



## POSITION DESCRIPTION

School of Mathematics and Statistics  
Faculty of Science

### Lecturer in Computational and Applied Mathematics (Continuum Modelling)

POSITION NO	0042968
CLASSIFICATION	Lecturer Level B
SALARY	\$95,434 - \$113,323 p.a.
SUPERANNUATION	Employer contribution of 17%
WORKING HOURS	Full time
BASIS OF EMPLOYMENT	Continuing
OTHER BENEFITS	<a href="http://about.unimelb.edu.au/careers/working/benefits">http://about.unimelb.edu.au/careers/working/benefits</a>
HOW TO APPLY	Online applications are preferred. Go to <a href="http://about.unimelb.edu.au/careers">http://about.unimelb.edu.au/careers</a> , select the relevant option ('Current Staff' or 'Prospective Staff'), then find the position by title or number.
CONTACT FOR ENQUIRIES ONLY	Professor Barry Hughes Tel +61 3 8344 5557 Email <a href="mailto:barrydh@unimelb.edu.au">barrydh@unimelb.edu.au</a>  <i>Please do not send your application to this contact</i>

For information about working for the University of Melbourne, visit our website:  
[about.unimelb.edu.au/careers](http://about.unimelb.edu.au/careers)

## ***Position Summary***

The School of Mathematics and Statistics is seeking to expand its expertise in computational and applied mathematics.

The successful applicant is expected to undertake high-level research in computational mathematics, leading to a vigorous research program in the development of numerical methods, their analysis and their application.

They should also have a strong commitment to teaching and the supervision of research students. Teaching will occur within the School of Mathematics and Statistics undergraduate and MSc programs and the applicant will be expected to teach mathematics and its applications to a variety of audiences. They are also required to supervise research students at undergraduate, MSc and PhD levels in computational and applied mathematics.

The University of Melbourne provides a wide range of opportunities for exciting research collaborations within the School, wider University and externally. There will be the opportunity to undertake external consulting. The successful applicant will be expected to undertake administrative tasks for the School.

### ***1. Key Responsibilities***

- ▶ Undertake independent teaching and/or research in their discipline or related area. In research and/or teaching and/or scholarship, make an independent contribution through professional practice and expertise and coordinate and/or lead the activities of other staff, as appropriate to the discipline.
- ▶ Contribute to teaching at undergraduate, and postgraduate level, and/or engage in independent scholarship and/or undertake research and/or engage in professional activities appropriate to his or her profession or discipline. Undertake administration primarily relating to their activities at the institution and may be required to perform the full academic responsibilities of, and related administration for, the coordination of an award program of the institution.
- ▶ Have experience in research or scholarly activities, which have resulted in refereed journals or other demonstrated scholarly activities. Research may be carried out independently and/or as part of a team. The incumbent may supervise postgraduate research students or projects and be involved in research training.

#### **1.1 RESEARCH**

- ▶ The conduct of research and contribution to knowledge through scholarship, refereed publication and presentation.
- ▶ Active application and success in obtaining external research grant income to support that research.
- ▶ Active participation in research seminars and conferences.
- ▶ Active supervision of postgraduate, both MSc and PhD, students.
- ▶ To meet or exceed the research active criteria of the Faculty of Science.

#### **1.2 TEACHING**

- ▶ Effective preparation and delivery of lectures at undergraduate and postgraduate level and the assessment of that material.

- ▶ Being proactive in the development of subject materials and delivery, including the use of web resources as appropriate.
- ▶ Supervision of the program of study of postgraduate students engaged in coursework.
- ▶ Acting as Subject Coordinator.
- ▶ Consultation with and academic mentoring of students.
- ▶ The conduct of tutorials and practical classes.
- ▶ Marking and assessment.

### 1.3 LEADERSHIP AND SERVICE

- ▶ Effectively undertake a range of administrative functions, including those connected with teaching responsibilities and the conduct of the academic affairs of the School.
- ▶ Participation in School and/or Faculty meetings and/or the committees that have responsibility for the academic affairs of the School.
- ▶ Involvement in professional activity in the discipline.
- ▶ Actively contribute to School activities such as Open day to promote student engagement.
- ▶ Actively participate in the University Performance Development Framework,
- ▶ Ensure an up-to-date record of University compliance courses, such as, but not limited to Promoting Positive Workplace Behaviour, PDF for Staff and Supervisors, OH &S training courses.

### 1.4 ENGAGEMENT

- ▶ Present research to the public to elevate public awareness of educational and scientific developments, and promote critical enquiry and public debate within the community.
- ▶ Participation in outreach activities to ensure school students exposure to broader perspectives, values, and opportunities.
- ▶ Exchange of knowledge between partners in a mutually beneficial way that expands the capacities of all concerned.
- ▶ Comply with occupational Health and Safety (OH&S) and Environmental Health and Safety (EH&S) responsibilities as outlined in section 5.

