Centre for Actuarial Studies

ANNUAL REPORT 2011
# Contents

- The Year in Review...................................................................................................................... 3
- Teaching ...................................................................................................................................... 5
- Student Prize Winners............................................................................................................... 6
- PhD Students and Research Topics.......................................................................................... 6
- Publications and Other Research Activities in 2010................................................................ 7
- Research Paper Series................................................................................................................ 9
- Staff and Advisory Board.......................................................................................................... 11
INTRODUCTION
The main activities of the Centre for Actuarial Studies are teaching future actuaries, research and knowledge transfer. The Centre is proud of the high achieving students it attracts and strives to give them the best preparation for actuarial and other quantitative work. Because it is fully accredited by the Actuaries Institute, the Centre for Actuarial Studies allows its students to obtain exemptions from the whole of Parts I and II of the actuarial examinations. With regard to research, the members of the Centre are experts in their fields and are internationally recognised for their work in actuarial science, financial mathematics and related disciplines. The Centre has eight full-time academic staff and a number of part-time lecturers from the actuarial profession (the complete list is at the end of this report). The new degree of Master of Actuarial Science came into existence in 2011. In 2011 the Centre saw an increase in the number of students, while research output increased.

The Centre for Actuarial Studies continues to be the focal point for actuarial education in Victoria. It attracts the support of the actuarial profession in Australia and produces quality applied and theoretical research. It also maintains strong international links and contributes to the local actuarial community.

STAFF NEWS
Professor Daniel Dufresne was the Director of the Centre for the first semester, but was on study leave for the second half of the year, when Professor Mark Joshi took over as interim Director. Daniel worked with co-authors in Canada, the USA and Germany.

Drs. Enrique Calderin and Zhuo Jin joined the Centre as lecturers in September. Dr. Calderin has a PhD from the Universidad de Las Palmas de Gran Canaria (Spain) and works on actuarial statistics and distribution theory. Dr. Jin has a PhD from Wayne State University (USA) and works in mathematical finance and numerical methods for stochastic systems.

RESEARCH ACTIVITIES
Research continued in a variety of areas including applied probability, disability income insurance, financial mathematics, investments, market models and risk theory. Staff continued to publish in quality journals and to present their research at seminars and conferences around the world; the number of publications increased in 2011.

Details of publications and additions to the Centre’s Research Paper Series can be found later in this report. During the year the members of the Centre acted as referees for a wide variety of academic and professional journals.

RESEARCH GRANTS
Ping Chen was awarded a University of Melbourne Early Career Research Grant for a project entitled “Enhance the Applicability of Mean-Variance Optimisation by Random Matrix Theory”.

Daniel Dufresne continued his Linkage Grant for a project “Understanding Cycles in Mineral Commodity Prices, a Market Model with Uncertainty”.

Greg Taylor, Benjamin Avanzi (UNSW) and Bernard Wong (UNSW) were awarded a research grant by the Actuaries Institute for a project entitled “An Innovative Approach to Stochastic Claims Reserving with Dependence”. Another joint grant for Greg was entitled “Robust Loss Reserving” with Dimitri Semenovich (UNSW). Greg also had two independent grants entitled “Hierarchical Kalman Filter” and “Meyers-Shi Finalisations”.

TEACHING ACTIVITIES
Overall enrolments maintained an upward tendency from their 2010 level. Moreover, enrolments at the 3rd year and the 4th year level were very good; 53 students completed the Honours year. Details of enrolments are given later in this report.

The new subject ACTL60009 Actuarial Practice & Control III commenced in July 2011 as part of Part II exemption. Topics include the analysis of investment portfolios and asset classes from the perspective of an appointed actuary, with a view to identifying assets that suit the requirements of a variety of general insurance, life insurance, superannuation and other defined benefit liabilities. A total of 37 students enrolled in the subject.

Teaching activities were supported by a number of external lecturers including Mr Richard Fitzherbert (Financial Mathematics II), Dr Jules Gribble, Mr David Heath, Mr Cary Helenius, and Mr Donald Campbell (Actuarial Practice and Control I and II).

VISITORS
Professor Felisa Vázquez-Abad, from the City University of New York, visited the Centre in January, February and part of July.

