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PhD Opportunities in Eye Health

Make your mark on the world now!

Opportunities for prestigious UNSW Scientia PhD scholarships in eye health research at The School of Optometry and Vision Science (SOVS) and The George Institute for Global Health, Sydney Office.

Both SOVS and The George Institute have a structured postgraduate program consisting of in-house research seminars, developing students methodological, statistical and research skills and access to the best researchers in Australia and Internationally, who are willing to provide their expertise, knowledge, advice and guidance.

<http://www.optometry.unsw.edu.au/research/research>

<http://www.georgeinstitute.org/careers/study-with-us>

Details of the UNSW Scientia PhD scholarships:

- **\$40,000 per annum** stipend for four years (tax free)
- **Tuition fees covered** for the full 4-year period (for international and local students)
- **Coaching and mentoring** as part of your highly personalized career and leadership development plan
- **Up to \$10,000 each year** to build your career and support your international research collaborations.

Further details of the scheme are available from the [UNSW Scientia Scholarships site](#).

Apply now using links below, **closing date 21st July 2017**

Opportunity 1: Surgical and refractive management of cataract to minimise falls risk

Project information:

Older people with cataract are at an increased risk of falls. This PhD project will use an RCT to evaluate a complex intervention involving expedited sequential cataract surgery and cautious postoperative updates to spectacle lenses to reduce the rate of falls in older people with cataract. Close to 200,000 cataract surgeries are performed in Australia each year and one-third rely on public hospital services. This project will provide high level information on the effectiveness and cost effectiveness of best practice, integrated care for cataract, as a strategy to reduce falls and improve quality of life for older people with cataract.



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The supervisory team is Associate Professor Lisa Keay, The George Institute for Global Health (UNSW) and Professor Fiona Stapleton, School of Optometry and Vision Science (UNSW).

Applications via the UNSW website:

<http://www.2025.unsw.edu.au/apply/scientia-phd-scholarships/surgical-and-refractive-management-cataract-minimise-falls-risk>

For more information contact Lisa Keay lkeay@georgeinstitute.org.au

Opportunity 2: iCareTrack: Measuring the Appropriateness of Eye Care Delivery in Australia

Translation of best available evidence into clinical practice is important as this can improve both efficacy and cost-effectiveness of patient management. The iCareTrack study aims to improve primary eye care delivery in Australia by measuring the compliance of eye care delivered in eye care practices against sets of clinical indicators. A secondary aim will be to identify inappropriate eye care and related patient and practitioner factors. This project will build on existing indicators of preventative eye care, glaucoma, and diabetic retinopathy and learnings from a feasibility study conducted in 2016-2017 to develop a nationwide approach to measuring appropriateness of eye care delivery for approximately 10 major eye conditions. A better understanding of existing eye care delivery will help guide priorities within eye care delivery, monitor quality improvement initiatives and inform consumers, communities and eye care practitioners.

The supervisory team is Dr Isabelle Jalbert, Professor Fiona Stapleton, School of Optometry and Vision Science (UNSW) and Associate Professor Lisa Keay, The George Institute for Global Health (UNSW).

Applications via the UNSW website:

<http://www.2025.unsw.edu.au/apply/scientia-phd-scholarships/icaretrack-measuring-appropriateness-eye-care-delivery-australia>

For more information contact Isabelle Jalbert: i.jalbert@unsw.edu.au

Opportunity 3: Improving Outcomes by Biosampling Ocular Surface Disease

WHO rank diseases of the cornea as a major contributor to global blindness, second only to cataract. In the Fight for Sight UK, "Sight Loss and Vision Priority Setting Partnership" novel therapeutics, improving management of dry eye and preventing vision loss from infection were the three top priorities for corneal disease. In this study, minimal ocular surface sampling of patients will be performed across a spectrum of corneal disease, encompassing dry eye and infection, and compared



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to control individuals to characterise the eye's response to these stimuli. The host inflammatory/immune transcriptome will be mapped with RNASeq and compared to protein expression in tears and in vivo confocal imaging of the ocular surface. Understanding how the patient's eye responds to these insults is crucial to the development of novel therapeutics to combat blindness due to corneal disease.

The supervisory team is Scientia Fellow Dr Nicole Carnt, Dr Ajay Kumar Vijay and Professor Fiona Stapleton, School of Optometry and Vision Science (UNSW).

Applications via the UNSW website:

<http://www.2025.unsw.edu.au/apply/scientia-phd-scholarships/improving-outcomes-biosampling-ocular-surface-disease>

For more information contact Nicole Carnt: n.carnt@unsw.edu.au

Opportunity 4: Nanodiagnosis of Eye Infections

Infection of the cornea can result in irreversible damage leading to loss of vision and blindness. The gold standard for diagnosis is corneal culture but it is only 50% sensitive and is only available in specialised centres. Several factors contribute; the small amount of material available, difficulty of obtaining specimens from deep infections and skin microbe contaminants. Culture results are not available for at least 2 days and for some organisms, such as invasive fungus, up to 10 days. In vivo confocal microscopy is a minimally invasive technique able to visualise the cornea in 3D at high resolution. Development of nanoparticles to tag microorganisms in situ would not only identify the causative organism rapidly, but could map the extent of infection and monitor resolution. This project will combine nanoparticle, vision and microbiology research in the emerging field of nanodiagnostics.

The supervisory team is Professor Mark Willcox, Scientia fellow Dr Nicole Carnt, School of Optometry and Vision Science (UNSW) and Dr Sophia Gu, School of Chemical Engineering (UNSW).

Applications via the UNSW website:

<http://www.2025.unsw.edu.au/apply/scientia-phd-scholarships/nanodiagnosis-eye-infections>

For more information contact Nicole Carnt: n.carnt@unsw.edu.au



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Opportunity 5: Novel Dual Action Antimicrobial Coatings for Biomedical Applications

Bacterial infections associated with biomedical devices represent a significant public health issue, which has been exacerbated by the rapid increase of antibiotic resistance. Therefore, it is imperative to develop a coating that uses multiple mechanisms of action in order to circumvent existing mechanisms of bacterial resistance. This proposal will develop new antimicrobial coatings that harness the combination of quorum sensing inhibitors and nitric oxide-releasing agents that provide multiple layers of protection for biomedical devices while promoting wound healing. This unique strategy has the potential to prevent device related infections, reduce health care costs and advantage the Australian biomaterials industry.

The supervisory team is Professor Mark Willcox, School of Optometry and Vision Science (UNSW), Professor Naresh Kumar and Professor Richard Tilley, School of Chemistry (UNSW).

Applications via the UNSW website:

<http://www.2025.unsw.edu.au/apply/scientia-phd-scholarships/novel-dual-action-antimicrobial-coatings-biomedical-applications>

For more information contact Mark Willcox: m.willcox@unsw.edu.au

The UNSW Scientia PhD Scholarship Scheme is part of UNSW's dedication to harnessing our cutting-edge research to solve complex problems and improve the lives of people in local and global communities. Scientia scholars will have a strong commitment to making a difference in the world with demonstrated potential for contributing to the social engagement and/or global impact pillars of the UNSW 2025 Strategy. The Scientia Scheme is targeted in that applicants apply to a specific research area with an identified supervisory team and application is by nomination.