Cary Chi-Liang Tsai

Background

Education

[4] 12/1999, Ph.D., Actuarial Science, University of Waterloo, Waterloo, Canada.

[3] 12/1990, M.S., Actuarial Science, University of Wisconsin, Madison, U.S.A.

[2] 06/1987, M.S., Computer Science, National Chiao-Tung University, Hsinchu, Taiwan.

[1] 06/1985, B.S., Mathematics, National Taiwan University, Taipei, Taiwan.

Employment

[12] 09/2018 – present, Full Professor,
Department of Statistics and Actuarial Science, Simon Fraser University, Burnaby, Canada.

[11] 01/2017 – 08/2018, Actuarial Program Coordinator,
Department of Statistics and Actuarial Science, Simon Fraser University, Burnaby, Canada.

[10] 07/2010 – 08/2018, Associate Professor,
Department of Statistics and Actuarial Science, Simon Fraser University, Burnaby, Canada.

[09] 07/2004 – 06/2010, Assistant Professor,
Department of Statistics and Actuarial Science, Simon Fraser University, Burnaby, Canada.

[08] 07/2004 – 07/2005, Associate Professor (on leave),
Department of Finance, National Taiwan University, Taipei, Taiwan.

[07] 02/2000 – 07/2004, Assistant Professor,
Department of Finance, National Taiwan University, Taipei, Taiwan.

[06] 02/2000 – 06/2000, Seasonal,
Department of Financial Engineering and Actuarial Mathematics, Soochow University, Taipei, Taiwan.

[05] 01/1995 – 12/1999, Teaching/Research Assistants,
Department of Statistics and Actuarial Science, University of Waterloo, Waterloo, Canada.

[04] 09/1992 – 06/1994, Seasonal,
Department of Risk Management and Insurance, National Chengchi University, Taipei, Taiwan.

[03] 08/1991 – 12/1994, Senior Actuarial Assistant,
Actuarial Department, Nan-Shan Life Insurance Company (affiliated with AIG), Taipei, Taiwan.

[02] 02/1991 – 07/1991, Senior Actuarial Assistant,
Actuarial Department, Connecticut General Life Insurance Company (a CIGNA Co.), Taipei, Taiwan.

[01] 07/1987 – 07/1988, Associate Computer Engineer,
Department of Research and Development, Institute for Information Industry, Taipei, Taiwan.

Board and members

[5] International Research Advisory Board, 2013 – present.
Risk and Insurance Research Center, National Chengchi University, Taipei, Taiwan.

[4] Member of American Risk and Insurance Association, U.S.A., 2012 – present.

[3] Member of Statistical Society of Canada, Canada, 2005 – present.

[2] Fellow of Life Management Institute, U.S.A., 1994 – present.

[1] Associate of Society of Actuaries, U.S.A., 1991 – present.

Research

Research interests

[6] Modeling of mortality rates.

[5] Hedging of mortality / longevity risks.

[4] Pricing of mortality-linked securities.

[3] Risk measures and ordering.

[2] Stochastic processes in insurance and finance.

[1] Life contingencies.

Published referred articles (corresponding author)

[36] Tzuling Lin and Cary C.L. Tsai (2023).
"A new option for mortality-interest rates".
Journal of Futures Markets 43 (2), 273 – 293.

[35] Tzuling Lin, Cary C.L. Tsai and Hung-Wen Cheng (2023).
"Asset liability management of longevity and interest rate risks: Using survival-mortality bonds".
North American Actuarial Journal 74 (1), 74 – 95.

[34] Cary C.L. Tsai and Seyeon Kim (2022).
"Model mortality rates using property and casualty insurance reserving methods".
Insurance: Mathematics and Economics 106, 326 – 340.

[33] Tzuling Lin and Cary C.L. Tsai (2022).
"Hierarchical Bayesian modeling of multi-country mortality rates".
Scandinavian Actuarial Journal 2022 (5), 375 – 398.

[32] Tzuling Lin, Chou-Wen Wang and Cary C.L. Tsai (2021).
"Correlated age-specific mortality model: An application to annuity portfolio management".
European Actuarial Journal 11 (2), 413 – 440.

[31] Cary C.L. Tsai and Echo Sihan Cheng (2021).
"Incorporating statistical clustering methods into mortality models to improve forecasting performances ".
Insurance: Mathematics and Economics 99, 42 – 62.

[30] Cary C.L. Tsai and Adelaide Di Wu (2020).
"Bühlmann credibility-based approaches to modeling mortality rates for multiple populations".
North American Actuarial Journal 24 (2), 290 – 315.

[29] Tzuling Lin and Cary C.L. Tsai (2020).
"Hedging mortality/longevity risks for multiple years".
North American Actuarial Journal 24 (1), 118 – 140.

