Health Research
Research degree opportunities
The Division of Health Sciences offers a dynamic research environment where leading scientists undertake research to find solutions to the big health care challenges of the 21st century.

Research in the Division encompasses a diverse range of cutting-edge projects. With a focus on improving health, research in the Division can be characterised through the main focus areas of population health, healthy lifestyles, cancer, pharmaceutical research and neuroscience and mental health.

Our research degrees provide opportunities for students to undertake real-world research, with expert researchers and using state-of-the-art facilities and equipment. We offer varied research degree programs, tailored to suit your own research interests. Use this brochure to find out more about the opportunities we can offer.

For PhD and Masters students, we offer a structured program of experiences to complement your research project and enhance your future career opportunities. As part of the Division’s commitment to the University’s Crossing the Horizon Strategic Action Plan, our Engaged PhD program will transform your PhD experience. Find out more at unisa.edu.au/Health Sciences/Research/Engaged-PhD

We look forward to talking with you about your research interests.

Ian N. Olver AM  
Director: Sansom Institute for Health Research  
Division of Health Sciences

Susan Hillier  
Associate Professor  
Dean: Research and Research Education  
Division of Health Sciences

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### How to start your research degree

If you've got an interest in health research, we may have the research degree for you. Visit [unisa.edu.au/Health-Sciences/Research/](http://unisa.edu.au/Health-Sciences/Research/) to find out more.

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Using their skills in real-world policy development and delivery, and combining these with complex, modelling of large-scale data sets to provide the evidence base, our researchers are working to deliver outcomes which will directly impact health both in specific populations and the broader community. Underpinned by the newly established [Centre for Population Health Research](http://unisa.edu.au/sansominstitute/cphr) this is research that is firmly guided by community priorities, from Indigenous health, to medicines policy, to the impact of environment on health.
Wardliparingga Aboriginal Research Unit

The Wardliparingga Aboriginal Research Unit is based at the South Australian Health and Medical Research Institute (SAHMRI). The group conducts research that is of direct relevance to Aboriginal people in South Australia, and Australia wide.

The group’s research is focused on the significant gap between the health status and life opportunities available to Aboriginal people when compared to other Australians. Wardliparingga’s goal is to generate positive long-term change for Aboriginal people in South Australia, and Australia wide.

Wardliparingga also collaborates with other Aboriginal and Torres Strait Islander and non-Indigenous researchers on national and international research projects. In 2015, a major program of work focusing on the translation of knowledge into policy.

Forming partnerships with key stakeholders and community groups is critical to achieving the best possible outcomes. Wardliparingga works with families, early childhood services, therapists and other professionals to conduct and disseminate research on early intervention to enable children to optimise their learning, growth and development.

The group’s current research interests are listed below.

- Cardiopulmonary research (led by Dr Kylie Johnston) focuses on strategies to optimise the learning experience for students in the therapies.
- Medical Radiations (led by Dr Kerry Thoirs) brings together highly skilled researchers who have combined their clinical experience and research interests to work in the area of stroke care and recovery and in rehabilitation more broadly. They are able to take relevant information from the neuroscience bench or published evidence and implement changes in clinical settings.
- Stroke and rehabilitation (led by Dr Steve Milanese and Dr Maureen McEvoy) focuses on strategies to optimise the learning experience for students in the therapies.
- Health services research and implementation science (led by Dr Saravana Kumar) investigates health services, its structures and processes and the patient journey through the healthcare system using evidence-based practice as a vehicle to improve the quality and safety of healthcare by accessing, synthesising and implementing best available evidence.
- Consumer engagement (led by Guest Research Associate, Debra Kay) focuses on evidence-informed consumer engagement in health research, governance, policy, services and care.
- International Centre for Allied Health Evidence (ICAHE) is an international leader in allied health research and evidence translation and has university partnership agreements in South Africa, India, the Philippines, Hong Kong and the United States of America.
Health Economics and Social Policy
unisa.edu.au/sansominstitute/healtheconomics

Led by Professor Leonie Segal
Ph +61 8 8302 3073
leonie.segal@unisa.edu.au

With around 950 billion spent in the Australian health sector each year, health economics is an important field of research used to advise policy makers on how best to spend the health and related health services dollar, to improve service delivery and health and wellbeing of the community. Under the leadership of Professor Leonie Segal, the Health Economics and Social Policy Group works closely with State Government agencies to enhance health economics informed decision making, improve health economics capacity in South Australia and improve the health of the community. The group's research can be classified into the three areas of developing health economics research methods, applying health economics to important issues affecting health and wellbeing, and supporting the adoption of economics informed policy and practice. A major focus of current work is on how to better support families as the core influence on mental and physical health. The research is increasingly drawing on linked administrative data to understand the impacts of early disadvantage and inform policy options to close the gap.