Associate Professor Jingfeng Xu, from the China Institute of Actuarial Science, the Central University of Finance and Economics, visited the Centre from February to May.
PROFESSIONAL ACTIVITIES
David Dickson is an external examiner and an independent examiner for the UK actuarial profession at Nanyang Business School, Singapore.

AWARDS AND PRIZES
Professor Mark Joshi was awarded the prize for “Exceptional Distinction in Research and Research Training” by the Faculty of Business and Economics.
Dr. Xueyuan Wu and Associate Professor Shuanming Li were awarded the Dean’s Certificate for Research Excellence for 2010.
Dr. Ping Chen was awarded a Dean’s Certificate of Excellent Undergraduate Teaching for 2010.
Associate Professor Shuanming Li was awarded a Dean’s Certificate of Excellent Honours and Postgraduate Teaching for 2010.

MASTER OF ACTUARIAL SCIENCE
The Master of Actuarial Science degree debuted in February 2011. This two-year Masters program consists of 16 subjects (8 core plus 8 elective subjects) and aims to provide initial actuarial education for graduates who have mathematical or statistical specialisations (e.g. in mathematics, physics, or engineering). Students obtain exemptions from the Actuaries Institute examinations if they get high enough results in the relevant subjects. The program director is Professor David Dickson. Further information about this new degree is available online at http://www.gsbe.unimelb.edu.au/programs/actuarial-studies/master-of-actuarial-science.html
TEACHING

Undergraduate & Honours Teaching

<table>
<thead>
<tr>
<th>Subject Name</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTL10001 Introduction to Actuarial Studies</td>
<td>161</td>
<td>178</td>
<td>174</td>
</tr>
<tr>
<td>ACTL20001 Financial Mathematics I</td>
<td>119</td>
<td>158</td>
<td>126</td>
</tr>
<tr>
<td>ACTL20002 Financial Mathematics II</td>
<td>99</td>
<td>130</td>
<td>115</td>
</tr>
<tr>
<td>ACTL30001 Actuarial Modelling I</td>
<td>119</td>
<td>99</td>
<td>112</td>
</tr>
<tr>
<td>ACTL30002 Actuarial Modelling II</td>
<td>118</td>
<td>102</td>
<td>112</td>
</tr>
<tr>
<td>ACTL30003 Contingencies</td>
<td>97</td>
<td>93</td>
<td>107</td>
</tr>
<tr>
<td>ACTL30004 Actuarial Statistics</td>
<td>89</td>
<td>92</td>
<td>102</td>
</tr>
<tr>
<td>ACTL30005 Models for Insurance and Finance</td>
<td>89</td>
<td>87</td>
<td>109</td>
</tr>
<tr>
<td>ACTL30006 Financial Mathematics III</td>
<td>109</td>
<td>93</td>
<td>107</td>
</tr>
<tr>
<td>ACTL40001 Actuarial Studies Research Essay</td>
<td>6</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>ACTL40002 Risk Theory I</td>
<td>39</td>
<td>55</td>
<td>50</td>
</tr>
<tr>
<td>ACTL40003 Risk Theory II</td>
<td>15</td>
<td>29</td>
<td>21</td>
</tr>
<tr>
<td>ACTL40004 Advanced Financial Mathematics I</td>
<td>37</td>
<td>53</td>
<td>50</td>
</tr>
<tr>
<td>ACTL40005 Actuarial Studies Projects</td>
<td>33</td>
<td>45</td>
<td>47</td>
</tr>
<tr>
<td>ACTL40006 Actuarial Practice and Control I</td>
<td>37</td>
<td>54</td>
<td>50</td>
</tr>
<tr>
<td>ACTL40007 Actuarial Practice and Control II</td>
<td>27</td>
<td>32</td>
<td>24</td>
</tr>
<tr>
<td>ACTL40008 Advanced Financial Mathematics II</td>
<td>17</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>ACTL40009 Actuarial Practice and Control III</td>
<td>37</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Enrolments: 1211 1325 1368

Master Teaching

<table>
<thead>
<tr>
<th>Subject Name</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTL90001 Mathematics of Finance I</td>
<td>4</td>
</tr>
<tr>
<td>ACTL90002 Mathematics of Finance II</td>
<td>3</td>
</tr>
<tr>
<td>ACTL90006 Life Insurance Models 1</td>
<td>4</td>
</tr>
<tr>
<td>ACTL90007 Life Insurance Models 2</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Enrolments: 15

The table below shows the numbers of students awarded an Honours degree over the last four years.