[28] Tzuling Lin and Cary C.L. Tsai (2020).
"Natural hedges with immunization strategies of mortality and interest rates".
ASTIN Bulletin: The Journal of the IAA 50 (1), 155 – 185.

[27] Cary C.L. Tsai and Adelaide Di Wu (2020).
"Incorporating hierarchical credibility theory into modelling of multi-country mortality rates".
Insurance: Mathematics and Economics 91, 37 – 54.

[26] Cary C.L. Tsai and Ying Zhang (2019).
"A multi-dimensional Bühlmann credibility approach to modeling multi-population mortality rates".
Scandinavian Actuarial Journal 2019 (5), 406 – 431.

[25] Cary C.L. Tsai and Xinying Liang (2018).
"Application of relational models in mortality immunization".
North American Actuarial Journal 22 (4), 509 – 532.

[24] Xiaoli Zhang and Cary C.L. Tsai (2018).
"The optimal write-down coefficients in percentage for a catastrophe bond".
North American Actuarial Journal 22 (1), 1 – 21.

[23] Cary C.L. Tsai and Tzuling Lin (2017).
"A Bühlmann credibility approach to modeling mortality rates".
North American Actuarial Journal 21 (2), 204 – 227.

[22] Cary C.L. Tsai and Tzuling Lin (2017).
"Incorporating the Bühlmann credibility into mortality models to improve forecasting performances".
Scandinavian Actuarial Journal 2017 (5), 419 – 440.

[21] Xiaoqing Liang, Cary C.L. Tsai and Yi Lu (2016).
"Valuing guaranteed equity-linked contracts under piecewise constant forces of mortality".
Insurance: Mathematics and Economics 70, 150 – 161.

[20] Tzuling Lin and Cary C.L. Tsai (2016).
"Hedging mortality/longevity risks of insurance portfolios for life insurer/annuity provider and financial intermediary". Insurance: Mathematics and Economics 66, 44 – 58.

[19] Tzuling Lin and Cary C.L. Tsai (2015).
"A simple linear regression approach to modeling and forecasting mortality rates".
Journal of Forecasting 34 (7), 543 – 559.

[18] Tzuling Lin, Chou-Wen Wang and Cary C.L. Tsai (2015).
"Age-specific copula-AR-GARCH mortality models".
Insurance: Mathematics and Economics 61, 110 – 124.

[17] Cary C.L. Tsai and Shuai Yang (2015).
"A linear regression approach to modeling mortality rates of different forms".
North American Actuarial Journal 19 (1), 1 – 23.

[16] Tzuling Lin and Cary C.L. Tsai (2014).
"Applications of mortality durations and convexities in natural hedges".
North American Actuarial Journal 18 (3), 417 – 442.

[15] Tzuling Lin and Cary C.L. Tsai (2013).
"On the mortality/longevity risk hedging with mortality immunization".
Insurance: Mathematics and Economics 53 (3), 580 – 596.

[14] <u>Cary C.L. Tsai</u> and San-Lin Chung (2013).
"Actuarial applications of the linear hazard transform in mortality immunization".
Insurance: Mathematics and Economics 53 (1), 48 – 63.

[13] <u>Landy Rabehasaina</u> and Cary C.L. Tsai (2013).
"Ruin time and aggregate claim amount up to ruin time for the perturbed risk process".
Scandinavian Actuarial Journal 2013 (3), 186 – 212.

[12] <u>Cary C.L. Tsai</u> and Lingzhi Jiang (2011).
"Actuarial applications of the linear hazard transform in life contingencies".
Insurance: Mathematics and Economics 49 (1), 70 – 80.

[11] <u>Ilie-Radu Mitric,</u> Kristina P. Sendova and Cary C.L. Tsai (2010).
"On a multi-threshold compound Poisson process perturbed by diffusion".
Statistics & Probability Letters 80 (5-6) 366 – 375.

[10] <u>Cary C.L. Tsai</u> and Yi Lu (2010).
"An effective method for constructing bounds for ruin probabilities for the surplus process perturbed by diffusion".
Scandinavian Actuarial Journal 2010 (3), 200 – 220.

[09] <u>Cary C.L. Tsai</u> (2009).
"On the ordering of ruin probabilities for the surplus process perturbed by diffusion".
Scandinavian Actuarial Journal 2009 (3), 187 – 204.

[08] <u>Cary C.L. Tsai</u> (2008).
"Ordering ruin probabilities resulting from layer-based claim amounts for surplus process perturbed by diffusion".
North American Actuarial Journal 12 (3), 319 – 335.

[07] <u>Yi Lu</u> and Cary C.L. Tsai (2007).
"The expected discounted penalty at ruin for a Markov-modulated risk process perturbed by diffusion".
North American Actuarial Journal 11 (2), 136 – 152.

[06] <u>Cary C.L. Tsai</u> (2006).
"On the stop-loss transform and order for the surplus process perturbed by diffusion".
Insurance: Mathematics and Economics 39 (1), 151 – 170.

