POSITION DESCRIPTION

THE UNIVERSITY OF MELBOURNE

Department of Microbiology and Immunology
Faculty of Medicine, Dentistry and Health Sciences

Bioinformatician – MDU(PHL)

POSITION NO	0044580
CLASSIFICATION	PSC 5
SALARY	$68,892 - $79,130 p.a.
SUPERANNUATION	Employer contribution of 9.5%
WORKING HOURS	Full-time
BASIS OF EMPLOYMENT	Fixed-term for 12 months Fixed term contract type: Externally funded contract employment
OTHER BENEFITS	http://about.unimelb.edu.au/careers/working/benefits
HOW TO APPLY	Online applications are preferred. Go to http://about.unimelb.edu.au/careers, select the relevant option ('Current Staff' or 'Prospective Staff'), then find the position by title or number.
CONTACT FOR ENQUIRIES ONLY	Anders Goncalves Da Silva Tel +61 3 8344 5701 Email anders.goncalvez@unimelb.edu.au *Please do not send your application to this contact*

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

Position Summary

The Microbiological Diagnostic Unit Public Health Laboratory (MDU PHL) provides a comprehensive microbiological investigation and advisory service for the public health community. This is supported by strong molecular biology, a substantial bacterial culture collection, and, expertise in infectious disease epidemiology and infection control. One of the major focuses of MDU PHL is transitioning existing technologies onto genomic platforms. We are committed to providing an efficient, effective, legally robust and timely public health laboratory service in the biological, medical and veterinary fields, including forensic operations. These activities incorporate the principles of ISO/IEC 17025, ISO 15189, and ISO 14001 in a Quarantine Approved Premises fulfilling the requirements of The National Health Security Act.

This Bioinformatics position sits within the MDU Bioinformatics team and provides support to the section leader in the analysis of sequence data across multiple disciplines at the MDU PHL.

The incumbent will report to senior bioinformaticians in the team and work closely with laboratory scientists and epidemiologists in the MDU PHL. The individual will be skilled in Python and/or R, and be comfortable in the organization and analysis of genome sequence data in a Unix software environment. The individual should have strong troubleshooting skills, have an interest in microbial genomics and public health, be a team player, and be prepared to provide service. The individual will work closely with other members of the bioinformatics team at the MDU PHL and with other bioinformaticians from MDU and the Melbourne Bioinformatics. In addition to service provision, there will be opportunity for professional development and involvement in research activities.

1. Key Responsibilities

- The incumbent will be required to work as part of the Bioinformatics Unit of MDU PHL
- Independently, or with supervision, plan and carry out data analysis projects at MDU PHL
- Aid in the development of bioinformatics pipelines for routine genomics based public health service delivery
- Apply theoretical principles and techniques to solve problems in consultation with the Section Leader, other senior staff and provide possible solutions and remedies for test failures.
- Ensure all work is completed in a timely manner and meets required turn around times.
- Perform other duties as requested by the appointee's immediate supervisors
- Actively participate in the Quality system utilised at MDU including ensuring current practices are reflective of SOP's and assist with the preparation of new SOPs
- Observe confidentiality and safety precautions and procedures.
- Undertake responsibility for selected MDU-wide activities or other tasks as required by the Principal Scientist, Section Leader, or the Director/Deputy Director.
- 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 qualification in Bioinformatics, Computational Biology or a related field.
- Experience working in a UNIX environment.
- Excellent troubleshooting skills
- Wide ranging understanding and experience working with standard bioinformatics tools such as Samtools, bwa, bedtools, blast, clustalo and EMBOSS, using large genome datasets including capacity to manage and troubleshoot on multiple platforms.
- A working knowledge of Python and R.
- A high level of initiative, including the ability to develop and implement new databases and the ability to effectively contribute to bioinformatics database management planning and troubleshooting in a complex environment.
- Superior time management, analytical and organisational skills allowing prioritisation, problem solving and timely, accurate completion of tasks.
- Capability to record scientific data and results of analyses in both conventional hardcopy and electronic forms.
- Good communication skills and the ability to function and interact as a team member.
- Ability to adapt to periodic pressures of the workplace, where large numbers of analyses need to be performed rapidly with a high degree of analytical precision.
- Initiative and the ability to work in a self-directed manner.
- An understanding of the need to commit to a workplace culture that is cognisant of the on-going requirements of third party audits. Commitment to observe MDU's: confidentiality, safety and security requirements, procedures, and; ethos.
- Demonstrate a flexible attitude to work, as tasks vary.

2.2 DESIRABLE

- Experience working with Next Generation Sequencing data and phylogenomics, preferably in a public health setting.
- Strong analytical and statistical skills.
- An interest in machine learning.
- A strong interest in microbial genomics as applied to public health
- Relevant knowledge of microbiological standards including NATA, DA (Quarantine Accredited Premises), DoH
- A postgraduate qualification in a relevant field of science or applied science.

2.3 SPECIAL REQUIREMENTS

- Sign and abide by a confidentiality agreement
- Undergo a police and security check as part of the condition of employment with the University of Melbourne
- Vaccination against relevant infectious diseases is recommended and provided

3. Job Complexity, Skills, Knowledge

3.1 LEVEL OF SUPERVISION / INDEPENDENCE

The position will report to the Section Leader with oversight by the Principal Scientist. The incumbent is responsible for the effective execution of data analysis and the accurate recording of results and control data that provide documentary evidence of the completion of a valid result. Within required guidelines, the incumbent will have independence in the judicious application of best practices of analysis of data in day to day decision making.