<table>
<thead>
<tr>
<th></th>
<th>H1</th>
<th>H2A</th>
<th>H2B</th>
<th>H3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>13</td>
<td>16</td>
<td>11</td>
<td>6</td>
<td>46</td>
</tr>
<tr>
<td>2009</td>
<td>15</td>
<td>7</td>
<td>13</td>
<td>2</td>
<td>37</td>
</tr>
<tr>
<td>2010</td>
<td>17</td>
<td>14</td>
<td>15</td>
<td>6</td>
<td>52</td>
</tr>
<tr>
<td>2011</td>
<td>18</td>
<td>14</td>
<td>13</td>
<td>8</td>
<td>53</td>
</tr>
</tbody>
</table>

Honours Results and Theses Topics

The following students successfully completed a Bachelor of Commerce (Honours) with a specialisation in Actuarial Studies:

Roman Alieve, Joey Bian, Junfan Can, Jiayang Cao, Kin Chan, Matthew Chan, Viola Chan, Hong Chen, Michael Chen, Youyou Chen, Yao Cheng, Ka Cheung, Terence Chiu, Shing Chung, Viet Do, Lowan Falcke, Han Gan, Brendan Hong, Michelle Irawan, Can Jin, Christopher Koesno, Thomas Koh, Chun Fung Kwok, Yuen Lam, Ian Le, Jeremy Jie Ping Lee, Philip Leung, Mo Liang, Felicia Long, Leon Looi, Dean Marcus, Jack Mciver, Christine Natalia, Mark Dal Pozzo, Jiao Pu, Yizun Qian, Prashant Ramesh, Richardt Schwalb, Leon Tam, Melissa Tam, Aristyo Tan, Yong Tan, John Telford, Jessica Tjajia, Kwok To, Xiao Wang, Xin Wang, Monika Weenink, Yudi Wu, Xiaojing Xu, Yubo Zhai, Chen Zhang, Dan Zhu.

A small fraction of Honours students submit a research essay, the majority do three projects instead. An Honours research essay is about 10,000 words and counts for 25% of the final assessment for a student’s Honours grade. The topics of the essays submitted by Honours students in 2011 were:

- Annuity Puzzle in Australia
- Empirical Analysis of Catastrophe Bond Price
- The Probability Function of the Number of Claims until Ruin in Some Risk Models
- The Rate of Convergence of the Two-state Lattice Model for Pricing Vanilla Options
- An Extension of Multifractional Approach for Equity Market Inefficiency with Three-Stage Model

The topics of Actuarial Research Projects were:

- Mortality Rates Graduation and Forecasting
- Investing in Death Funds
Student Prize Winners

CENTRE AWARDS
Actuarial Honours Prize (Medal)
Leon Looi

ANZ Prize
For Advanced Financial Mathematics I and II
Han Gan

Aviva Prize
For Contingencies
Ruby Huang

Comminsure Prize
For Introduction to Actuarial Studies
Le Pham

Deloitte Actuaries & Consulting Prize
For Actuarial Practice and Control I and II
Leon Looi

Institute of Actuaries of Australia Prize
For Research
Kwok Chun Fung

Taylor Fry Prize
For Actuarial Statistics
Feng Xu

Towers Perrin Prize
For Risk Theory I and II
Dan Zhu

Martin Golubitsky Prize
For best third year results
Timothy Lee

PhD Students and Research Topics

Jiun Hong Chan
Methodologies for computation in the stochastic volatility LMM

Stephen Chin
Option pricing under stochastic volatility

Evan Hariyanto
Pricing and risk management of reverse mortgages in the Australian market

Jingchao Li
Finite time ruin problems

Qing Liu
Bivariate claim modelling for general insurance; Survival analysis of left truncated income protection insurance data

Ciuy Nie
On lower barrier insurance risk processes

Robert Tang
The accurate estimation of Greeks in multi-factor credit interest-rate hybrid models

Chao Yang
Pricing and hedging models
Publications and Other Research Activities in 2010

