WESTERN SYDNEY
UNIVERSITY

POSITION DESCRIPTION

Position Title:	Postdoctoral Research Fellow in Microbial Ecology and Crop Disease Management
Position Number(s):	7015325
Classification:	ACADEMIC LEVEL A
Supervisor:	Distinguished Professor (7004290)
School/Office:	HAWKESBURY INSTITUTE FOR THE ENVIRONMENT
Division:	PROVOST

ABOUT WESTERN SYDNEY UNIVERSITY

Western Sydney University is a modern, forward-thinking, research-led university, located in the heart of Australia's fastest-growing, economically significant region. The University has 11 campuses in Sydney, and campuses in Ho Chi Minh City, Vietnam and Surabaya, Indonesia. Two campuses are planned in India. The University has more than 200,000 alumni, almost 50,000 students and approximately 3,500 staff.

Our Schools teach an array of programs and degrees carefully structured to meet the demands of future industry and the University is ranked in the top two per cent of universities worldwide, with over 85 per cent of its assessed research rated at 'World Standard' or above. In 2022, 2023 and 2024, the University was placed 1st worldwide and in Australia for its commitment to the United Nations' Sustainable Development Goals in the Times Higher Education (THE) University Impact Rankings.

Our Strategic Plan stipulates that, starting in Western Sydney, our students will succeed, our research will have impact and our communities will thrive through our commitment to excellence, sustainability, equity, transformation and connectedness.

The mission is driven by four strong values:

1. Boldness
2. Integrity
3. Fairness
4. Excellence

ABOUT THE INSTITUTE

The Hawkesbury Institute for the Environment (HIE) is a research institute within Western Sydney University. The Institute conducts fundamental and applied research in ecology, physiology, genetics and global change biology. Within the past decade, the Institute has become a world-leading centre of excellence in ecosystem function and environmental responses to climate change. With a unique suite of world-class research facilities, the Institute collaborates widely with Australian and international institutions to craft scientific research of the highest calibre.

POSITION PURPOSE

The Postdoctoral Research Fellow in Microbial Ecology and Crop Disease Management will join a vibrant, international research team at the cutting edge of plant disease diagnostics and disease control. The position is funded by Horticulture Innovation Australia. This pioneering research initiatives are in the latest in a series of transformative projects aimed at unlocking the potential of soil and plant microbiomes to manage disease pressure in agriculture systems. As our new Postdoctoral Research Fellow, you'll play a key role in integrating Microbiomes for Sustainable and Profitable horticulture developing innovative, sustainable strategies for profitable and sustainable

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POSITION PURPOSE

farming. The project leverages new advancements in metagenomics, and artificial intelligence to identify pathogens and beneficial microbiota and modelling to predict disease outcomes. Further, it will harness microbiome and metabolic interactions between crop and plant for developing effective disease solutions. and microbes. The Research Fellow, supported by two PHD students, will lead and conduct glasshouse, and field experiments to investigate how beneficial microbiota enhances resilience of potato crops to disease and climate stresses. Utilizing state of art tools including metagenomics, metabolomics and artificial intelligence with modelling, this research will provide effective diagnostic and management tools for potato crop diseases. The project will contribute to develop effective biological indicators of soil health that could revolutionize farm productivity and environmental sustainability. The successful candidate will collaborate with international researcher team, and industrial partners, and growers form across Australia and abroad. It offers the opportunity to be part of a multi-disciplinary, nationally and globally connected research environment within a supportive academic culture committed to your professional development and career advancement.

The position is based on the Hawkesbury Campus in Richmond, New South Wales.

Subject to the University's operational requirements, the incumbent may have an opportunity to express interest in working overseas, either with a strategic partner or at an overseas campus for a fixed period of time.

FIXED TERM REASON - SPECIFIC TASK/PROJECT

Project Description:
The position aims to apply new knowledge on soil health and plant-microbial interactions to develop effective diagnostic and management tools for disease in horticulture crop. The overall goal is to increase resilience of horticulture (potato) to pathogen impacts.

