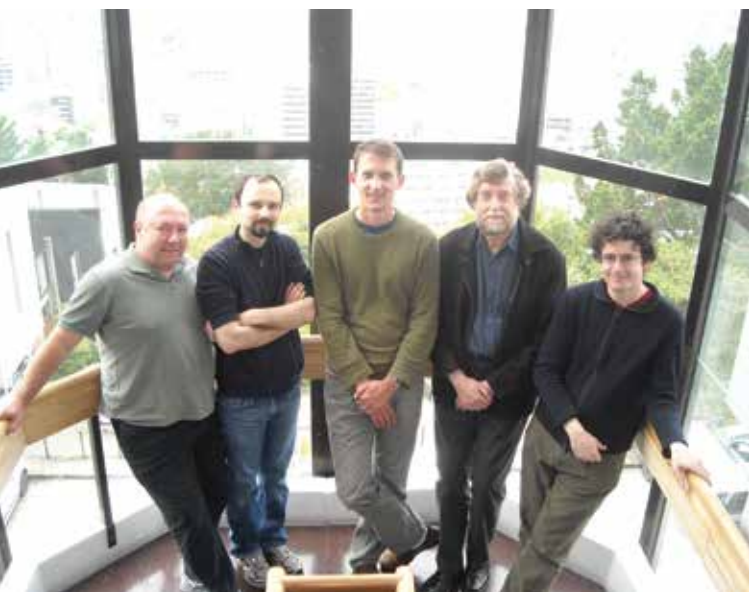
Dr Adam Day: Algorithmic randomness, computability theory, models of set theory.

PhD (Victoria supervisors: Downey/Greenberg, 2011); Association for Symbolic Logic Sacks Prize for the Most Outstanding Doctoral Dissertation in Mathematical Logic (2011); Miller Institute Postdoctoral Fellowship at University of California, Berkeley.

Dr Alex Usvyatsov: Model theory, applications to functional analysis, probability, ergodic theory and combinatorics.

Co-author of *Model Theory for Metric Structures*. PhD (Hebrew Univ. of Jerusalem, supervisor: Saharon Shelah, 2006); Robert Sorgenfrey Distinguished Teaching Award (UCLA); EU Marie Curie Integration Grant (2012).

The group regularly hosts postdoctoral research fellows.

Contacts

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Useful links:

About Wellington: **www.WellingtonNZ.com**
About New Zealand: **www.newzealand.com**
Future students at Victoria: **www.victoria.ac.nz/study**
Immigration: **www.immigration.govt.nz**