Healthy Environments, Healthy People
unisa.edu.au/sansominstitute/mosquito

Led by A/Prof Craig Williams
Ph +61 8 8302 9064
craig.williams@unisa.edu.au

Our group aims to improve the health of people and places by studying the interaction between the environment and human health. This includes studies of blood-feeding insects and the viruses they carry, the epidemiology of infectious diseases, and how animals adapt to survive in a changing climate. Our group works closely with government, industry, and other laboratories both in Australia and internationally.

Our main fields of research are:

- Medical entomology: studies of blood-feeding anthropods (including mosquitoes, lice, mites, virus detection)
- Epidemiology: Modelling of insect-borne viruses
- Human health and ecology: wetland health, ecosystem functionality, multi-trophic level interactions

Nutritional and Genetic Epidemiology
unisa.edu.au/sansominstitute/nge

Led by Professor Elina Hyppönen
Ph +61 8 8302 2518
elina.hypponen@unisa.edu.au

Establishing ways to overcome individual genetic vulnerabilities by lifestyle changes can offer an extraordinary opportunity to reduce disease risk. Indeed, if we are able to tailor advice to the biology of the individual, there is enormous potential for public health benefits.

The Nutritional and Genetic Epidemiology Group, led by Professor Elina Hyppönen, utilises tools from observational and genetic epidemiology to find new ways to reduce the risk of dementia and cardiovascular disease. Ongoing project focus on the examination of gene-life-style interactions, studies where we use genetic variants as proxy indicators to establish cause-effect relationships ( mendelian randomisation), and in establishing intergenerational and life-course influences on cognitive function and cardiovascular risk. Much of the work is done using large scale population studies where we use genetic variants as proxy indicators to establish cause-effect relationships ( mendelian randomisation), and in establishing intergenerational and life-course influences on cognitive function and cardiovascular risk. Much of the work is done using large scale population studies, in part in the context of leading international collaborations.

Public Health
(incorporating the Centre of Research Excellence in Chronic Disease Prevention in Rural and Remote Communities)
unisa.edu.au/sansominstitute/publichealth

Led by Professor Kerin O’Dea AO and Professor Robyn McDermott
kerin.odea@unisa.edu.au and
robyn.mcdermott@unisa.edu.au

How can we act earlier to prevent life-style related chronic diseases such as diabetes, heart disease and kidney failure? These conditions are responsible for much of the difference in the life expectancy between Indigenous and non-Indigenous Australians. How can we better use routinely collected data in health, education and community services to know if policies and programs are working?

These are just some of the important questions being investigated by members of the Public Health research concentration at the University of South Australia’s Sansom Institute for Health Research. With multiple major NHMRC-funded projects underway, the Public Health research concentration has high-level expertise across a range of areas including Indigenous health, rural and remote health, epidemiology, biostatistics, interventions in nutrition, clinical and population health and large scale data linkage.

Quality Use of Medicines and Pharmacy Research Centre
(incorporating the Medicines and Devices Surveillance Centre of Research Excellence)
unisa.edu.au/sansominstitute/qumprc

Led by Professor Libby Roughead
Ph +61 8 8302 2336
libbyroughead@unisa.edu.au

The Quality Use of Medicines and Pharmacy Research Centre works to improve the use of medicines and health outcomes in Australia and internationally.

Current research interests include:

- Determining the extent of problems with medicine use
- Improving medication safety in mental health
- Improving medicine use in aged care facilities
- Improving medicine use for disadvantaged people
- Identifying patients most at risk of adverse events
- Identifying multi-drug interactions using novel statistical methods and systems pharmacology approaches
- Developing new statistical methods to identify adverse events and the effectiveness of medicines and devices in the real world setting
- Determining the safety and effectiveness of medical devices
- Developing new models for pharmacy practice
- Testing methods to improve prescribing

- Developing and evaluating policy supporting medicine use
- Working with Indigenous groups to identify the medicinal properties of traditional medicines.
- The group works closely with consumers, health professionals, and government to improve use of medicines, through projects such as the Veterans’ Medicines Advice and Therapeutics Education Services (HATES) project – optimising medicines use for veterans, and collaborates internationally leading projects identifying the extent of adverse events across the Asia Pacific region as part of the Asian Pharmacopeidemiology Network.

If you are interested in the Quality Use of Medicines and Pharmacy Research Centre you might also find the Pharmaceutics section on page 24 to 27 of interest to you.
Safety and Quality in Health

Led by Professor Carol Grech
Ph: +61 8 8302 2514
carol.grech@unisa.edu.au

Keeping safety and quality in health as a priority is important to everyone. Group members are committed to enabling better outcomes for patients/consumers/residents ensuring they receive safer and better care each day, across all parts of our health, community and aged care sectors. The importance of the group’s research, evaluation and consultancy projects is their relevance to improving practice/service delivery and to inform health policy and clinical guidelines. We represent diverse perspectives and have demonstrated capacity and success in all research methodologies. Within our theme of safety and quality, some examples of the group’s research areas include:
- Acute and critical care
- Professional practice and workforce development
- Younger onset dementia
- Prevention and management of chronic conditions
- Quality use of medicines
- Residential and community aged care services

If you are interested in the Safety and Quality in Health research group you might also find other research groups at the School of Nursing and Midwifery of interest to you which include: Cancer Care on page 20; Education Research in Nursing, Midwifery and Health Science on page 12; Mental Health and Substance Use on page 30; Mothers, Babies and Families on page 14.