[05] <u>Cary C.L. Tsai</u> and L.J. Sun (2004).
"On the discounted distribution functions for Erlang (2) risk process".
Insurance: Mathematics and Economics 35 (1), 5 – 19.

[04] <u>Cary C.L. Tsai</u> (2003).
"On the expectations of the present values of the time of ruin perturbed by diffusion".
Insurance: Mathematics and Economics 32 (3), 413 – 429.

[03] <u>Cary C.L. Tsai</u> and Gordon E. Willmot (2002).
"On the moments of the surplus process perturbed by diffusion".
Insurance: Mathematics and Economics 31 (3), 327 – 350.

[02] <u>Cary C.L. Tsai</u> and Gordon E. Willmot (2002).
"A generalized defective renewal equation for the surplus process perturbed by diffusion".
Insurance: Mathematics and Economics 30 (1), 51 – 66.

[01] <u>Cary C.L. Tsai</u> (2001).
"On the discounted distribution functions of the surplus process perturbed by diffusion".
Insurance: Mathematics and Economics 28 (3), 4011 – 419.

Book articles

[3] Cary C.L. Tsai (2004).
Contributor of "Collective risk theory",
Encyclopedia of Actuarial Science, Volume 3, 1552 – 1556, John Wiley & Sons, Chichester.

[2] Cary C.L. Tsai (2004).
Contributor of "Severity of ruin",
Encyclopedia of Actuarial Science, Volume 3, 1552 – 1556, John Wiley & Sons, Chichester.

[1] Cary C.L. Tsai (2004).
Contributor of "Time of ruin",
Encyclopedia of Actuarial Science, Volume 3, 1674 – 1677, John Wiley & Sons, Chichester.

Discussing article

[1] Cary C.L. Tsai (2005).
Hans U. Gerber and Elias S.W. Shiu's "The time value of ruin in a Sparre Andersen model",
North America Actuarial Journal 9 (2), 74 – 77.

Research grants

[11] 04/2019 – 03/2025, Individual Discovery Grant, Natural Sciences and Engineering Research Council of Canada.

[10] 05/2017 – 10/2017, CIA Academic Research Grant, Canadian Institute of Actuaries, Canada.

[09] 04/2014 – 03/2019, Individual Discovery Grant, Natural Sciences and Engineering Research Council of Canada.

[08] 04/2013 – 03/2014, Vice-President Research NSERC Bridging Grant, Simon Fraser University.

[07] 04/2013 – 08/2013, 2013 Individual Grant Competition, Committee on Knowledge Extension Research, Society of Actuaries.

[06] 04/2008 – 03/2013, Individual Discovery Grant, Natural Sciences and Engineering Research Council of Canada.

[05] 04/2005 – 03/2008, Individual Discovery Grant, Natural Sciences and Engineering Research Council of Canada.

[04] 08/2004 – 07/2005, Individual Research Grant, National Science Council of Taiwan.

[03] 08/2003 – 07/2004, Individual Research Grant, National Science Council of Taiwan.

[02] 08/2002 – 07/2003, Individual Research Grant, National Science Council of Taiwan.

[01] 08/2001 – 07/2002, Individual Research Grant, National Science Council of Taiwan.

Conference presentations/attendances

[40] The 26th International Congress on Insurance: Mathematics and Economics,
Heriot Watt University, Edinburg, U.K. (July 4 – 7, 2023), attendance only.

[39] The 25th International Congress on Insurance: Mathematics and Economics (virtual),
Sun Yat-Sen University in China and Macquarie University in Australia (July 12 – 15, 2022), attendance only.

[38] The 2022 Annual Meeting of the Statistical Society of Canada (virtual), May 30 – June 3, 2022, attendance only.

[37] The 24th International Congress on Insurance: Mathematics and Economics (virtual),

University of Illinois Urbana-Champaign and Pennsylvania State University in the United States, Ulm University in Germany, and University of New South Wales (UNSW Sydney) in Australia (July 5 – 9, 2021), attendance only.

[36] The 2021 Annual Meeting of the Statistical Society of Canada (virtual), June 7 – 11, 2021, attendance only.

[35] The 23rd Annual Conference of Asia-Pacific Risk and Insurance Association,
Konkuk University and Sejong University, Seoul, Korea (July 28 – 31, 2019), attendance only.

[34] The 23rd International Congress on Insurance: Mathematics and Economics (also a session moderator),
Technical University of Munich, Munich, Germany (July 10 – 12, 2019),
"Natural hedges with immunization strategies of mortality and interest rates".

[33] The 22nd International Congress on Insurance: Mathematics and Economics (also a session moderator),
University of New South Wales, Sydney, Australia (July 16 – 18, 2018),
"A Bayesian approach to modeling mortality rates".

[32] The 7th International Gerber-Shiu Workshop,
University of Melbourne, Melbourne, Australia (July 10 – 11, 2018), attendance only.