Employee's Role and Tasks:
Under the guidance of the Distinguished Professor the employee's role will be to conduct research experiments using combinations of soil, microbial and metabolic tools and techniques

Their specific tasks will include:

1. Design and manage glasshouse experiments manipulating plant microbial interactions under disease to develop indicators and biological solutions (microbial and metabolic products)
2. Filed sampling and using metagenomics and metabolomic analyses, AI and modelling approaches to validate diagnostic tools and identify microbial and metabolic management tools.
3. Demonstrate efficacy of new products in disease management.
4. Drafting manuscripts/ project and industrial reports for publication.
5. Delivering presentations and/or briefings from the project to scientific/ industrial audiences and other relevant groups.
6. Participating in student research supervision, teaching and mentoring
7. Ensuring appropriate project research data management.

KEY RELATIONSHIPS

This position reports to the project lead, Distinguished Professor Brajesh Singh.

This position has no supervisory responsibilities.

Success in the role will be dependent on developing and maintaining positive relationships with:

1. Institute Director
2. Director of Research

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KEY RELATIONSHIPS

3. Institute Manager
4. Supervisor
5. Various Academic staff within HIE
6. Colleagues in the theme, the Institute, and across the University
7. Project team members at HIE and across Australia.

MAIN DUTIES AND RESPONSIBILITIES

1. **Research**
   - Design controlled environment and field experiments that meet research objectives in consultation with the project investigators.
   - Carry out research in a timely manner to meet milestones set out in funding projects
   - Develop, execute and apply methods to achieve defensible scientific results.
   - Contribute to the day-to-day execution of research-related tasks as part of an interdisciplinary and multi-institutional team, including preparation of reports and manuscripts for publication in refereed journals and preparing and presenting research findings at national and international seminars, conferences and industry workshops
   - Ensure that project research data management conforms to the Australian Code for the Responsible Conduct of Research, and University policies.

2. **Administration**
   - Develop collegial and collaborative consultation with team members, including project partners.
   - Produce and analyse accurate data that meets standards relevant to the research.
   - Prepare quality reports relevant to the funding agreement accurately and in a timely manner.
   - Prepare manuscripts for publication in high impact journals.

3. **Teaching and Learning**
   - Where appropriate, develop, design and deliver innovative and engaging teaching including the conduct of lectures, tutorials, demonstrations, workshops and other classes, which could be face-to-face, hybrid or online. This includes staying up to date with teaching technology to advance teaching delivery.

4. **Supervision**
   - Provide advice to Undergraduate student Summer Projects, Masters Research students, and/or Higher Degree Research students where appropriate.

QUALIFICATIONS, EXPERIENCE AND SKILLS

1. A PhD (or recently submitted PhD thesis for examination) in a research field related to microbial ecology, disease management.

2. Demonstrated knowledge and experience in analysing microbial, plant and soil chemistry, including interactions between different soil communities.

3. Demonstrated knowledge and experience in executing experiments in controlled and field environments, including an ability to manipulate and regulate several experimental variables.

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QUALIFICATIONS, EXPERIENCE AND SKILLS

4. Experience or understanding of the metagenomics, metabolomics, machine learning and modelling approaches to identify indicator species in soil and plant microbiomes.

5. Good statistical knowledge and demonstrated experience in using relevant statistical platforms. Demonstrated proficiency in data management and reproducible research.

6. Demonstrated ability to write manuscripts for publication in internationally recognised scientific journals, and a track-record of publications appropriate for the applicant's career stage.

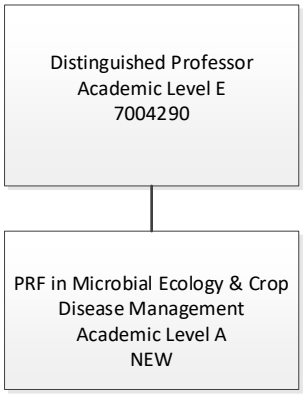
7. Demonstrated organisational skills and excellent communication and interpersonal skills, including the ability to be self-directed, but also to work effectively and harmoniously as part of a research team.

UNIVERSITY EXPECTATIONS

Ensure you are aware of and comply with legislation and University policies and procedures relevant to the duties undertaken including, but not limited to:

- Code of Conduct;
- Work Health and Safety and Wellbeing Management System;
- Western Sydney University Professional Staff Agreement 2022;
- Western Sydney University Academic Staff Agreement 2022;
- Anti-Discrimination principles, Equal Employment Opportunity and staff and student equity.

ORGANISATIONAL CHART



Position Description approved by:	Provost
Date:	16/7/2025
Position Description last reviewed by:	HR Partnerships
Date:	15/7/2025