Spatial Epidemiology and Evaluation Research

Led by Professor Mark Daniel and Dr Neil Coffee
Ph: +61 8 8302 1129
mark.daniel@unisa.edu.au
Ph: +61 8 8302 2632
neil.coffee@unisa.edu.au

The Spatial Epidemiology & Evaluation Research Group (SEERG) is transdisciplinary in scope, providing expertise in epidemiology, health promotion, marketing, health geography, and sociobehavioural science. Its focus is the intersection of socio-spatial epidemiology and evaluation research for community-based disease prevention and health promotion trials in mainstream and vulnerable populations. A major aim of SEERG is to improve community health and wellbeing through engagement and knowledge translation activities with community leaders, stakeholders and policymakers. This involves strong partnerships in intervention and evaluation research, as well as quantitative statistical analyses of population trends in the relationships between social and built environmental factors, individual risk factors and population health outcomes. SEERG leads the development of SAEGIS (South Australia Epidemiological Geographic Information System), and spearheads an international geospatial health research co-operative. SEERG also provides strong expertise in qualitative, mixed-method and adaptive quantitative evaluation of complex social-health interventions which account for contextual relationships between people and places. SEERG numbers 24 postgraduate students and Research Fellows, providing a strong support network for postgraduate students.

If you are interested in the Spatial Epidemiology and Evaluation Research Group you might also find other research groups of interest to you which include: Cancer Care on page 20; Education Research in Nursing, Midwifery and Health Science on page 12; Mental Health and Substance Use on page 30; Mothers, Babies and Families on page 14.

More than just a focus on attaining and maintaining a healthy lifestyle, our researchers are also investigating health starting at the fundamental genetic level, through conception and birth, and the impact of our choices and habits on our health into adulthood and through the ageing process. Our researchers assess the impact of factors including nutrition, exercise and activity with a focus on preventing disease and our ability to maintain our health and wellbeing in a rapidly changing world.

Healthy Lifestyles
ARENA: Alliance for Research in Exercise, Nutrition and Activity
unisa.edu.au/sansom institute/arena

Ph: +61 8 8302 6558
ARENA@unisa.edu.au

The Alliance for Research in Exercise, Nutrition and Activity (ARENA) investigates the role of exercise, nutrition and activity for improving health, physical and psychological function, and sports performance in populations ranging from children to elite athletes and people with chronic disease.

The exercise focus of ARENA is related to exercise and human performance across the spectrum – from acute responses in currently sedentary individuals to working with elite athletes - the team’s research focuses on how exercise from childhood through to elder years can help to develop, maintain and optimise physical and mental health and performance. The integration of disciplines, and variety of methodological approaches, enables the group to explore the role of exercise in rehabilitation, prevention of disease, maintenance of physical and cognitive function, development of peak performance and optimisation of health from an interdisciplinary perspective.

The nutrition research undertaken by ARENA is providing scientific solutions to role of diet in addressing the many health challenges Australia will face into the future. With an ageing population, a rapid increase in obesity and mental health conditions, ARENA collaborates with hospitals, universities and other research centres to provide scientific evidence to define dietary changes which will optimise health, prevent disease and mental decline and improve physical function in our overall population.

The activity research focus of ARENA evaluates the effects of engaging in a range of activities on health. In particular, there is a focus on how the way people use their time affects physical, mental and social health. Use of time includes physical activity, sedentary behaviours like screen time, cognitive behaviours such as learning a foreign language, sleep and social interactions. Health outcomes include obesity, diabetes, cardiovascular disease, depression, and cognitive function. There is a particular focus on transition periods in a person’s life course: from primary to secondary school, from secondary school to work or university, marriage, parenthood, empty nest and retirement.

ARENA is also a leader in anthropometry (the science of body measurement) research and is home to a 3D anthropometric body scanner, a cutting-edge technology with applications ranging from ergonomics and design to defence, clothing sizing and surgery.

