

Research Degrees

Actuarial Studies

Faculty of Commerce and Economics

The University of New South Wales

Sydney, Australia

Research Degrees in Actuarial Studies

Actuarial Studies, at the University of New South Wales, has quickly established itself as a centre of excellence in research and teaching in actuarial studies. Our objective is to maintain and further develop our reputation as the prestige program in actuarial research in Australia and South East Asia. Our research degree program is an important part of this objective. Actuarial Studies is interdisciplinary by nature and research training in actuarial studies at UNSW is designed to take full advantage of the strengths of the University in areas related to actuarial studies such as finance, economics, mathematics and statistics.

Established in 1998, the Actuarial Studies program at UNSW has rapidly gained a reputation for research innovation and excellence.

We have developed strong links with industry through our Co-operative Education program. This is the first and only actuarial studies Co-operative Education program in an Australian University. Companies involved with sponsoring this program are AMP, American Re, Australian Prudential Regulation Authority (APRA), Colonial First State, Commonwealth Actuarial, Ernst & Young ABC, GIO Suncorp-Metway, KPMG Actuaries, Macquarie Bank, Medical Benefits Fund of Australia, NRMA, ING, MLC, PricewaterhouseCoopers, Taylor-Fry Consulting, Tillinghast-Towers Perrin, Towers Perrin, Tower Life, Trowbridge Consulting, Watson-Wyatt Worldwide, Westpac, William M Mercer, Zurich.

Our staff have strong academic qualifications and professional experience. All staff pursue active research programs in areas at the forefront of professional actuarial developments.

We have strong links with actuarial professional bodies around the world. Our staff have membership of all the major international actuarial professional bodies including The Institute of Actuaries of Australia, The Institute of Actuaries (UK), the Society of Actuaries (North America) and the Casualty Actuarial Society. The actuarial program at UNSW is accredited by The Institute of Actuaries of Australia under its latest accreditation requirements. The Institute of Actuaries (London) has accredited the UNSW program. The program also has strong links with the Society of Actuaries (North America). The Casualty Actuarial Society (North America) has appointed a liaison member for UNSW.

Our staff benefit from research support from both government and industry the Australian Research Council as well as the Institute of Actuaries of Australia. We are recognised as a Centre of Excellence by the Institute of Actuaries of Australia.

Staff have occasional involvement in research-based consulting projects with industry sponsors.

The research of the actuarial studies staff at UNSW has been recognised by the award of prizes including the Redington prize of the Society of Actuaries Investment Section and the Jackson Prize of The Institute of Actuaries of Australia.

What research degrees are available?

Actuarial Studies offers one research degree at postgraduate level:

- Doctor of Philosophy (PhD).

Doctor of Philosophy (PhD)

Actuarial Studies: Program Code: 1545

The PhD program is designed to equip students with advanced research training in actuarial studies and to promote research which makes an original and significant contribution to developments in the theory and practice of actuarial science.

In the PhD program students complete any required qualifying courses, their concurrent prescriptions, and then undertake original research leading to the preparation of a substantial research thesis.

Because of the interdisciplinary nature of actuarial studies, PhD students are expected to complete a number of courses drawn from various areas in the Faculty, and the University more widely, in order to develop their research skills. This could include, for example, graduate courses in economics, banking and finance, mathematics, statistics as well as in actuarial science. These courses are agreed with the supervisor based on the proposed topic of the research and the background of the student.

Thesis

ACTL5000	Thesis (Full-time)
ACTL5001	Thesis (Part-time)
ACTL5003	Research Topics in Actuarial Science

Does the school have any limits on accepting candidates for this program?

Entry into the PhD program in actuarial studies is competitive and would normally be limited to one student per year depending on the availability of supervisors. In addition to the academic requirements for entry into the program, potential students will normally have completed professional courses in actuarial science or have a strong academic record in a discipline related to actuarial science.

It is normally expected that any student accepted into the program will be studying full time although part time candidature is considered for exceptional applicants.

Benefits of undertaking research training

Research training provides the opportunity to be recognised as a leader in a specialised area of theory and/or practice of relevance to the actuarial profession. It promotes the development of analytical skills and provides high level training in research methods. It encourages the development of a rigorous and scientific approach to problem solving. Opportunities will be available to develop teaching skills and to interact with staff in a variety of areas in the University.