Refereed Journal Articles

Ametrano F and Joshi M. Smooth simultaneous calibration of the LMM to caplets and co-terminal swaptions. Quantitative Finance 11(4): 547-558

Beveridge C and Joshi M. Monte Carlo bounds for game options including convertible bonds. Management Science 57(5): 960-974


Nie C, Dickson D and Li S. Minimizing the ruin probability through capital injections. Annals of Actuarial Science 5(2): 195-209


Books


Joshi, M. More Mathematical Finance, Pilot Whale Press, Melbourne

Other Publications

Gribble J and Helenius C. Managing liquidity in superannuation. Institute of Actuaries of Australia Biennial Convention, April.


Conference and Seminar Presentations

Calderin, Enrique
A New Generalization of Geometric Distribution obtained as Poison Mixture Model, Australasian Actuarial Education and Research Symposium, Canberra, December

Chen, Ping
Optimal Proportional Reinsurance and Investment under Mean-Variance Criteria, Australasian Actuarial Education and Research Symposium, Canberra, December

Dufresne, Daniel
Cobweb theorems with lags and forecasts, University of Melbourne, February.

Changes of measure for the square-root process and their consequences. Micro-Conference on Probability, University of Melbourne, April.

A general formula for option prices in a stochastic volatility model. Université Laval, Quebec City, Canada, December.

Joshi, Mark
Algorithmic Differentiation, Monte Carlo Simulation and Sensitivity Computations, UNSW Actuarial Studies Research Seminar, Sydney, September

Adjoint Pathwise Methods for Greek Computation, Quantitative Methods in Finance, Sydney, December
Publications and Other Research Activities in 2010

Hariyanto, Evan
Estimation of Disability Transition Probabilities, Australasian Actuarial Education and Research Symposium, Canberra, December

Gribble, Jules
The Essence of Actuary, IAAust Biennial Convention, Sydney, April
Results of Tax Provisioning Survey, IBR Unit Pricing Forum, Sydney, May
The Fiduciary Role in Unit Pricing, IBR Unit Pricing Forum, Sydney, May
A New Approach to Tax Provisions in Unit Pricing, IBR Unit Pricing Forum, Sydney, May
Essence of Actuary: Skills + Practice + Capabilities = Value, Actuaries Institute Meeting, London UK, August
Essence of Actuary – Skills and Values, 16th East Asian Actuarial Conference, Kuala Lumpur, October
Essence of Actuary: Skills + Practice + Capabilities = Value, Actuaries Institute Insight Meeting, Melbourne, November

Taylor, Greg
Maximum Likelihood and Estimation Efficiency of the Chain Ladder, and A Statistical Basis for Claims Experience Monitoring. GIRO Conference and Exhibition, Liverpool UK, October.
Chain Ladder Correlations, Australian Actuarial and Education Research Symposium, Canberra, December.

Other Activities
David Dickson is an editor of ASTIN Bulletin, an associate editor of Insurance: Mathematics and Economics and of Annals of Actuarial Science. David is also a member of the editorial board of North American Actuarial Journal and an Adjunct Professor at the University of Waterloo. “Actuarial Mathematics for Life Contingent Risks” by David Dickson, Mary Hardy and Howard Waters was selected by the Society of Actuaries (US) as reading for their Models for Life Contingencies exam, starting from the Spring 2012 exam. David was elected the President of University House which is the staff club of the University of Melbourne.

Mark Joshi continued to the open source projects xlw, kooderive and quantlib. He also gave a 2-day workshop at the Quantitative Methods in Finance conference in Sydney in December for industry practitioners on the LIBOR market model.

Shuanming Li is a reviewer for American Mathematical Reviews (AMR) and Insurance Markets and Companies: Analyses and Actuarial Computations.

Greg Taylor is an associate editor of Insurance: Mathematics and Economics. Greg is a member of editorial board of Variance.

Xueyuan Wu qualified as an Associate of the Institute of Actuaries of Australia (AIAA) and achieved the new designation of Actuary in July.