Early Origins of Adult Health Research Group
unisa.edu.au/sansom institute/eoahrg

Led by Professor Janna Morrison
Ph: +61 8 8302 2166
janna.morrison@unisa.edu.au

An international leader in pregnancy and fetal development research, the University of South Australia’s Early Origins of Adult Health Research Group (EOAHRG) is involved in a variety of important projects looking at how events before birth have an impact on health later in life. The group uses a range of models and analytical techniques to investigate how the physiological environment before conception and during pregnancy can contribute to a range of conditions in adulthood such as obesity, diabetes, and cardiovascular disease.
Food for Health
unisa.edu.au/sansominstitute/publichealth

Led by Professor Peter Clifton and A/Professor Jennifer Keogh
Ph +61 8 8302 2579
peter.clifton@unisa.edu.au and jennifer.keogh@unisa.edu.au

Researchers from the Food for Health group investigate dietary interventions for the prevention of type 2 diabetes and to improve glycaemic control in those who already have diabetes. They are investigating whether intermittent dieting using the 5:2 diet (2 days of low calorie intake and 5 days usual diet) is a useful strategy for weight loss and blood sugar control in people with and without diabetes. The group is also studying the mechanisms for the beneficial effects of dietary patterns identified in epidemiological studies. Current studies that researchers within the group are conducting include the effects of dietary patterns high in red meat or high in dairy foods on insulin production. There are also several weight loss studies in progress.

If you are interested in the Epilepsy research group, you might also find the Cancer Research on page 18 to 23 of interest to you.

Epilepsy
unisa.edu.au/sansominstitute/epilepsy

Led by A/Professor Leanne Dibbens
Ph +61 8 8302 1124
leanne.dibbens@unisa.edu.au

Epilepsy is a common neurological disorder, affecting more than 50 million people worldwide. Around 70 per cent of cases are thought to have a genetic basis. Headed by Associate Professor Leanne Dibbens, the Sansom Institute’s Epilepsy Research Group is a global leader in identifying the genetic causes of epilepsy. The group employs genetics, molecular biology and genomics, including next generation sequencing, to study families and individuals with epilepsy and comorbidities of autism and intellectual disability. Once a genetic cause is found, an animal model (Drosophila or mouse) can be created to further investigate the disorder. Researchers from the group have made a major contribution to the field, identifying new genes and pathways in epilepsy and other neurological disorders. Understanding the biology of the disorders is required to guide research into better treatments for patients.

Infectious Diseases and Microbiology
unisa.edu.au/sansominstitute/microbiology

Led by Dr Rietie Venter
Ph +61 8 8302 2649
rietie.venter@unisa.edu.au

The Infectious Diseases and Microbiology Group is focused on addressing a variety of biological challenges affecting human and animal health. The group’s research addresses issues such as multidrug resistance and the need to develop new treatments for infectious disease using a multipronged approach consisting of classical microbiology, protein biochemistry and bioinformatics.

Molecular and Evolutionary Physiology of the Lung
unisa.edu.au/sansominstitute/lung

Led by A/Professor Sandra Orgeig
Ph +61 8 8302 2649
sandra.orgeig@unisa.edu.au

A better understanding of how lungs work can point the way to a diverse range of innovations in health, from better care for premature babies and their mothers, to improved treatments for respiratory disease, and preventing the spread of infectious diseases such as avian flu. The laboratory’s key aim is to understand the evolution, molecular function and regulation of the pulmonary surfactant system, a complex mixture of lipids and proteins that forms a film at the air-liquid interface of the lung. Researchers examine the surfactant system under different environmental conditions (including temperature and hypoxia), in different animal models, particularly around birth/hatching and in specific disease models in order to elucidate the mechanisms contributing to altered development or pathology.
Currently, if you are over 60 years of age, you have a 1 in 2 chance of an osteoporosis-related fracture. One in 4 of these people will die within the first year and less than one third will regain their pre-fracture mobility. Current treatment therapies are poor partly because they can only be given late in life, for relatively short periods and only when significant bone loss has already occurred. New strategies to prevent bone loss in the first place are urgently needed.

Paul leads the Musculoskeletal Biology Research Group on studies which emphasise preventative strategies to minimise bone loss associated with osteoporosis. The primary research themes are (1) To develop preventative treatments for metabolic bone disease (2) To target vitamin D metabolism in bone as a therapy for hypophosphatemic rickets and (3) To establish the molecular and cellular rationale for vitamin D and calcium supplementation in preventing osteoporotic fractures.

Paul’s group uses a variety of in vivo and in vitro models spanning human and animal-based studies to answer key question of bone biology. Paul’s other significant research is in the field of vitamin D includes cancer, immunology and pregnancy.

Vitamin D and Calcium

Led by Professor Howard Morris
Ph: +61 8 8222 3031
howard.morris@unisa.edu.au

A person is admitted to hospital in Australia with an osteoporotic fracture every eight minutes costing upward of an estimated $2 billion each year in direct costs; many of these admissions could be prevented with improved nutrition, particularly vitamin D and calcium supplements, which have been proven to improve bone health and help prevent osteoporosis.

