Taste of Research
Summer Scholarships 2015/16
You may be a local or an international student.

You must submit an application form by 26 February 2016.

Eligibility

• You must be high achieving third-year* undergraduate student enrolled in a full-time program (second-year students may be considered in special circumstances).

• Students with WAM ≥75 are encouraged to apply.

• You must be enrolled in a relevant program at UNSW or another Australian or New Zealand University.

• You must submit an application form by 21 August, 2015.

• You may be a local or an international student.

*Students undertaking a combined undergraduate degree (e.g. BE(Eng), BE(Com)) may apply if entering their final year of study in 2016. This exemption does not apply to students enrolled in a BE(MBiom) or BE(EME).

Benefits

• $500 per week stipend (tax exempt)

• UNSW Bachelor of Engineering students may use their Taste of Research Summer Scholarship project towards their Industrial Training requirements (up to 6 weeks).

Availability

• The scholarships are available in a variety of research areas for a period of 12 weeks, from 23 November 2015 to 26 February 2016.

For Further Information

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CRICOS Provider Number 00096G

Graduate School of Biomedical Engineering
Megan Lord
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Physiological Measurement

Complete measurement of lower limb movement using three inertial sensors

Stephan Redmond, Lauren Kark

Developing a point-of-care diagnostic for a microneddle patch array sensor

Robert Vardon, Corey Martin

Improving clinical practice in the evaluation of gastrointestinal reflux disease

Alejandro Barriga-Rivera, Gregg J. Suaning

Inexpensive vital monitoring based on open source hardware and software platforms

Alexandra Barriga-Rivera, Gregg J. Suaning

smartPhone Apps and technologies for monitoring health

Nigel Lovett, Stephen Redmond

Biomaterials and Tissue Engineering

Biomimetic sugar polymers for tissue regeneration

Brooke Farnagga, Megan Lord

Curing Diabetes: Fabrication and characterisation of hydrogel microcarriers

Penny Martins, Laura Phoebe-Warren

Design of new polymers for use in Tissue Engineering

Penny Martins, Justine Roberts

Engineering a blood supply using novel biomaterials

Jelena Anayk-Kovacina, Megan Lord

Engineering biomaterial interfaces for blood contacting devices

Megan Lord, Brooke Farnagga

Living bioelectronics: Engineering a hydrogel carrier

Kyle Green, Penny Martins

Therapeutic bioactive nanoparticles

Megan Lord, John Whitelock

Rehabilitation Engineering

Concurrent Multibody and Finite Element Analysis of the Lower-Limbs During Amputee Running

Lauren Kark, Garth Pearce

Friction-sensing fingers for robotic and prosthetic applications

Stephen Redmond, Heba Khans

Optimization of prosthetic foot stiffness using a new multi-body model

Lauren Kark, Stacey Rigney

Implantable Bionsics

Guided neural cell differentiation for living implants

Ayle Green, Nigel Lovett

How small can we make a bionic eye? A new approach to neural activation

Gregg Suaning, Alejandro Barriga-Rivera

Implantable Microcontroller

Gregg Suaning, Martin Svehla

Measuring from hearts, eyes and brains: Next generation opsode

Nigel Lovett, Francois Ladouceur

School of Chemical Engineering
May Lim
9385 6587 | m.lim@unsw.edu.au

Energy

3D Ordered Macro-Mesoporous Perovskite Nanocatalyst
Rose Amal, Hamid Amryan

Advanced Magnetic Polymeric Membrane for Energy Efficient Micro-Heating
May Lim, Tong Gui

Biofuel from Eggshells and Magnets
May Lim, Nicholas Frisn

BIOSERF – Separator-Extrator-Reactor Filtration Unit for Intensified Bio-Harvesting and Processing
May Lim, Rita Henderson

CaO and MgO for Industrial Scale Sorbent Enhanced Reforming
May Lim, Dianne Wiley

Control the synthesis of polymer via light photopolymerisation
Cyrille Boyer, Jason Xu

Converting mussel-inspired polymers into conducting polymer membranes – potential fuel cell material
Anthony Michael Granville, Ka Wai Fan

Dark Catalysis Sees the Light: Towards Solar Fuel Conversion using Novel Nanomaterials
Rose Amal, Jessica Stanley

Development of 3D hybrid catalyst materials towards efficient conversion of energy
Rose Amal, Xunyu Lu

Graphene oxide based composite membranes for CO2 separation
Vicki Chen, Jingwei Hou

Hydrogen in Nanobubbles
Francois Aguey-Zinsu, Queen Lai

Mimicking Natural Photosynthesis to split water into hydrogen as energy carrier
Yun Hau Ng, Rose Amal

Spatially separated multi-enzyme bio-catalytic membranes for carbon dioxide conversion
Vicki Chen, Jingwei Hou

Food and Health

A survey of foods allergen measurement and labelling practices in small to medium food manufacturer
Alice Lee, Johanna Rost

Comparison of PCR based food allergen measurement kits against ELISA based kits
Alice Lee, Ji Liang

Delivery of Nitric Oxide for the prevention and the treatment of both
Cyrille Boyer, Jason Xu

Determination of FODMAPs in foods
Alice Lee, Sridevi Murudadrnan

Does rotating increase allergenicity of macadamia nuts?
Alice Lee, Sridevi Murudadrnan