Involvement as Referees
Acta Mathematicae Applicatae Sinica
Annals of Actuarial Science
Applied Mathematics—A Journal of Chinese Universities
Applied Mathematics and Computation
Applied Mathematics and Computation Stochastics
Applied Stochastic Models in Business and Industry
ASTIN Bulletin
Economic Modelling
IMA Journal of Management Mathematics
Insurance: Mathematics and Economics
International Journal of Theoretical and Applied Finance
Journal of Computational and Applied Mathematics
Journal of Computational Finance
Journal of Systems Science and Complexity
Methodology and Computing in Applied Probability
Mathematical and Computer Modeling
North American Actuarial Journal
Operations Research
Risk magazine
Scandinavian Actuarial Journal
SIAM Journal of Financial Mathematics
Statistics and Probability Letters
Variance
No 216: Accelerating Pathwise Greeks in the Libor Market Model

By Mark Joshi and Alexander Wiguna
In the framework of the displaced-diffusion LIBOR market model, we derive the pathwise adjoint method for the iterative predictor-corrector and Glasserman-Zhao drift approximations in the spot measure. This allows us to compute fast deltas and vegas under these schemes. We compare the discretisation bias obtained when computing Greeks with these methods to those obtained under the log-Euler and predictor-corrector approximations by performing tests with interest rate caplets and cancellable receiver swaps. The two predictor-corrector type methods were the most accurate by far. In particular, we found the iterative predictor-corrector method to be more accurate and slightly faster than the predictor-corrector method, the Glasserman-Zhao method to be relatively fast but highly inconsistent, and the log-Euler method to be reasonably accurate but only at low volatilities. Standard errors were not significantly different across all four discretisations.

No 217: The Importance of History in Actuarial Education

By Richard Fitzherbert
Let me begin with a summary of my thesis, remembering that my main question is whether the teaching of investment principles (Part IIB) should be approached from a historical perspective rather than a mathematical one. The need for a historical perspective may be a minority view. However, I detect the beginnings of change in academic circles in finance and economics which overlap this field – for example, there are signs that economic history is beginning to recover in importance as an academic discipline.

It does seem to be accepted that actuaries need relevant experience and events such as the Crash of 1929 and the GFC of 2008 do not happen every few years. In investment topics, the only practicable way of imparting this experience is second-hand, through historical study of these events, to the extent that they are relevant. Of particular importance are speculative bubbles.

Actuaries also need to be able to play a preventative role if they aspire to important senior roles in government, regulatory bodies or financial institutions. The second reason for including history in any study of capital markets, as argued by experienced journalists and economists such as JK Galbraith (1975) and Trevor Sykes (1978), is that the recollection of events such as the Wall Street crash of 1929, or the Poseidon boom of 1969/70 helps prevent their recurrence.

A third point, which goes beyond investment topics is the nature of historical study itself which tends to ask why something happened, not just what and when. To quote EH Carr (1964), writing in What is History: “history is the study of causes”. With its emphasis on probability, mathematics and statistics, actuarial modelling tends to be based on correlations. If something does not fit the data, it seems natural for actuaries to improve the fit by adding a more sophisticated mathematical feature. Valid modelling however, needs to be based on causal laws. If we do not know why something happened to cause a particular pattern in our data, then we are looking at a historical regularity, not a causal law.

No 218: The Joint Distribution of the Time to Ruin and Number of Claims until Ruin in the Classical Risk Model

By David Dickson
We use probabilistic arguments to derive an expression for the joint density of the time of ruin and the number of claims until ruin in the classical risk model. From this we obtain a general expression for the probability function of the number of claims until ruin. We also consider the moments of the number of claims until ruin and illustrate our results in the case of exponentially distributed individual claims. We find a very strong correlation between the number of claims until ruin and the time of ruin in this case. Finally, we briefly discuss joint distributions involving the surplus prior to ruin and deficit at ruin.

No 219: A Statistical Basis for Claims Experience Monitoring

By Greg Taylor
By claims experience monitoring is meant the systematic comparison of the forecasts from a claims model with claims experience as it emerges subsequently. In the event that the stochastic properties of the forecasts are known, the comparison can be represented as a collection of probabilistic statements. This is stochastic monitoring.

The paper defines this process rigorously in terms of statistical hypothesis testing. If the model is a regression model (which is the case for most stochastic claims models), then the natural form of hypothesis test is a number of likelihood ratio tests, one for each parameter in the valuation model. Such testing is shown to be very easily implemented by means of GLM software.