An international pioneer in the field, Professor Howard Morris is actively engaged in translational research centred on describing mechanisms surrounding vitamin D and calcium supplementation and their effects on bone health. This research uses cell and animal models as well as human studies. Based jointly at the University of South Australia and as a clinical scientist in Chemical Pathology at SA Pathology, Professor Morris’ Endocrine Research Laboratory is located within SA Pathology and is part of the Hanson Institute.
One of the highlights is the hands-on experiences that undertaking a research pathway presents and being able to work with a range of individuals in a range of environments is something I will always enjoy.

MAX NELSON
PhD Candidate in the School of Health Sciences

UniSA has a vibrant research environment with both Australian and international research experts, and the university is constantly attracting many world-class researchers to join them. This greatly promotes collaborative research works that are translational to medical care, which is my main focus of research.

CHIAO XIN LIM
PhD Candidate in the School of Pharmacy and Medical Sciences

Coming from a health promotion practice background myself, I could easily relate to those working in the community so I have always tried to make sure my research findings are the most accessible and relevant to them. Oh, and getting to move to Australia to conduct my research has been a learning experience not only professionally but personally as well.

AGUSTINA GANCIA
PhD Candidate in the School of Health Sciences

Further study really secured for me that this was what I was supposed to be doing and also gave me the confidence that I could do it well. Now, UniSA has provided me with an opportunity to foster my interests in mental health with a specific focus on suicide in older people.

KATE DEUTER
PhD Candidate in the School of Nursing and Midwifery

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KATE DEUTER
PhD Candidate in the School of Nursing and Midwifery
Our researchers are dedicated to the cause of controlling cancer and its effects. Research extends from discovering and developing new drugs, novel treatments and methods of detection and diagnosis, to improving prevention, screening, treatment and supportive care strategies. This is based on evidence which supports best practice, and consideration of the wider impact of cancer not only on the individual, but the community which surrounds and supports them.
Bone Growth and Repair
unisa.edu.au/sansominstitute/bonegrowth

Cancer Care
Led by Professor Cory Xian
Ph +61 8 8302 9844
cory.xian@unisa.edu.au

This research group focuses on paediatric bone biology research. This group explores the mechanisms and regulation of children's bone growth, bone growth defects, growth plate and bone injury, repair, cancer, chemotherapy and ageing-induced bone loss, with the aims of understanding the underlying pathobiology and developing biological treatments that impact on children's bone growth, bone mass accumulation and adult bone health.

Cancer in the Community
Led by Professor Ian Oliver AM
Ph +61 8 8302 2954
ian.oliver@unisa.edu.au

Professor Ian Oliver AM is conducting research to find ways to improve the quality of life of people affected by cancer. The work aims to better understand how spiritual aspects of people's lives, particularly finding meaning and achieving peace help influence the way they cope, especially with the threat of cancer to themselves and their loved ones. It examines the importance of hope, building on previous research. Research studies include a comparison of cancer survivors with other groups including patients with other chronic diseases, carers and health professionals. To understand what influences quality of life which encompasses physical, social emotional functional and spiritual wellbeing enables interventions which can improve the quality of life in survivors of cancer.

Cancer in the Community
Led by Professor Adrain Esterman and A/Professor Kay Price
Ph +61 8 8302 2163
adrian.esterman@unisa.edu.au
Ph +61 8 8302 2721
kay.price@unisa.edu.au

Cancer Care has a specific focus on advancing the contribution of nurses and nursing in disease prevention and screening, improving the quality of cancer care and cancer treatments, promoting recovery and supportive care of survivors and their families across the life-course. This focus builds on and complements the University of South Australia's extensive interests in cancer research including cancer cell biology, drug discovery, drug delivery, and cancer epidemiology. Professor Esterman is a well-established cancer researcher with many years of experience working in cancer epidemiology. A/Professor Kay Price is an internationally recognised nurse with expertise in health services research and is particularly well-regarded for her critical analytical skills.

If you are interested in the Cancer Care research group, you might also find the other research groups in the School of Nursing and Midwifery of interest to you which includes: Education Research in Nursing, Midwifery and Health Science on page 17; Mental Health and Substance Use on page 35; Maternity, Robes and Families on page 14; Safety and Quality in Health on page 8.

Cancer in the Community
Led by Professor Ian Oliver AM
Ph +61 8 8302 2954
ian.oliver@unisa.edu.au

With around one in two people likely to be diagnosed with cancer at some point in their lives, cancer in its many forms is one of Australia's major research and health care priorities. Despite the growing disease burden, progress for many cancer patients are achieving, with survival rates on the rise and an increasingly effective variety of screening techniques, therapies and preventative strategies available.

Ensuring our healthcare systems make the best use of all these strategies are one of the key aims of the Cancer Epidemiology and Population Health Research Group. The research group's role involves:
- Population health research
- Health services research
- Applied clinical research
- Development of SA research infrastructure & capacity
- Translation of research evidence into health services and clinical practice
- Biostatistics
- Informatics
- Health services research
- Applied clinical research
- Development of SA research infrastructure & capacity
- Translation of research evidence into health services and clinical practice

If you are interested in the Cancer Epidemiology research group, you might also find Population Health on page 3, Quality of Life on page 8 and Mental Health on page 35 of interest to you.