## 2. Selection Criteria

### 2.1 ESSENTIAL

- ▶ A PhD or equivalent research higher degree in computational mathematics, numerical analysis, scientific computing or a related mathematical discipline.
- ▶ Demonstrated research excellence in computational and applied mathematics in relation to career stage including a strong record of publication.
- ▶ Demonstrated strength in both theoretical computational mathematics and in practical computation.
- ▶ Expertise in high performance computing.
- ▶ The ability to develop research links with other schools nationally and/or internationally.

- ▶ The ability to attract funding through grant applications.
- ▶ The ability to teach large undergraduate classes and the ability to develop and teach computational and applied mathematics subjects at a graduate level.
- ▶ The ability to interact well with other academic staff and to contribute to the administration of a large school.
- ▶ Clear potential in graduate student supervision.
- ▶ Excellent written and oral communication skills in English.

## 2.2 DESIRABLE

- ▶ Experience in interdisciplinary collaboration.
- ▶ Evidence of success in lecturing large undergraduate classes.
- ▶ Evidence of success in attracting external funding through grant applications.
- ▶ Evidence of success in graduate student supervision.
- ▶ A track record of success in community engagement.

## 3. *Equal Opportunity, Diversity and Inclusion*

The University is an equal opportunity employer and is committed to providing a workplace free from all forms of unlawful discrimination, harassment, bullying, vilification and victimisation. The University makes decisions on employment, promotion and reward on the basis of merit.

The University is committed to all aspects of equal opportunity, diversity and inclusion in the workplace and to providing all staff, students, contractors, honorary appointees, volunteers and visitors with a safe, respectful and rewarding environment free from all forms of unlawful discrimination, harassment, vilification and victimisation. This commitment is set out in the University's People Strategy 2015-2020 and policies that address diversity and inclusion, equal employment opportunity, discrimination, sexual harassment, bullying and appropriate workplace behaviour. All staff are required to comply with all University policies.

The University values diversity because we recognise that the differences in our people's age, race, ethnicity, culture, gender, nationality, sexual orientation, physical ability and background bring richness to our work environment. Consequently, the People Strategy sets out the strategic aim to drive diversity and inclusion across the University to create an environment where the compounding benefits of a diverse workforce are recognised as vital in our continuous strive to service for excellence and reach the targets of Growing Esteem.

## 4. *Occupational Health and Safety (OHS)*

All staff are required to take reasonable care for their own health and safety and that of other personnel who may be affected by their conduct.

OHS responsibilities applicable to positions are published at:

<http://safety.unimelb.edu.au/topics/responsibilities/>

These include general staff responsibilities and those additional responsibilities that apply for Managers and Supervisors and other Personnel.

## **5. Other Information**

### **5.1 SCHOOL OF MATHEMATICS AND STATISTICS**

The University of Melbourne's School of Mathematics and Statistics is one of Australia's leading mathematics and statistics schools. It has achieved this status through the high quality of its research and teaching programs. The School offers a wide range of subjects to undergraduate and postgraduate students and is involved in aspects of community life that impact on the interests of the School and the discipline.

The School of Mathematics and Statistics has a total of 57 continuing teaching and research staff; 27 research only staff and consultants; 5 teaching specialists, 3 academic specialists; and 12 support staff. The School has over 100 casual and honorary staff. In 2016, there are 88 Research Higher Degree and 78 Coursework Master of Science students. Four members of the School staff and one Emeritus Professor are members of the Academy of Science.

Infrastructure support for research and basic information technology facilities are provided to all members of the School. Special facilities such as high end workstations and salaries for research fellows are supported through individual competitive external research grants. Members of the School have had considerable success at attracting support from the Australian Research Council. The School hosts two ARC Centres of Excellence, has several ARC Laureate, Future and DECRA Fellows.

It is one of the objectives of the University to develop and maintain a strong international profile. In this context, members of the School have strong collaborative links with colleagues in the United States of America, most countries in Europe and the Asia-Pacific region.

The www address of the School of Mathematics and Statistics is  
<http://www.ms.unimelb.edu.au>

### **5.2 FACULTY OF SCIENCE**

<http://www.science.unimelb.edu.au>

Science at the University of Melbourne is the most highly ranked Faculty of Science in Australia.\* Science is defined by its research excellence in the physical and life sciences and is at the forefront of research addressing major societal issues from climate change to disease. Our discoveries help build an understanding of the world around us.

We have over 150 years of experience in pioneering scientific thinking and analysis, leading to outstanding teaching and learning and offer a curriculum based on highly relevant research, which empowers our STEM students and graduates to understand and address complexities that impact real world issues and the challenges of tomorrow.

We aspire to engage the broader community with the impact that Science has on our everyday lives. Through the strength of our internships and research project offerings, our students are provided opportunities to engage with industry partners to solve real-world issues.

The Faculty of Science has over 50,000 alumni and is one of the largest faculties in the University comprising seven schools: BioSciences, Chemistry, Earth Sciences, Ecosystem and Forest Sciences, Geography, Mathematics and Statistics, and Physics.