Forms of research training are offered

Research training is the main focus of the program. This training involves the prescription of from four to eight specialised courses drawn from courses within the Faculty and across the University including courses in research methods.

Research students are required to participate in the research program of the Unit. This includes contributing to the research papers published by the Unit and attending research seminars within the Unit. Attendance at seminars in areas related to the student's research in other Schools in the Faculty and the University is actively encouraged.

Research students are also expected to present at Unit/School seminars and conferences and to promote the Unit's research program.

How are students selected onto our research degree programs?

Entry into the PhD program in actuarial studies is competitive and would normally be limited to one student per year depending on the availability of supervisors.

A range of criteria is used to select students, including:

- Academic record. Typically students would have a first class Honours degree from a leading university. This would be in actuarial science or be a strongly quantitative degree that could include finance, risk and insurance, economics, engineering, mathematics or statistics. Students will normally have completed or gained exemption from most of the actuarial studies professional subjects.
- Evidence of an aptitude to undertake research. This would include completion of an Honours program or graduate study including a strong research component.
- The quality of the research proposal. You should normally discuss your proposed area of research with the Head of School prior to submitting an application. The research proposal should be appended to your application. It needs to be detailed enough for an assessment to be made of the quality and viability of the proposed topic and methodology.
- Compatibility with the research priorities in Actuarial Studies. Students need to have an interest in an area central to actuarial science and the research interests of staff in the School.

Research management and facilities in the Faculty of Commerce and Economics

The Faculty of Commerce and Economics is committed to research excellence. It has a comprehensive and coordinated research strategy designed to support and develop young researchers. This strategy is driven by the Associate Dean (Research) in close cooperation with the Dean and the Faculty Research Management Committee. The Associate Dean (Research) is available at any time to discuss general research concerns with all PhD students. The Faculty provides excellent facilities to support our PhD students. Every PhD student has access to a personal computer with standard software, free email and internet access as well as an attractive space to study and interact with fellow students.

Research strengths in Actuarial Studies

The research strengths in Actuarial Studies at UNSW are focussed on the theory and application of financial economics, financial and statistical modeling of insurance and superannuation risk measurement and management. Integrated risk management and dynamic financial analysis is a major area of research involving the incorporation of financial, economic and actuarial approaches to insurance risk management and financial modeling.

Major areas of research are the pricing of insurance risk and the development of optimal asset allocation strategies to meet the risk objectives of insurance and retirement funds.

Actuarial staff actively participate and present at leading international conferences in actuarial science, insurance, and finance.

Staff available to supervise research degrees

The following staff, each with their areas of interest listed, are available to supervise research degrees.

Professor Michael Sherris (m.sherris@unsw.edu.au)

- Application of financial theory and option pricing theory to insurance and superannuation
- Risk measures and application to premium rating and investment strategy

- Interest rate modeling and risk management
- Stochastic asset models and dynamic financial analysis for insurance and superannuation applications
- Strategic asset allocation and portfolio selection models including risk sensitive asset allocation

Associate Professor Emiliano Valdez (e.valdez@unsw.edu.au)

- Copulla models and dependent risks
- Survival analysis, mortality studies and competing risks
- Application of financial economics in actuarial science

Dr Jiwook Jang (j.jang@unsw.edu.au)

- Stochastic processes in actuarial science, insurance and finance
- Theory and application of piecewise deterministic Markov processes
- Reinsurance models and pricing
- Insurance derivatives pricing
- Actuarial statistics.

Dr Sachi Purcal (s.purcal@unsw.edu.au)

- Optimal portfolio selection
- The economic efficiency of mandated saving

Dr Maritina T Castillo (tina.castillo@unsw.edu.au)

- Stochastic Control in Insurance
- Insurance Risk Management
- **Mathematics Applications in Insurance and Finance**

Actuarial Studies staff have developed extensive research links particularly with international institutions. Staff have strong links with researchers around the world including actuarial, finance and insurance researchers at the University of Waterloo, University of Iowa, University of Wisconsin-Madison, Georgia State University, University of Illinois, Fudan University, University of Haifa and London School of Economics.

Where can you obtain further information?

All applicants should read the Faculty of Commerce and Economics brochure Postgraduate Research Programs 2003. This contains general administrative information and details of scholarships.

For copies of this brochure, fees and research degree application forms, please contact:

The Student Centre
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For specific information about research proposals, please contact

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