Cancer in the Community
Led by Professor David Roder
Ph +61 8 8302 2964
david.roder@unisa.edu.au

Led by Professor Shudong Wang
Ph +61 8 8302 2372
shudong.wang@unisa.edu.au

Headed by Professor Shudong Wang, the Centre for Drug Discovery and Development hosts a state-of-the-art equipment and research laboratory. This multi-disciplinary research team seeks to advance the discovery and development of new, safer and more effective medicines for treatment of diseases, particularly cancer. The combination of capabilities in computational and structure-based drug design and screening, advanced synthetic and medicinal chemistry, target-driven biochemical and cell biology, ADME/Toxicology and pharmacy, as well as pre-clinical drug evaluation in a single cohesive research group is unique in a higher education sector. The strategy holds promise for rapid advancement of cancer drug discovery in an effort to identify drug candidates as well as novel therapeutic targets.

If you are interested in the Centre for Drug Discovery and Development, you might also find Population Health on page 8, Cancer in the Community on page 36, and Toxicology on page 27 of interest to you.
The Centre for Cancer Biology (CCB) studies the fundamental causes of cancer in order to find new ways to prevent and treat the disease. The CCB is a member of the Australian Medical Research Association of Australian Pathology and the University of South Australia as a hub for innovative science leading to breakthrough clinical needs.

Led by Professor Angel Lopez FAA and Ph: +61 8 8222 3422
angel.lopez@health.sa.gov.au and
www.centreforcancerbiology.org.au

The Centre for Cancer Biology (CCB) studies the fundamental causes of cancer in order to find new ways to prevent and treat the disease. The CCB is a member of the Association of Australian Medical Research Institutes (AAMRI), and was established as an alliance between SA Pathology and the University of South Australia as a hub for innovative science leading to breakthrough therapies. The CCB currently hosts the following research groups:

**Acute Leukaemia Laboratory**
Led by Professor Richard D’Andrea and A/Professor Ian Lewis
The group studies the genetic and epigenetic mechanisms involved in normal blood cell development and the changes associated with acute myeloid leukaemia and other pre-leukaemic blood diseases, in an effort to improve patient stratification for treatment options.

**Cell Signalling Laboratory**
Led by A/Professor Yeasm Khow-Goodall
The group’s focus is to understand what turns a benign cancer cell which remains local and treatable to a metastatic cell, capable of spreading to multiple organs.

**Cytokine Receptor Laboratory**
Led by Professor Angel Lopez
The group seeks to understand the mechanism of cytokine receptor activation in health and disease, to support the development of new drugs for unmet clinical needs.

**Gastroenterology Research Laboratory**
Led by A/Professor Andrew Ruszkiewicz
This group is engaged in research activities spanning aspects of gastroenterology pathology including cancer precursor lesions and malignancies of the colon, oesophagus and pancreas.

**Gene Regulation Section**
Led by Professor Creg Goodall
Research is focused on molecular mechanisms regulating cancer cell metastasis, including mechanisms involving microRNAs, circadian rhythms and gene transcription. The Section includes research groups headed by Dr Cameron Bracken, focusing on microRNAs and their targets and Dr Philip Gregory, investigating the regulation of alternative splicing in cancer.

**Leukaemia Unit, Molecular and Genetic Pathology**
Led by A/Professor Susan Branford
The Leukaemia Unit investigates the molecular response to therapy by an examination of the genetic abnormality, using the initial response to therapy as a potential predictor of the long-term outcome.

**Lung Research Laboratory**
Led by Professor Paul Reynolds
The group has a range of projects involving lung cancer, pulmonary vascular disease and airway inflammation, and includes gene and cell therapy strategies and the use of conditionally replicative viruses as cancer therapies.

**Lymphatic Development Laboratory**
Led by A/Professor Natasha Harvey
The group’s focus is to understand how the growth and development of lymphatic vessels is controlled during embryonic development and in disease states.

**Mast Cell Laboratory**
Led by A/Professor Michele Grimbaldeston
The work of the group is focused on the role of mast cells in allergic responses in specific parts of the body, and how these might be regulated to dampen allergic responses.

**Molecular Pathology Research Laboratory**
Led by Professor Hamish Scott
The laboratory’s research focus is the study of transcriptional mechanisms and molecular pathogenesis, including identification of disease causing genes and mutations.

**Molecular Regulation Laboratory**
Led by Professor Sharad Kumar
The laboratory’s research focus is the study of transcriptional mechanisms and molecular pathogenesis, including identification of disease causing genes and mutations.

**Neurovascular Research Laboratory**
Led by Dr Michael Brown
The laboratory’s research focus is the study of transcriptional mechanisms and molecular pathogenesis, including identification of disease causing genes and mutations.