[31] The Waterloo Statistics & Actuarial Science 50th Anniversary Conference (as an **invited speaker**)
University of Waterloo, Waterloo, Canada (July 26 – 27, 2017),
"Pricing defaultable catastrophe bonds".

[30] The 2017 Annual Meeting of the Statistical Society of Canada (as an **invited speaker** and a session moderator),
University of Manitoba, Winnipeg, Canada (June 11 – 14, 2017),
"A hierarchical credibility approach to modeling mortality rates for multiple populations".

[29] The 2016 Annual Meeting of American Risk and Insurance Association,
Royal Sonesta Boston, Cambridge, U.S.A. (August 8 – 10, 2016), attendance only.

[28] The 2016 Annual Meeting of the Statistical Society of Canada (as an **invited speaker** and a session moderator),
Brock University, St. Catharines, Canada (May 29 – June 1, 2016),
"Applications of the Bühlmann credibility model to mortality forecasting".

[27] R in Insurance/Rob in Insurance,
University of Amsterdam, Amsterdam, Netherlands (June 29 – 30, 2015), attendance only.

[26] The 19th International Congress on Insurance: Mathematics and Economics,
University of Liverpool, Liverpool, U.K. (June 24 – 26, 2015),
"Comparisons of hedge performances for insurance portfolios using matching strategies of size-free and size-independent mortality durations and convexities".

[25] The 2015 Annual Meeting of the Statistical Society of Canada (as an **invited speaker**),
Dalhousie University, Halifax, Canada (June 14 – 17, 2015),
"A linear relational approach to modeling mortality rates".

[24] The 49th Actuarial Research Conference,
University of California, Santa Barbara, California, U.S.A. (July 14 – 16, 2014),
"Variations of the linear logarithm hazard transform for modelling cohort mortality rates".

[23] The 2014 Annual Meeting of the Statistical Society of Canada,
University of Toronto, Toronto, Canada (May 25 – 28, 2014), attendance only.

[22] The 9th International Longevity Risk and Capital Markets Solutions Conference,
Central University of Finance & Economics, Beijing, China (September 6 – 7, 2013),
"A two-stage linear regression approach to modeling mortality rates of different forms".

[21] The 17th International Congress on Insurance: Mathematics and Economics,

University of Copenhagen, Copenhagen, Demark (July 1 – 3, 2013),
"Strategies of mortality duration/convexity matching for hedging longevity/mortality risks".

[20] The 16th International Congress on Insurance: Mathematics and Economics (also as a session moderator),
University of Hong Kong, Hong Kong, China (June 28 – 30, 2012),
"A simple linear regression approach to modeling and forecasting morality rates:
 Empirical comparisons with Lee-Carter and CBD models".

[19] The International Conference on Actuarial Science and Risk Management,
Xiamen University, Xiamen, China (June 25 – 26, 2012), attendance only.

[18] The 15th International Congress on Insurance: Mathematics and Economics,
University of Trieste, Trieste, Italy (June 14 – 17, 2011),
"Actuarial applications of the linear hazard transform in immunization".

[17] Conference on Financial Engineering, Insurance and Actuarial Science (as an **invited speaker**),
Soochow University, Taipei, Taiwan (April 1 – 2, 2011),
"Applications of the linear hazard transform in actuarial science".

[16] International Conference on Finance (as a moderator of the Risk Management and Insurance session),
National Taiwan University, Taipei, Taiwan (December 10 – 11, 2010).

[15] The 45th Actuarial Research Conference (hosted by my department),
Simon Fraser University, Burnaby, Canada (July 26 – 28, 2010),
"Actuarial applications of the linear hazard transform in mortality fitting and prediction".

[14] The 14th International Congress on Insurance: Mathematics and Economics (also as a session moderator),
University of Toronto, Toronto, Canada (June 17 – 19, 2010),
"Actuarial applications of the linear hazard transform in mortality fitting and prediction".

[13] The 3rd International Gerber-Shiu Workshop (as an **invited speaker**),
University of Waterloo, Waterloo, Canada (June 14 – 16, 2010),
"The traditional perturbed surplus process with waiting times".

[12] The MITACS / CORS 2010 Annual Conference,
Shaw Conference Centre, Edmonton, Canada (May 25 – 28, 2010),
"Actuarial applications of the linear hazard transform in life contingencies".

[11] The 2b) or not 2b) Conference in honor of Professor Hans U. Gerber,
The University of Lausanne, Lausanne, Switzerland (June 2 – 3, 2009),
"An effective method for constructing a bound for ruin probabilities for the surplus process".

[10] Annual Meeting of the Pacific Northwest Section of the Mathematical Association of America,
The Central Washington University, Ellensburg, Washington, U.S.A. (April 3 – 4, 2009),
"Application of ordering in ruin theory".