The Faculty is custodian of the Bio21 Molecular Science and Biotechnology Institute, Office for Environmental Programs and home to numerous Centres.

Science manages more than \$290 million of income per annum, with a staff base in the order of 270 professional staff, and more than 580 academic staff.

We offer a range of undergraduate, honours, graduate and research degrees; enrolling over 8,600 undergraduate and 2,440 graduate students. The Faculty of Science is the custodial Faculty for the BSc (Bachelor of Science). The Faculty of Science is a leader in research, contributing approximately \$70 million in HERDC income per annum. The Faculty of Science is highly research focused, performing strongly in the ARC competitive grants schemes, often out-performing the national average. The Faculty of Science is currently growing its competitiveness and standing in the NHMRC space.

The Faculty of Science provides community services and industry partnerships based on a solid foundation of research in the pure and applied sciences. The Faculty has an endowment of approximately \$56 million. The annual income from the endowment

\*Figures from the latest available data for 2015, including published international rankings data.

supports more than 120 prizes, scholarships and research awards.

### 5.3 THE UNIVERSITY OF MELBOURNE

Established in 1853, the University of Melbourne is a leading international university with a tradition of excellence in teaching and research. The main campus in Parkville is recognised as the hub of Australia's premier knowledge precinct comprising eight hospitals, many leading research institutes and a wide-range of knowledge-based industries. With outstanding performance in international rankings, the University is at the forefront of higher education in the Asia-Pacific region and the world.

The University employs people of outstanding calibre and offers a unique environment where staff are valued and rewarded.

Further information about working at The University of Melbourne is available at <http://about.unimelb.edu.au/careers>.

### 5.4 GROWING ESTEEM, THE MELBOURNE CURRICULUM AND RESEARCH AT MELBOURNE: ENSURING EXCELLENCE AND IMPACT TO 2025

Growing Esteem describes Melbourne's strategy to achieve its aspiration to be a public-spirited and internationally-engaged institution, highly regarded for making distinctive contributions to society in research and research training, learning and teaching, and engagement. <http://about.unimelb.edu.au/strategy-and-leadership>

The University is at the forefront of Australia's changing higher education system and offers a distinctive model of education known collectively as the Melbourne Curriculum. The new educational model, designed for an outstanding experience for all students, is based on six broad undergraduate programs followed by a graduate professional degree, research higher degree or entry directly into employment. The emphasis on academic

breadth as well as disciplinary depth in the new degrees ensures that graduates will have the capacity to succeed in a world where knowledge boundaries are shifting and reforming to create new frontiers and challenges. In moving to the new model, the University is also aligning itself with the best of emerging European and Asian practice and well-established North American traditions.

The University's global aspirations seek to make significant contributions to major social, economic and environmental challenges. Accordingly, the University's research strategy *Research at Melbourne: Ensuring Excellence and Impact to 2025* aspires to a significant advancement in the excellence and impact of its research outputs.

<http://research.unimelb.edu.au/our-research/research-at-melbourne>

The strategy recognises that as a public-spirited, research-intensive institution of the future, the University must strive to make a tangible impact in Australia and the world, working across disciplinary and sectoral boundaries and building deeper and more substantive engagement with industry, collaborators and partners. While cultivating the fundamental enabling disciplines through investigator-driven research, the University has adopted three grand challenges aspiring to solve some of the most difficult problems facing our world in the next century. These Grand Challenges include:

- ▶ Understanding our place and purpose – The place and purpose grand challenge centres on understanding all aspects of our national identity, with a focus on Australia's 'place' in the Asia-Pacific region and the world, and on our 'purpose' or mission to improve all dimensions of the human condition through our research.
- ▶ Fostering health and wellbeing – The health and wellbeing grand challenge focuses on building the scale and breadth of our capabilities in population and global health; on harnessing our contribution to the 'convergence revolution' of biomedical and health research, bringing together the life sciences, engineering and the physical sciences; and on addressing the physical, mental and social aspects of wellbeing by looking beyond the traditional boundaries of biomedicine.
- ▶ Supporting sustainability and resilience – The sustainability and resilience grand challenge addresses the critical issues of climate change, water and food security, sustainable energy and designing resilient cities and regions. In addition to the technical aspects, this grand challenge considers the physical and social functioning of cities, connecting physical phenomena with lessons from our past, and the implications of the technical solutions for economies, living patterns and behaviours.

Essential to tackling these challenges, an outstanding faculty, high performing students, wide collaboration including internationally and deep partnerships with external parties form central components of Research at Melbourne: Ensuring Excellence and Impact to 2025.

## 5.5 GOVERNANCE

The Vice Chancellor is the Chief Executive Officer of the University and responsible to Council for the good management of the University.

Comprehensive information about the University of Melbourne and its governance structure is available at <http://www.unimelb.edu.au/governance>