**Myeloma Research Laboratory**
Led by Professor Andrew Iannettoni
The laboratory’s research efforts centre on identifying the molecular and cellular mechanisms responsible for myeloma disease progression.

**Translational Oncology Laboratory**
Led by Dr Quenten Schwarz
The research focus of the laboratory is to advance understanding of the molecular development of the neuronal and vascular systems.

**Trafficking Laboratory**
Led by A/Professor Michele Grimbaldeston
This state-of-the-art Facility is headed by Mr Joel Geoghegan and Dr Andreas Schreiber and provides opportunities to pursue studies in genomic medicine and bioinformatics.

**Vascular Biology and Cell Trafficking Laboratory**
Led by A/Professor Claudine Bonder
The Laboratory’s major focus is to investigate the blood vasculature in normal and disease states. Examination of how blood vessels form and are activated during disease progression may provide new treatment options for cancer, cardiovascular disease and allergy. Dr Lisa Ebert heads a research group within the Laboratory investigating the interaction of human melanoma cells with the vascular and immune systems.

**ACRF Cancer Genomics Facility**
This state-of-the-art Facility is headed by Mr Joel Geoghegan and Dr Andreas Schreiber and provides opportunities to pursue studies in genomic medicine and bioinformatics.
With world-class expertise and access to state-of-the-art facilities, our researchers are developing advanced therapeutics, designing targeted delivery systems to help us get the maximum benefit from our medicines, and implementing strategies to ensure and improve the safety and efficacy of medications, in support of improved health outcomes.
Opioids and stimulants have been widely used for thousands of years, and despite their potentially addictive properties, they continue to play an important role in modern medicine. Advances in technology and clinical practice are now allowing researchers to understand how to harness such drugs for therapeutic use while limiting their adverse effects. Meanwhile, increased capacity for human trials research is opening the door to more effective treatments for addiction.

Led by leading psychopharmacologist Professor Jason White, the Drugs of Dependence research group conducts trials examining the physiological, behavioural and cognitive effects of a wide range of drugs, particularly opioids, stimulants and drugs that work on the central nervous system.

The Experimental Therapeutics Laboratory generates research aimed at developing new therapeutics to prevent and treat diseases such as cancer, infection and autoimmunity. With major projects in areas including vaccine design, reproductive immunology and tumour immunotherapy, industry experience and clinical expertise ensure that the research generated has a strong likelihood of resulting in real therapeutic outcomes, with a direct and established path toward the clinical translation of results.

The Centre for Pharmaceutical Innovation and Development (CPID) is a unique collaboration between UniSA Pharmaceutical researchers and local industry having GLP and GMP compliant facilities. CPID is a pharmaceutical research and training network based at the University of South Australia’s Sansom Institute for Health Research. The Centre boasts purpose built product development, analytical and pilot scale pharmaceutical manufacturing laboratories, providing research students with access to state-of-the-art facilities to match industry standards. CPID acts as a one stop destination for progressing molecules to medicines, ensuring significant savings of time and resources.

The Therapeutics and Pharmaceutical Science Consortium (TPSC) consists of a number of research centres and units focused on improving patient health outcomes and quality of life through the appropriate and timely clinical implementation of therapeutics derived from pharmaceutical sciences and medicine. The consortium brings together a diverse group of pharmaceutical and medical scientists working across a range of cutting edge investigations, from identifying better medicines for angina and infection, to drug delivery and pharmacokinetic studies and developing safer treatments for skin cancer.

The TPSC’s research strengths include a wide range of therapeutics including the chemistry of drugs (modelling, drug design and ethnopharmacology), the effects drugs have on the body (pharmacology and toxicology) and the effects the body has on drugs (pharmacokinetics and drug delivery), through to how drugs can be best used to treat disease (topical drug delivery). The TPSC is involved in a wide range of projects aimed at treating disease and optimising health, from computer modelling of drug disposition, fundamental surface science in biochemical processes through to pharmacogenetics.
Using brain health as a common point, our researchers are investigating across a range of populations from people with chronic pain through to suicide prevention and rehabilitation after neurotrauma, neurodegeneration or drug use. Again, the emphasis is on translation of discoveries in mechanisms and pathways through to the clinical and community settings.
Affecting around one in five adults, chronic pain is estimated to cost Australia approximately $35 billion a year – a financial burden that is greater than cardiovascular disease and diabetes combined.

The Body in Mind research concentration is represented by over 20 researchers from several backgrounds and nationalities. Together they are shedding light on why some people experience chronic ongoing pain and others don’t; what can be done to prevent chronic pain and what can be done to treat it.

Led by clinical neuroscientist and physiotherapist Professor Lorimer Moseley, the group conducts research across the translational pipeline from fundamental behavioural experiments in humans to randomised clinical trials and multi-centre studies.