[09] International Conference on Finance (Risk Management and Insurance session),
The National Taiwan University, Taipei, Taiwan (December 11 – 12, 2008),
"On the bounds of ruin probabilities for the surplus process perturbed by diffusion".

[08] The 2nd International Workshop on Gerber-Shiu Functions (as an **invited speaker**),
The Radon Institute of the Austrian Academy of Science, Linz, Austria, (August 27 – 29, 2008),
"On the ordering for the surplus process".

[07] The 37th ASTIN Colloquium,
Lake Buena Vista, Florida, U.S.A. (June 19 – 22, 2007),
"Optimal strategies for ruin probabilities and expected gains".

[06] The 41st Actuarial Research Conference,
The University of Montreal, Montreal, Quebec, Canada (August 10 – 12, 2006),
"Impacts of dynamic credibility premium scheme, deductible and policy limit on ruin probabilities".

[05] The 1st International Workshop on Gerber-Shiu Functions (as an **invited speaker**),
The Concordia University, Montreal, Quebec, Canada (August 7 – 8, 2006),
"The Markov-modulated continuous time surplus process perturbed by diffusion".

[04] The 10th International Congress on Insurance: Mathematics and Economics,,
The Katholieke University Leuven, Leuven, Belgium (July 18 – 20, 2006),
"On the risk measures and ordering for the surplus process".

[03] International Conference on Finance (Risk Management and Insurance session),
The National Taiwan University, Taipei, Taiwan (December 20 – 21, 2004),
"Ruin Probabilities: classical versus credibility".

[02] International Conference on Applied Statistics, Actuarial Science and Financial Mathematics,
The University of Hong Kong and The Hong Kong Polytechnic University, Hong Kong (December 17 – 19, 2002),
"On the moments of the mean discounted time of ruin perturbed by diffusion".

[01] The First Management Conference,
The National Taiwan University of Science and Technology, Taipei, Taiwan (November 8, 2002),
"The impact of decreasing interest rate on the insurer's surplus".

Invited seminar presentations

[26] Actuarial Science, Department of Finance, University of Nebraska–Lincoln, U.S.A. (2019).

[25] Graduate Institute of Statistics and Actuarial Science, Feng Chia University, Taiwan (2013).

[24] Department of Financial Engineering and Actuarial Mathematics, Soochow University, Taiwan (2013).

[23] The Taiwan Insurance Institute, Taipei, Taiwan (2013).

[22] Department of Risk Management and Insurance, National Chengchi University, Taiwan (2013).

[21] Department of Risk Management and Insurance, Ming Chuan University, Taiwan. (2012).

[20] Department of Finance, National Taiwan University, Taiwan (2011).

[19] Taiwan Insurance Institute, Taiwan (2011).

[18] Department of Risk Management and Insurance, National Chengchi University, Taiwan (2010).

[17] Graduate Institute of Statistics and Actuarial Science, Feng Chia University, Taiwan (2010).

[16] Department of Finance, National Central University, Taiwan (2010).

[15] Department of Risk Management and Insurance, George State University, U.S.A. (2009).

[14] Department of Financial Engineering and Actuarial Mathematics, Soochow University, Taiwan (2008).

[13] Department of Risk Management and Insurance, National Cheng-Chi University, Taiwan (2008).

[12] Department of Statistics and Actuarial Science, Simon Fraser University, Canada (2004).

[11] College of Business and Public Administration, Drake University, U.S.A. (2004).

[10] Department of Mathematics and Statistics, York University, Canada (2004).

[09] Department of Statistics and Actuarial Science, University of Western Ontario, Canada (2004).

[08] Department of Mathematics and Statistics, University of Calgary, Canada (2004).

[07] Department of Statistics and Actuarial Science, University of Iowa, U.S.A. (2004).

[06] Department of Mathematics and Statistics, Concordia University, Canada (2004).

[05] Department of Insurance, Tamkang University, Taiwan (2003).

[04] Department of Statistics and Actuarial Science, Feng Chia University, Taiwan (2002).

[03] Department of Finance, National Central University, Taiwan (2001).

[02] Department of Financial Engineering and Actuarial Mathematics, Soochow University, Taiwan (2000).

[01] Department of Finance, National Taiwan University, Taiwan (1999).

