POSITION DESCRIPTION

Position Title: Postdoctoral Research Fellow
Organisation Unit: Advanced Water Management Centre
Position Number: TBA
Type of Employment: Full time, fixed term for 2 years
Classification: Research Academic Level A

THE UNIVERSITY OF QUEENSLAND

The University of Queensland (UQ) contributes positively to society by engaging in the creation, preservation, transfer and application of knowledge. UQ helps shape the future by bringing together and developing leaders in their fields to inspire the next generation and to advance ideas that benefit the world. UQ strives for the personal and professional success of its students, staff and alumni. For more than a century, we have educated and worked with outstanding people to deliver knowledge leadership for a better world.

UQ ranks in the world’s top universities, as measured by several key independent ranking, including the Performance Ranking of Scientific Papers for World Universities (43), the US News Best Global Universities Rankings (45), QS World University Rankings (48), Academic Ranking of World Universities (55), and the Times Higher Education World University Rankings (69). UQ again topped the nation in the prestigious Nature Index, and our Academic Ranking of World Universities result in the field of Life and Agricultural Sciences is the highest in Australia at 20.

UQ has an outstanding reputation for the quality of its teachers, its educational programs and employment outcomes for its students. Our students remain at the heart of what we do. The UQ experience – the UQ Advantage – is distinguished by a research enriched curriculum, international collaborations, industry engagement and opportunities that nurture and develop future leaders. UQ has a strong focus on teaching excellence, winning more national teaching excellence awards than any other in the country and attracting the majority of Queensland’s highest academic achievers, as well as top interstate and overseas students.

UQ is one of Australia’s Group of Eight, a charter member of edX and a founding member of Universitas 21, an international consortium of leading research-intensive universities.

Our 50,000-plus strong student community includes more than 13,000 postgraduate scholars and more than 12,000 international students from 144 countries, adding to its proud 240,000-plus alumni. The University has about 7,000 academic and professional staff and a $1.8 billion annual operating budget. Its major campuses are at St Lucia, Gatton and Herston, in addition to teaching and research sites around Queensland and Brisbane city. The University has six Faculties and four University-level Institutes. The Institutes, funded by government and industry grants, philanthropy and commercialisation activities, have built scale and focus in research areas in neuroscience, biomolecular and biomedical sciences, sustainable minerals, bioengineering and nanotechnology, as well as social science research.
UQ has an outstanding track-record in commercialisation of our innovation with major technologies employed across the globe and integral to gross product sales of $11billion+ (see http://uniquest.com.au/our-track-record).

UQ has a rapidly growing record of attracting philanthropic support for its activities and this will be a strategic focus going forward.

Organisational Environment

The Advanced Water Management Centre (AWMC) is an internationally recognised centre of excellence in innovative water technology and management. The Centre has established an outstanding worldwide reputation in urban water management and related fields. An award winning multidisciplinary team delivers practical technological solutions underpinned by fundamental scientific discoveries.

The Centre has six interlinked programs namely next generation urban water technologies, integrated urban water management, sewer corrosion and odour management, nexus of urban water, health and environment, resource efficient agri-industry and environmental biotechnology. Collaborative linkages with industry are strong. Solutions developed by the Centre have yielded quantifiable benefits in the order of hundreds of millions of dollars to the Australian water industry and other sectors. At the same time, the AWMC has an outstanding academic publication record, publishing on average over 100 papers a year in high quality journals including the most prestigious multidisciplinary journals including Nature and Science, and top discipline journals such as Water Research, Environmental Science and Technologies and The ISME Journal.

The AWMC has approximately 100 staff and students including 35 academic and research staff and more than 50 research students. The Centre has well-established process, molecular microbiology and analytical labs. The direct collaboration with industry partners has also led to the creation of several field facilities including the Innovation Centre at Queensland Urban Utilities’ Luggage Point Sewage Treatment Plant, supporting technology demonstration at larger scales and under practical conditions.

The Centre recognises and values equity and diversity, and encourages applications from any individual who meets the requirements of this position irrespective of gender, sexuality, race, ethnicity, religion, disability, age or other protected attributes. The Centre strives to provide an inclusive working environment, and along with the University is committed to supporting staff with family and caring responsibilities by providing policies, programs and initiatives to help balance work and family responsibilities.