This test the formal structure of the claims model and is referred to as micro-testing. There may be other quantities (e.g. amount of claim payments in a defined interval) that require testing for practical reasons. This sort of testing is referred to as macro-testing, and its formulation is also discussed.
No 220: Chain Ladder Correlations  
By Greg Taylor  
Correlations of future observations are investigated within the recursive and non-recursive chain ladder models. The recursive models considered are the Mack and ODP Mack models; the non-recursive models are the ODP cross-classified models. Distinct similarities are found between the correlations within the recursive and non-recursive models, but distinct differences also emerge. The ordering of corresponding correlations within the recursive and non-recursive models is also investigated.

No 221: A Homotopy Class of Semi-Recursive Chain Ladder Models  
By Greg Taylor  
The chain ladder algorithm is known to produce maximum likelihood estimates of the parameters of certain recursive and non-recursive models. These types of models represent two extremes of dependency within rows of a data array. Whereas observations within a row of a non-recursive model are stochastically independent, each observation of a recursive model is, in expectation, directly proportional to the immediately preceding observation from the same row. The correlation structures of forecasts also differ as between recursive and non-recursive models.

The present paper constructs a family of models that forms a bridge between recursive and non-recursive models and so provides a continuum of intermediate cases in terms of dependency structure. The intermediate models are called semi-recursive.

The statistical inference properties of semi-recursive models are investigated. It is found (Section 5.4) that the chain ladder algorithm is also maximum likelihood for semirecursive models. Sufficient, and minimally sufficient, statistics are found for the semi-recursive model (Section 6). They are found to be the same as for non-recursive models. The minimally sufficient statistic is complete, leading to minimum variance unbiased estimation (Section 7).

No 222: A Two-dimensional Extension of Bougerol’s Identity in Law for the Exponential Function of Brownian Motion  
By Daniel Dufresne and Marc Yor  
Three equivalent two-dimensional identities are given that extend the surprising one-dimensional identity due to Bougerol (“Exemples de theorems locaux sur les groupes résolubles”, Ann. Inst. Henri Poincaré, 1983). Brownian local time and the Bessel clock make their appearance.

No 223: Fourier Transforms, Option Pricing And Controls  
By Mark Joshi and Chao Yang  
We incorporate a simple and effective control-variate into Fourier inversion formulas for vanilla option prices. The control-variate used in this paper is the Black-Scholes formula whose volatility parameter is determined in a generic non-arbitrary fashion. We analyze contour dependence both in terms of value and speed of convergence. We use Gaussian quadrature rules to invert Fourier integrals, and numerical results suggest that performing the contour integration along the real axis leads to the best pricing performance.
Staff and Advisory Board

Staff

Professors of Actuarial Studies

DAVID C M DICKSON: BSc (Hons), PhD Heriot-Watt, FFA FIAA
Research Interests: Aggregate claims distributions, renewal risk processes, recursive methods in risk theory.

DANIEL DUFRESNE: BSc (Hons) Montreal, PhD The City University, FSA
Research Interests: Financial mathematics, actuarial science, probability.

MARK JOSHI: BA (Hons) Oxford, PhD MIT
Research Interests: Financial mathematics

Associate Professor of Actuarial Studies

SHUANMING LI: BSc Tianjin, MEc Renmin, PhD Concordia
Research Interests: Risk and ruin theory, stochastic modelling in insurance and finance, actuarial science.

Senior Lecturer of Actuarial Studies

XUEYUAN WU: BS, MS Nankai University China, PhD Hong Kong
Research Interests: Risk and Ruin theory, discrete-time risk models, phase-type distribution in Risk Theory

Lecturers of Actuarial Studies

PING CHEN: BAM (Qufu), M.Sc (CAS), PhD (Hong Kong)
Research Interests: Actuarial Science, Financial Mathematics, Statistics and Information

ENRIQUE JAVIER CALDERIN: B.S., M.S (UNED, Spain), PhD [ULP6C, Spain] Research Interests: Bayesian Inference, Statistical Robustness, Distribution Theory, Actuarial Statistics

ZHOU JIN: B.S., M.S. (HUST), M.A., PhD (WSU)

Professorial Associate

GREG TAYLOR: BA, PhD, FIA, FIAA, FIMA, CMath, AO
Research Interests: Modelling in general insurance.