3.2 PROBLEM SOLVING AND JUDGEMENT

The position will be required to apply the correct standard operating procedure (SOP) to the data and will be expected to refer to relevant SOP's or data bases to determine guiding principles, as required, to resolve any uncertainty that circumstances may present. In the event that existing SOP's do not provide sufficient guidance to the circumstance in question the incumbent will seek further professional guidance from supervising staff. In these circumstances, problems relating to test integrity and safety matters should be discussed immediately with the Section Head. The incumbent will be required to take corrective action, where possible, in the event of malfunction and advise senior staff accordingly.

3.3 PROFESSIONAL AND ORGANISATIONAL KNOWLEDGE

The position requires a tertiary qualification in Bioinformatics, Computational Biology or other relevant field. Additional knowledge acquisition from both specific workplace training and practical experience in Bioinformatics is essential. Central to this knowledge acquisition should be a parallel understanding of good practice, linking theoretical knowledge with practical capability. The incumbent is expected to understand and adhere to MDU Standard Operating Procedures and perform in a professional environment that is subject to independent audit practices.

3.4 RESOURCE MANAGEMENT

The incumbent will manage the daily processing of submitted data and associated documentation and provide status reports on the progress of analyses to the Section Leader.

3.5 BREADTH OF THE POSITION

The position covers the laboratory wide activities of the MDU. More specifically this involves the performance of data analysis, participation in evaluations of new procedures and maintaining quality systems and documentation that will meet third party audit requirements of various regulatory authorities as required.

4. 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 deserve to service for excellence and reach the targets of Growing Esteem.

5. 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.

6. Other Information

6.1 DEPARTMENT OF MICROBIOLOGY & IMMUNOLOGY

The Department of Microbiology & Immunology is one of the departments within the School of Biomedical Sciences in the Faculty of Medicine, Dentistry and Health Sciences. Further information is available at http://www.microbiol.unimelb.edu.au/ and http://bsac.unimelb.edu.au/.

6.2 THE MICROBIOLOGICAL DIAGNOSTIC UNIT PUBLIC HEALTH LABORATORY

The Microbiological Diagnostic Unit (MDU PHL) is a public health laboratory for the Department of Health, Victoria situated within the Department of Microbiology and Immunology at the University of Melbourne. The MDU has been established for over 100 years on External State Government funding.

The MDU PHL is concerned with provision of services for the laboratory diagnosis of diseases of public health importance, the application of typing methods, use of computer-based data collection systems for epidemiological purposes, and provision of expert opinion. In addition, the Unit undertakes the microbiological examination of foods and water for compliance with regulatory and voluntary codes and standards. MDU PHL is NATA accredited for Biological testing, including Forensic Operations, NATA/RCPA accredited for Medical testing and performs selected Veterinary testing.

6.3 THE PETER DOHERTY INSTITUTE FOR INFECTION AND IMMUNITY

The Doherty Institute is a world-class institute combining research in infectious disease and immunity with teaching excellence, reference laboratory diagnostic services, epidemiology and clinical services. It is a joint venture between the University of Melbourne and Melbourne Health.

A new, purpose-built building for the Doherty Institute was completed in early 2014. The members of the Doherty include the Department of Microbiology and Immunology and the Microbiological Diagnostic Unit Public Health Laboratory of the University of Melbourne, the Victorian Nosocomial Infection Surveillance System, The Victorian Infectious Diseases Reference Laboratory, The Victorian Infectious Diseases Service, and The World Health Organisation Collaborating Centre for Reference and Research on Influenza.

Further information about the Doherty Institute is available at:
http://www.doherty.unimelb.edu.au

6.4 SCHOOL OF BIOMEDICAL SCIENCES

www.biomedicalsciences.unimelb.edu.au

The School of Biomedical Sciences is part of the Faculty of Medicine Dentistry and Health Sciences. It was established on 1 January 2015 and comprises the Departments of Anatomy and Neuroscience, Biochemistry and Molecular Biology, Microbiology and Immunology, Pathology, Pharmacology and Therapeutics, and Physiology.

Situated on the University's Parkville Campus in a rich medical practice and research precinct the School has much to offer research and teaching staff alike.

6.5 FACULTY OF MEDICINE, DENTISTRY AND HEALTH SCIENCES

www.mdhs.unimelb.edu.au

The Faculty of Medicine, Dentistry & Health Sciences has an enviable research record and is the University of Melbourne's largest faculty in terms of management of financial resources, employment of academic and professional staff, teaching of undergraduate and postgraduate (including research higher degree) students and the conduct of basic and applied research. The Faculty's annual revenue is $628m with approximately 55% of this income related to research activities.

The Faculty has a student teaching load in excess of 8,500 equivalent full-time students including more than 1,300 research higher degree students. The Faculty has approximately 2,195 staff comprising 642 professional staff and 1,553 research and teaching staff.

The Faculty has appointed Australia's first Associate Dean (Indigenous Development) to lead the development and implementation of the Faculty's Reconciliation Action Plan (RAP), which will be aligned with the broader University – wide plan. To enable the Faculty to improve its Indigenous expertise knowledge base, the Faculty's RAP will address Indigenous employment, Indigenous student recruitment and retention, Indigenous cultural recognition and building partnerships with the Indigenous community as key areas of development.

6.6 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.

6.7 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.

6.8 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