Information about the Centre can be found at http://www.awmc.uq.edu.au

Information about the Faculty (Faculty of Engineering, Architecture and Information Technology – EAIT) may be accessed on the Faculty’s web site at http://www.eait.uq.edu.au/

Information for Prospective Staff

Information about life at UQ including staff benefits, relocation and UQ campuses is available at - http://www.uq.edu.au/current-staff/working-at-uq
DUTY STATEMENT

Primary Purpose of Position

We are undertaking research of the recently discovered microbial activity of anaerobic ammonium oxidation coupled to Fe(III) reduction (Feammox). We aim to discover the molecular mechanisms by which microbes can couple electron transfer from water soluble ammonium to insoluble Fe minerals. The successful candidate will work with state-of-the-art facilities at the AWMC laboratories with a multidisciplinary team led by Dr Philip Bond and Dr Shihu Hu, utilising their expertise in microbial physiology, microbial ecology, bioinformatics and bio-engineering. The key role of the postdoctoral research fellow will be to undertake research on the microbial coupling of the anaerobic oxidation of ammonium to Fe(III) reduction and evaluating its importance in biogeochemical nitrogen and iron cycles.

Duties

Duties and responsibilities include, but are not limited to:

Research

- As part of the team, to partake to lead, manage and develop the research project on the microbial coupling of the anaerobic oxidation of ammonium to Fe(III) reduction (Feammox)
- Use state-of-the-art sequencing techniques for analysis of microbial communities in reactor systems
- Perform/oversee the set-up, construction, operation, maintenance and performance of enrichment reactors operating for Feammox
- To lead the research to determine the microorganism(s) responsible for Feammox activity and reveal their metabolic pathways by extensive application of metagenomics, metatranscriptomic and metaproteomic approaches
- To perform isotopic labelling tests to verify the fate of ammonium and iron in Feammox bioreactors

Teaching and Learning

- As a ‘Research focussed’ position there is no formal requirement for undergraduate teaching. However it is encouraged that you actively seek teaching opportunities
- Contribute to supervision at honours and postgraduate level and participate in events to attract postgraduate students.

Service and Engagement

- Actively engage and collaborate within the AWMC and externally to foster the Centre’s relationships with our research peers, other research institutes, government departments, professional bodies, industry partners and the wider community.
- Contribute to the processes that enable the academic team to manage the work of the School, including to participate in School decision-making and serve on School committees
- To participate in project management and draft project reports
- Management of scope and budget for the primary research project
- Liaise with and coordinate collaborators and participants on the project
- Participate to address the risk assessment and health and safety aspects of the field and laboratory studies
• Any other duties as reasonably directed by your supervisor

Other
Ensure you are aware of and comply with legislation and University policy relevant to the duties undertaken, including but not exclusive to:
• the University’s Code of Conduct
• requirements of the Queensland occupational health and safety (OH&S) legislation and related OH&S responsibilities and procedures developed by the University or Institute/School
• the adoption of sustainable practices in all work activities and compliance with associated legislation and related University sustainability responsibilities and procedures
• requirements of the Education Services for Overseas Students Act 2000, the National Code 2007 and associated legislation, and related responsibilities and procedures developed by the University

Organisational Relationships

The position reports to Dr Philip Bond and Dr Shihu Hu

SELECTION CRITERIA

Essential
• PhD degree in (meta)genomics or bioinformatics, molecular microbiology, microbial physiology, or related field.
• Demonstrated knowledge in the area of (meta)omics analyses and bioinformatics, including DNA assembly, functional annotation and analysis of sequence data.
• Experience in studies of microbial ecology, molecular microbiology, microbial physiology and/or microbial biofilms
• Ability to rigorously design experiments and to perform experiments under well-controlled conditions and perform in-depth critical data analysis
• Ability to work collaboratively with colleagues in a multidisciplinary team
• Track record of high quality publications
• Good communication and time management skills, and the ability to meet objectives and deliver milestones within project deadlines
• Australian Drivers Licence required

Desirable
• Experience with operating laboratory scale reactors and methods to analyse performance
• Experience or knowledge in the study of complex microbial processes, such as for determining metabolic pathways, cell energetics and ecosystem function
• Experience in techniques of anaerobic microbiology
• Demonstrated experience in performing risk assessment and hazard management for laboratory and field experimental procedures
• Experience in supervising postgraduate students
• Demonstrated experience with R. Matlab, Python, Linux
Qualification Verification
An appointment to this position is subject to the verification of the highest academic qualification from the conferring institution.

Vaccinations and Immunisation
It is a condition of employment for this role that if you are required now or in the future, to work or interact in Queensland Health clinical facility; or in an equivalent clinical health facility; or health care role; or will be required to perform work tasks that put you at risk of exposure to vaccine-preventable disease you are required to be immunised against, and remain immunised against, certain vaccine preventable diseases (VPDs) in accordance with the University’s Vaccinations and Immunisation Guidelines (PPL 2.60.08). The employee is required to provide evidence of immunisation against VPDs.

The University of Queensland values diversity and inclusion and actively encourages applications from those who bring diversity to the University. Please refer to the University’s Diversity and Inclusion webpage (http://www.uq.edu.au/equity) for further information and points of contact if you require additional support.

This role is a full-time position; however flexible working arrangements may be negotiated.

Accessibility requirements and/or adjustments can be directed to the contact person listed in the job advertisement.