Fermentation of Banana Pseudostem for synthesis of proppionic acid and Vitamin B12
Maria Veronica, Chandra-Hloe, Jayashree Arcot

Glycaemic response of foods: Validation of human studies with in vitro studies
Jayashree Arcot, Maria Veronica, Chandra-Hloe

Importance of Nanoparticle Shapes for the delivery of therapeutic agents
Cyrille Boyer, Jason Xu

Novel membrane-enzyme hydrolysis systems to reduce allergenicity of milk proteins
Vicki Chen, Alice Lee

Novel Processing of Starch to Improve Functional Properties
Alice Lee, Francesco Trujillo

Using Inner Banana Pseudo-stem as food packaging material
George Lee, Jayashree Arcot

Molecular Engineering

Control the synthesis of polymer via photosynthesis: toward to mimic the Nature
Cyrille Boyer, Jason Xu

Mussel-inspired polymers able to initiate controlled photopolymerisation
Anthony Michael Granville, Ka Wai Fan

Polymer nanoparticle synthesis using CO2 – a versatile environmentally friendly approach
Per Zetterlund, Frank Lucien

Radical polymerization in nano-reactors
Per Zetterlund, Antoine Tardy

Resolving the Silver Paradox
George Lee, Alice Lee

Size Matters at the National Measurement Institute
May Lim, Victoria Coleman

Water and Environment

Bicatalytic gas-liquid membrane contactors for CO2 removal
Vicki Chen, Jingwei Hou

Design of a rapid, portable and automated cell counting techniques for assessing algal populations
Rita Henderson, May Lim

Improved knowledge management from on-line monitoring devices in the water industry
Pierre Le-Clech, Trang Tran

Membrane distillation for treatment of municipal MBR concentrates
Vicki Chen, Hangyu Li

Method Development for the Analysis of THPS and MEB that are used in Hydraulic Fracturing
Rose Amal, Jason Scott, Gary Low, Yaron Li

Microalgae as a treatment option in wastewater treatment plants
Rita Henderson, Pierre Le-Clech

Mussel-inspired polymers for water treatment and biomass harvesting
Anthony Michael Granville, Rita Henderson

Novel filter media for water treatment: comparison of recycled glass with graded sand
Rita Henderson, Victor Guerra

Resource recovery from Distillery wastewater
Greg Leslie, Alice Antony

Have you ever wondered what research is about?

Or whether you would be interested in a research career?

To give you an opportunity to find out, the Faculty of Engineering offers Taste of Research Summer Scholarships.

More than 60 scholarships funded by the Faculty and its nine schools and the National Information and Communications Technology Australia (NICTA) are available.

Visit www.engineering.unsw.edu.au for:

1. A complete list of projects
2. Detailed description of each project
3. Project supervisor contact details
4. Apply online
School of Civil and Environmental Engineering

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Civil Structural Health Monitoring with Unmanned Aerial Vehicles (UAVs)
Jiuling Wang, Zeyu Li
Development and application of nanoparticle-based technologies for water and wastewater treatment
David Wate, Chris Miller, Shikha Gang
Developement of Reactive Barriers for Managing Radioactive Groundwater Contaminants
David Wate, Richard Collins, Andrew Kinselea
Factors contributing to the Growth & Toxicity of Freshwater Algae in Sydney Water Supply Catchments
David Wate, Mark Blyth, Brett Neilan
Factors influencing uranium extraction from tailings deposits & mobility in subsurface environments
David Wate, Richard Collins, Andrew Kinselea
From CAD and digital imaging to fully automatic adaptive structural analysis
Choonking Song, Hossein Talebi
Functionalisation of low cost support materials for sustainable groundwater water treatment and supp
David Wate, Di He
Georeferencing in a kinematic world
Craig Roberts, Samsung Lim
Light and Free-Radical Mediated Transformations of Iron and Copper in Oxid Natural Waters
David Wate, Ninh Pham, Chris Miller, Shikha Gang
Modeling of Creep and Relaxation in Ligaments and Tendons
Enab Hamed, Arnaud Castel
Online Quality Monitoring for Rapid Mapping with Unmanned Aerial Vehicle
Jiuling Wang, Muwafaq Alqurashi
Optimal design of concrete-filled steel tubular arches
Wei Gao, Binhua Wu
Robust reliability assessment of structures with varying system parameters and loads
Wei Gao, Di Wu
Rotation Capacity of Steel Fibre Reinforced Concrete (SFRC)
Taha Hosein, Rashidi Emily Moylan
Sex-Dependent Debonding Failures of Lap-Joints made with Steel and Composite Materials
Enab Hamed, Arnaud Castel

School of Computer Science and Engineering

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Algorithms
Big data analysis for understanding customer behaviour
Bang Zhang, Fang Chen
Correlation trading based on machine learning techniques
Zhang Li, Chen Cai
Crowd Sourcing Data Analytics from Social Media
Hoang Nguyen, Chen Cai
Machine Learning for Statistical Arbitrage in Stock Trading
Chen Cai, Fang Chen
Multi-agent Resource Allocation Algorithms
Hanis Aziz, Toby Walsh
Trend Prediction on Time Series
Zhong Li, Fang Chen

Artificial Intelligence
Multi-agent Resource Allocation Algorithms
Hanis Aziz, Toby Walsh