As part of the Nursing Midwifery and Mental Health concentration, the Mental Health and Substance Use group is leading numerous initiatives aimed at improving the lives of people with mental health and substance use issues, including research, education and professional development initiatives, as well as providing policy advice to state and federal governments.

The group has extensive links with government and non-government organisations. With an estimated one in five Australians affected by mental illness at some point in their lives, mental health is now emerging as a critical priority on the research landscape.

The strategic purpose of the Mental Health and Substance Use group is to demonstrate through research and example, how much consumers, clinicians and academic faculty can achieve working together. Group members come from a range of professional backgrounds and hold broad discipline specific interests.

The Neuroscience concentration is focussed on brain function in health and disease. The research aims to improve management of clinical problems such as pain, epilepsy, multiple sclerosis, Alzheimer’s disease, stroke, Parkinson’s disease, drug dependence and sleep disorders. Researchers in the concentration hail from a range of disciplines - including physiotherapy, psychology, pharmacy and pharmacology, engineering and physiology - across three Divisions of the University.

The collective approach to brain function in health and disease is through a variety of methods: understanding molecular mechanisms of disease and regeneration; use of stem cells in spinal cord injury; brain imaging and brain stimulation; genetic studies of the origins of neurological disorders; measuring psychoactive drug action and effects in model systems and in people; and mathematical modelling of nervous system functioning and assessment of cognitive functioning.

If you are interested in the Mental Health and Substance Use research group, you might also find the other research groups in the School of Nursing and Midwifery of interest to you which includes: Cancer Care on page 24, Education Research in Nursing Midwifery and Health Science on page 16, Mothers, Babies and Families on page 18, Safety and Quality in Health on page 11.
Honours Programs
Bachelor of Health Science (Honours)
Dr Steve Milanese
Location: C8-40J, City East
Phone: +61 8 8302 1015
Email: steve.milanese@unisa.edu.au

Bachelor of Biomedical Research (Honours)
Associate Professor John Hayball
Location: P4-W14 (via R4-25), City East
Phone: +61 8 8302 0002
Email: john.hayball@unisa.edu.au

With Honours Programs
Bachelor of Laboratory Medicine with Honours
Dr Maurizio Costabile
Location: P5-47, City East
Phone: +61 8 8302 2176
Email: mauriziacostabile@unisa.edu.au

Bachelor of Occupational Therapy with Honours
Dr Mandy Stanley
Location: BJ2-09, City East
Phone: +61 8 8302 2705
Email: mandy.stanley@unisa.edu.au

Bachelor of Pharmacy with Honours
Dr Michael Ward
Location: P2-W14, City East
Phone: +61 8 8302 2838
Email: michael.ward@unisa.edu.au

Bachelor of Physiotherapy with Honours/
Bachelor of Podiatry with Honours
Dr Shylie Mackintosh
Location: C7-68, City East
Phone: +61 8 8302 2075
Email: shylie.mackintosh@unisa.edu.au

School of Health Sciences
Associate Professor Marie Williams
Location: C8-51, City East
Phone: +61 8 8302 1153
Email: marie.williams@unisa.edu.au

School of Nursing and Midwifery
Dr Matthew Leach
Location: C6-42, City East
Phone: +61 8 8302 2846
Email: matthew.leach@unisa.edu.au

School of Pharmacy and Medical Sciences
Associate Professor Robert Milne
Location: P4-W12, City East
Phone: +61 8 8302 2335
Email: robert.milne@unisa.edu.au

Population Health
Wardliparinga Aboriginal Research Unit
International Centre for Allied Health Evidence
Health Economics and Social Policy
Healthy Environments, Healthy People
Nutritional and Genetic Epidemiology
Public Health
Quality Use of Medicines and Pharmacy Research Centre
Safety and Quality in Health
Spatial Epidemiology and Evaluation Research

Healthy Lifestyles
ARENA: Alliance for Research in Exercise, Nutrition and Activity
Early Origins of Adult Health Research Group
Education Research in Nursing, Midwifery and Health Science
Epilepsy
Food for Health
Infectious Diseases and Microbiology
Molecular and Evolutionary Physiology of the Lung
Mothers, Babies and Families Health
Musculoskeletal Biology
Vitamin D and Calcium

Cancer
Bone Growth and Repair
Cancer Care
Cancer in the Community
Cancer Epidemiology
Centre for Drug Discovery and Development
Mechanisms in Cell Biology and Diseases
Centre for Cancer Biology

Pharmaceuticals
Drugs of Dependence
Experimental Therapeutics
Centre for Pharmaceutical Innovation and Development
Therapeutics and Pharmaceutical Science

Neuroscience and Mental Health
Body in Mind
Mental Health and Substance Use
Neuroscience
The University reserves the right to alter, amend or delete any program, fee, course, admission requirement, mode of delivery or other arrangement without prior notice.

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