Teaching

Year	Spring	Summer	Fall	ACMA Course name
2024	ACMA 831	–		
2023	Study leave	–	ACMA 301, 355	
2022	ACMA 401, 831	–	ACMA 301, 355	301– Long Term Actuarial Mathematics I
2021	ACMA 320, 455	–	ACMA 301	315–Credibility Theory
2020	Study leave	–	ACMA 850*	320–Actuarial Mathematics I
2019	ACMA 320, 455	–	ACMA 425, 850	335–Risk Theory
2018	ACMA 455, 850	–	ACMA 425	355–Loss Models I
2017	ACMA 320, 490	–	–	395–Special Topics: Mortality Models
2016	ACMA 395	STAT 894	ACMA 850	401– Long Term Actuarial Mathematics II
2015	ACMA 315, 850, STAT 895	–	ACMA 335	425–Actuarial Mathematics II
2014	ACMA 315, 465	–	Study leave	445–Loss Models: Estimation and Selection
2013	ACMA 315, 490/822	–	–	455–Loss Models II
2012	ACMA 315, 445	–	ACMA 335, STAT 894	465–Mathematics of Demography
2011	Study leave	Study leave	ACMA 425, 822	490–Selected Topics in Actuarial Science
2010	ACMA 315, 822	–	Study leave	822–Risk Measures and Ordering
2009	ACMA 315, 490/822	–	ACMA 335	850–Modeling of Actuarial Risks
2008	ACMA 315, 822	–	ACMA 335	831–Advanced Actuarial Models
2007	ACMA 315	–	ACMA 335	850*–Advanced Actuarial Models
2006	ACMA 315, 490	–	ACMA 335, 822	894–Reading
2005	ACMA 315, 490	–	ACMA 335	895–Reading

Service

Grant/Article/Promotion review

[20] Promotion to Associate/Full Professor.

[19] NSERC Canada Research Chair Grant.

[18] NSERC Discovery Grant.

[17] Swiss National Science Foundation (SNSF) Research Grant.

[16] Mitacs Accelerate Research Grant.

[15] North American Actuarial Journal.

[14] Insurance: Mathematics and Economics.

[13] Scandinavian Actuarial Journal.

[12] ASTIN Bulletin.

[11] European Actuarial Journal.

[10] Statistical Papers.

[09] Journal of Industrial and Management Optimization.

[08] Applied Stochastic Models in Business and Industry.

[07] Acta Mathematicae Applicatae Sinica.

[06] Statistica Sinika.

[05] Risks.

[04] Journal of Risk Management.

[03] Journal of Financial Studies.

[02] Review of Securities and Futures Markets.

[01] Insurance Monograph.

Department committees serving

[10] Graduate Studies Committee, 2017 – 2018, 2020 – 2022.

[09] Tenure and Promotions Committee, 2008 – 2009, 2012 – 2013, 2014 – 2015, 2017 – 2018.

[08] Actuarial Faculty Hiring Committee, 2009 – 2010, 2015 – 1016.

[07] Actuarial Undergraduate/Graduate Admission Committee, 2004 – present.

[06] Actuarial program advising, 2004 – 2010, 2011 – 1013.

[05] Undergraduate Studies Committee, 2004 – 2005, 2009 – 2010, 2012 – 2013, 2014 – 2015, 2015 – 2016, 2018 – 2019.

[04] Library Liaison, 2005 – 2006, 2008 – 2009, 2016 – 2017.

[03] Webmaster, 2008 – 2009.

[02] Department Newsletter, 2009 – 2010.

[01] Safety, 2016 – 2017.

Graduate student degree theses/projects supervising

[23] Yirong Zhu, Simon Fraser University, 09/2022 – present.

[22] Jinjin (Summer) Shan, Simon Fraser University, 09/2021 – 09/2023.

[21] Seyeon (Sally) Kim, "Applications of reserving methods for property and casualty insurance in modeling of mortality rates", Simon Fraser University, 09/2019 – 08/2021.

[20] Sihan (Echo) Cheng, "Incorporating statistical clustering methods into mortality models to improve forecasting performances", Simon Fraser University, 09/2018 – 04/2020.

[19] Wei-Hsiang (Andy) Lin, "A moneyness-adapting fee structure for guaranteed benefits embedded in variable annuities: Pricing and valuation", Simon Fraser University, 09/2017 – 08/2019.

[18] Di (Adelaide) Wu, "A hierarchical credibility approach to modeling mortality rates for multiple populations", Simon Fraser University, 09/2016 – 05/2018.

[17] Ying Zhang, "A multi-dimensional Bühlmann credibility approach to modeling multi-population mortality rates", Simon Fraser University, 09/2015 – 06/2017.

[16] Yen-Chen (Jenny) Chen, "Pricing defaultable catastrophe bonds with compound doubly stochastic Poisson losses and liquidity risk". Simon Fraser University, 09/2014 – 12/2016.

[15] Xinying (Serene) Liang, "Application of relational models in mortality immunization",
Simon Fraser University, 09/2013 – 08/2015.

[14] Xiang Luan, "A pseudo non-parametric Bühlmann credibility approach to modeling mortality rates",
Simon Fraser University, 09/2013 – 08/2015.

[13] Xiaoli Zhang, "The optimal payment reduction ratios for a catastrophe bond",
Simon Fraser University, 09/2012 – 01/2015.

[12] Shuang Chen, "Natural hedging using multi-population mortality forecasting models",
Simon Fraser University, 09/2012 – 12/2014.