Honorary Senior Fellows

RICHARD FITZGERBERT: BSc, FIA, FIAA, F Fin
JULES GRIBBLE: BSc (Hons), PhD St Andrews, FIAA, FCIA, FSA
GRANT HARSLETT: BSc (Hons) Adel, FIA, FIAA, ASA

External Lecturers

DONALD CAMPBELL: BCom Melbourne, FIAA
DAVID HEATH: BSc (Hons) Monash, FIAA, CPA, F Fin
CARY HELENIUS: BSc (Hons), Dip Ed Melbourne, FIAA

External Examiner for Part II

Martin Fry

Tutors

Simon Carter
Viola Chan
Matthew Chan
Richard Fitzherbert (FIAA)
Han Gan
Jingchao Li, BCom (Hons)
Qing Liu, BCom (Hons)
Ciyu (Jade) Nie, BCom (Hons)
Anirudh Raj Gopal
Leon Tam
Melissa Tam
Robert Tang, BCom (Hons)
Chao Yang, BCom (Hons), MCom (Finance)

Advisory Board

The membership of the Advisory Board is as follows:

External Members

Mrs Helen McLeod
AIG
Mr David McNiece
Watson Wyatt
Professor Greg Taylor
Taylor-Fry Consulting Actuaries

University Members

Professor Margaret Abernethy
Dean, Faculty of Economics and Commerce
Professor Nilss Olekalns
Head of Department [Economics]
Professor Paul Kofman
Department of Finance
Professor David Dickson
Centre for Actuarial Studies
Professor Daniel Dufresne
Centre for Actuarial Studies
Professor Mark Joshi
Centre for Actuarial Studies
Professor Vance Martin
Department of Economics
Professor Mark Joshi
Centre for Actuarial Studies

Tutors

Simon Carter
Viola Chan
Matthew Chan
Richard Fitzherbert (FIAA)
Han Gan
Jingchao Li, BCom (Hons)
Qing Liu, BCom (Hons)
Ciyu (Jade) Nie, BCom (Hons)
Anirudh Raj Gopal
Leon Tam
Melissa Tam
Robert Tang, BCom (Hons)
Chao Yang, BCom (Hons), MCom (Finance)

Advisory Board

The membership of the Advisory Board is as follows:

External Members

Mrs Helen McLeod
AIG
Mr David McNiece
Watson Wyatt
Professor Greg Taylor
Taylor-Fry Consulting Actuaries

University Members

Professor Margaret Abernethy
Dean, Faculty of Economics and Commerce
Professor Nilss Olekalns
Head of Department [Economics]
Professor Paul Kofman
Department of Finance
Professor David Dickson
Centre for Actuarial Studies
Professor Daniel Dufresne
Centre for Actuarial Studies
Professor Mark Joshi
Centre for Actuarial Studies
Professor Vance Martin
Department of Economics
Professor Mark Joshi
Centre for Actuarial Studies

Tutors

Simon Carter
Viola Chan
Matthew Chan
Richard Fitzherbert (FIAA)
Han Gan
Jingchao Li, BCom (Hons)
Qing Liu, BCom (Hons)
Ciyu (Jade) Nie, BCom (Hons)
Anirudh Raj Gopal
Leon Tam
Melissa Tam
Robert Tang, BCom (Hons)
Chao Yang, BCom (Hons), MCom (Finance)

Advisory Board

The membership of the Advisory Board is as follows:

External Members

Mrs Helen McLeod
AIG
Mr David McNiece
Watson Wyatt
Professor Greg Taylor
Taylor-Fry Consulting Actuaries

University Members

Professor Margaret Abernethy
Dean, Faculty of Economics and Commerce
Professor Nilss Olekalns
Head of Department [Economics]
Professor Paul Kofman
Department of Finance
Professor David Dickson
Centre for Actuarial Studies
Professor Daniel Dufresne
Centre for Actuarial Studies
Professor Mark Joshi
Centre for Actuarial Studies
Professor Vance Martin
Department of Economics
Professor Mark Joshi
Centre for Actuarial Studies
Members

Enrique Calderin

Dr. Ping Chen

Professor David Dickson

Professor Daniel Dufresne