[11] Qian Wang, "Variations of the linear logarithm hazard transform for modeling cohort mortality rates",
Simon Fraser University, 09/2011 – 01/2014.

[10] Meng Yu, "Modelling mortality rates with the linear logarithm hazard transform approaches",
Simon Fraser University, 09/2010 – 06/2013.

[09] Qipin He, "Pricing and dynamic hedging of segregated fund guarantees",
Simon Fraser University, 09/2008 – 11/2010.

[08] Lingzhi Jiang, "Actuarial applications of the linear hazard transform",
Simon Fraser University, 09/2007 – 01/2010.

[07] Yi-Chieh Chen, "The financial impact of issuing participating policies and nonparticipating policies to the insurance company's stockholders",
National Taiwan University, 09/2002 – 06/2004.

[06] Pei-Ying Lin, "The strategy analysis of the non-dividend endowment policy",
National Taiwan University, 09/2002 – 06/2004.

[05] Tun-Yi Chiang, "Surplus analysis of a life insurer based on extended term life and reduced paid-up insurance",
National Taiwan University, 09/2002 – 06/2004.

[04] Yu-Ching Hsu, "Analysis of asset allocation between treasury and corporate bonds for life insurance companies", National Taiwan University, 09/2001 – 06/2003.

[03] Yueh-Chun Lai, "Valuation of liabilities and measure of interest rate risk on a life insurance company",
National Taiwan University, 09/2001 – 06/2003.

[02] Tzu-Ling Lin, "Hedge mortality risk and optimize the product mix under the integration of overall risks",
National Taiwan University, 09/2001 – 06/2003.

[01] Chih-Yung Liu, "The impact of policy loan on the liability of life insurer",
National Taiwan University, 09/2001 – 06/2003.

Undergraduate Student Research Award (USRA) projects supervising

[8] Han Yang, "Applications of predictive analytics in actuarial science", 05/2022 – 08/2022.

[7] Kaiyan Li, "Statistical approaches to modelling mortality rates", 05/2021 – 08/2021.

[6] Di Wu, "Bühlmann-based approaches to modelling mortality rates for multiple populations", 05/2016 – 08/2016.

[5] Shuai Yang, "A linear regression approach to modeling mortality rates of different forms", 05/2013–08/2013.

[4] Kuan Chiao Wang, "Application of copulas to insurance", 05/2008–08/2008.

[3] Kailiang Chen, "On the optimal period for the credibility premium of the discrete time surplus process", 05/2007–08/2007.

[2] Feng Gao, "On the optimal weight for the credibility premium of the discrete time surplus process", 05/2007–08/2007.

[1] Jie Liu, "The impact of the deductible and policy limit on ruin probabilities of the surplus process", 05/2006–08/2006.

Ph.D. degree thesis defense external examiner* and committees serving

[4] Yang Miao*, "Risk Theory: Data-driven models",
Department of Statistics and Actuarial Science, University of Western, 02/2022.

[3] Emmanuel Thompson*, "Ultimate ruin probability in the dependent claim sizes and claim occurrence times models", Department of Mathematics and Statistics, University of Calgary, 06/2013.

[2] Chih-Yuan Wu, "Applications of dynamic programming approach in asset and liability management of national pension fund", Department of Finance, National Taiwan University, 06/2003.

[1] Hung-Hsi Huang, "Optimal dynamic asset allocation and rational expectations equilibrium",
Department of Finance, National Taiwan University, 06/2002.

M.Sc. degree project defense committees serving at Simon Fraser University

[19] Lei Chen, "On the calculation of risk measures for variable annuities with guaranteed benefits", 08/2022.

[18] Nathani Hassan, "Exploring associations of respiratory symptoms and lung function measures with occupational exposures for the Canadian obstructive lung disease (COLD) study", 08/2022 (served as the chair).

[17] Jingdan Li, "A multi-state model for pricing critical illness insurance products", 08/2019.

[16] Anqi Chen, "Selecting baseline two-level designs using optimality and aberration criteria when some two-factor interactions are important", 06/2019.

[15] Jing Wang, "Cooperation in target benefit plans: A game theoretical perspective", 12/2018.

[14] Yang Bai, "IBNR claims reserving using INAR processes", 12/2016.

[13] Mengyun Li, "Analysis of universal life insurance cash flows with stochastic asset models", 06/2016.

[12] Tianyu Guan, "Multiple-decrement compositional forecasting with the Lee-Carter model", 07/2014.

[11] Jimmy Poon, "Spatial cross-sectional credibility models with general dependence structure among risks", 01/2013.

[10] Junjie Liu, "Modeling dependence induced by a common random effect and risk measures with insurance applications", 06/2012.

[09] Yu Xia, "Analysis of long-term disability insurance portfolios with stochastic interest rates and multi-state transition models", 01/2012.

[08] Olga Strizhkova, "Impact of abolishment of mandatory retirement on BC employment income", 12/2011.

[07] Barbara Sanders, "Analysis of variable benefit plans", 07/2010.

[06] Zhong Won, "Modeling investment returns with a multivariate Ornstein-Uhlenbeck process", 01/2010.

[05] Ting Zhang, "Integer-valued autoregressive processes with dynamic heterogeneity and their applications in automobile insurance", 12/2009.

[04] Jingyu Chen, "The discounted penalty function and the distribution of the total dividend payments in a multi-threshold Markovian risk model", 08/2009.

[03] Luyao Lin, "Multivariate stochastic analysis of a combination hybrid pension plan", 10/2008.

[02] Ruowei Zhou, "Actuarial and financial valuations of guaranteed annuity options", 08/2007.

[01] Natalia Lysenko, "Stochastic analysis of life insurance surplus", 07/2006.

Teaching assistants supervising at Simon Fraser University

[34] Boya Chen, ACMA 355 – Loss Models I, Fall 2023.

[33] Dongha Lee, ACMA 301 – Long-Term Actuarial Mathematics I, Fall 2023.

[32] Yirong Zhu, ACMA 355 – Loss Models I, Fall 2022.

[31] Wenyuan Zhou, ACMA 301 – Long-Term Actuarial Mathematics I, Fall 2022.

[30] Maggie Sun, ACMA 401 – Long-Term Actuarial Mathematics II, Spring 2022.

[29] Kaiyan Li, ACMA 301 – Long-Term Actuarial Mathematics I, Fall 2021.

[28] Wendy Xu, ACMA 320 – Actuarial Mathematics I, Spring 2021.

[27] Seyeon Kim, ACMA 455 – Loss Models II, Spring 2021.

[26] Sihan Cheng, ACMA 425 – Actuarial Mathematics II, Fall 2019.

[25] Jingdan Li, ACMA 455 – Loss Models II, Spring 2019.

[24] Wei-Hsiang Lin, ACMA 320 – Actuarial Mathematics I, Spring 2019.

[23] Sihan Cheng, ACMA 425 – Actuarial Mathematics II, Fall 2018.

[22] Jingdan Li, ACMA 455 – Loss Models II, Spring 2018.

[21] Di Wu, ACMA 490 – Selected Topics in Actuarial Science: Loss Models II, Spring 2017.

[20] Jinwan Kim, ACMA 320 – Actuarial Mathematics I, Spring 2017.

[19] Ying Zhang, ACMA 335 – Risk Theory, Fall 2015.

[18] Xiang Luan, ACMA 315 – Credibility Theory, Spring 2015.

[17] Xinying Liang, ACMA 315 – Credibility Theory, Spring 2014.

[16] Shuang Chen, ACMA 315 – Credibility Theory, Spring 2013.

[15] Qian Wang, ACMA 335 – Risk Theory, Fall 2012.

[14] Meng Yu, ACMA 315 – Credibility Theory, Spring 2012.

[13] Tianyu Guan, ACMA 445 – Loss Models: Estimation and Selection, Spring 2012.

[12] Jimmy Poon, ACMA 425 – Actuarial Mathematics II, Fall 2011.

[11] Qipin He, ACMA 315 – Credibility Theory, Spring 2010.

[10] Xia Yu, ACMA 335 – Risk Theory, Fall 2009.

[09] Qipin He, ACMA 315 – Credibility Theory, Spring 2009.

[08] Qipin He, ACMA 335 – Risk Theory, Fall 2008.

[07] Lingzhi Jiang, ACMA 315 – Credibility Theory, Spring 2008.

[06] Jingyu Chen, ACMA 335 – Risk Theory, Fall 2007.

[05] Leo Yan Ho Cheng, ACMA 315 – Credibility Theory, Spring 2007.

[04] Yinan Jiang, ACMA 335 – Risk Theory, Fall 2006.

[03] Hok-Leung Freddy Chan, ACMA 315 – Credibility Theory, Spring 2006.

[02] Kyle Wu, ACMA 335 – Risk Theory, Fall 2005.

[01] Gurbakhshash Singh, ACMA 315 – Credibility Theory, Spring 2005.

Others

[6] Participated in the Exam MLC central grading, Society of Actuaries, 05 – 06/2015, 11 – 12/2015, 05 – 06/2016.

[5] Reviewed applications for the major undergraduate scholarship, Faculty of Science, Simon Fraser University, March, 2013 – 2016.

[4] Served the academic advisor of SFU team for the Munich Re Cup 2016 Case Competition, 02 – 03/2016.

[3] Helped promote statistics and actuarial science programs on SFU Academic Options Day, 2005 – 2009.

[2] Helped promote statistics and actuarial science programs on SFU Open House, 2006 and 2008.

[1] Helped invigilate Exam FM of the Society of Actuaries held at Simon Fraser University, 2004 – 2007.