Samuel H. Cox

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Born: September 8, 1942, San Francisco
Nationality: United States of America

Current position

Since July 1, 2007 Dr. L. A. H. Warren Chair Professor of Actuarial Science, University of Manitoba

Areas of specialization

actuarial applications of financial economics, mortality risk management, securitization of insurance risks, financial engineering

Appointments held

1994 - 2007 Thomas P. Bowles, Jr. Chair of Actuarial Science
Department of Risk Management and Insurance, Georgia State University

1990 - 1994 A. J. Pasant Chair in Life Insurance and Financial Services
Department of Finance, Michigan State University

1987 - 1990 Professor of Actuarial Science and Finance
University of Nebraska-Lincoln

1986 - 1987 Actuary
The Wyatt Company, Dallas, Texas

1981 - 1986 Paul V. Montgomery Centennial Professor of Actuarial Science
Department of Finance, University of Texas at Austin

1979 - 1980 Actuary
The Wyatt Company, Dallas, Texas

1978 - 1979 Senior Actuarial Assistant
Pan-American Life Insurance Company, New Orleans, Louisiana

1975 - 1978 Assistant Professor of Actuarial Science
University of Texas at Austin

1972 - 1975	Assistant Professor of Mathematics University of Puerto Rico, Río Piedras, Puerto Rico
1971 - 1972	Acting Assistant Professor of Mathematics University of California at Los Angeles
1969 - 1971	Infantry Officer United States Army

Education

1968	PhD in Mathematics, Louisiana State University
1963, 1965	BA and MS in Mathematics, Texas Christian University

Professional designations

2003	Chartered Financial Analyst
1996	Chartered Property and Casualty Underwriter
1980	Fellow of the Society of Actuaries

Awards

2006	Lin and Cox (2008) won the 2006 Asia-Pacific Risk and Insurance Association Harold D. Skipper Best Paper Award.
1995-1996	Brockett, Cox, Golany, Phillips, and Song (1995) won the Annual Prize for papers published in the *Transactions of the Society of Actuaries* during July 1995 to July 1996.
1987	Brockett, Cox, and Witt (1986) won the American Risk and Insurance Association outstanding contribution award in 1987.

Research journal articles

Hua Chen and Samuel H. Cox. Modeling mortality with jumps: Applications to mortality securitization. Accepted for publication by the *Journal of Risk and Insurance*, December 2008a.

Hua Chen and Samuel H. Cox. An option-based operational risk management model for pandemics. Accepted for publication by the *North American Actuarial Journal*, December 2008b.

Yijia Lin and Samuel H. Cox. Securitization of catastrophe mortality risks. *Insurance: Mathematics and Economics*, 42(2):628–637, April 2008. This paper won the 2006 Asia-Pacific Risk and Insurance Association Harold D. Skipper Best Paper Award.

Samuel H. Cox and Yijia Lin. Natural hedging of life and annuity mortality risks. *North American Actuarial Journal*, 11(3):1 – 15, July 2007.

Samuel H. Cox, Yijia Lin, and Shaun Wang. Multivariate exponential tilting and pricing implications for mortality securitization. *Journal of Risk and Insurance*, 73(4):719–736, 2006.

Yijia Lin and Samuel H. Cox. Securitization of mortality risks in life annuities. *Journal of Risk and Insurance*, 72(2):227–252, 2005.

Samuel H. Cox, Hal W. Pedersen, and Joseph R. Fairchild. Valuation of structured risk management products. *Insurance: Mathematics and Economics*, 34(2):259 – 272, 2004.

Samuel H. Cox, Hal W. Pedersen, and Joseph R. Fairchild. Economic aspects of securitization of risk. *ASTIN Bulletin*, 30(1):157–193, 2000.

Samuel H. Cox and Hal W. Pedersen. Catastrophe risk bonds. *North American Actuarial Journal*, 4(4):56–82, 2000.

Samuel H. Cox, Edward L. Robbins, and Richard D. Phillips. Application of risk theory to interpretation of stochastic cash flow testing results. *North American Actuarial Journal*, 1 (2):85 – 95, 1997.

Patrick L. Brockett, Samuel H. Cox, and James Smith. Bounds on the price of catastrophe insurance options on future contracts. In *Securitization of Insurance Risks*. Society of Actuaries, 1996.

Samuel H. Cox and Arthur M. B. Hogan. Life insurer risk-based capital: An option pricing approach. *Journal of Actuarial Practice*, 3(1):5–23, 1995.

Patrick L. Brockett, Samuel H. Cox, Boaz Golany, Fred Y. Phillips, and Yun Song. Actuarial usage of grouped data: An approach to incorporate secondary data. *Transactions of the Society of Actuaries*, XLVII(1), 1995. This paper won the Society of Actuaries Annual Prize for papers published in the TSA during July 1995 to July 1996.

Samuel H. Cox and Robert Schwebach. Insurance futures and hedging insurance price risk. *Journal of Risk and Insurance*, LIX(4):628–644, 1992.

P. D. Laporte, S. H. Cox, S. R. Linney, and L. Lombardi. Single premium deferred annuity persistency study. *Transactions of the Society of Actuaries Reports*, 1(1):281–332, 1992.

Samuel H. Cox. Bounds on expected values of insurance payments and option prices. *Transactions of the Society of Actuaries*, XLIII:231–260, 1991.

Patrick L. Brochett, Samuel H. Cox, and James H. Gerberman. A stochastic process model for venture capital decisions. In *Proceedings of the American Statistical Association*, Business and Economics Section. American Statistical Association, 1990.

Patrick L. Brockett and Samuel H. Cox. Discussion of Reitano's *Statistical Analysis of Banded Data*. *Transactions of the Society of Actuaries*, XLII:413 – 415, 1990.

Samuel H. Cox. Comments on Fleming and Norton. *The American Statistician*, November 1989. Letters Section.

Patrick L. Brockett, Samuel H. Cox, and Robert C. Witt. Insurance versus self–insurance: A risk management perspective. *Journal of Risk and Insurance*, 53(2):242 – 257, 1986. This paper won the American Risk and Insurance outstanding contribution award in 1987.

Samuel H. Cox and Cheng-Kun Kuo. Underwriting traders of financial futures. In I. B. MacNeill and G. J. Umphrey, editors, *Advances in the Statistical Sciences*, volume 6, pages 219–229, 1987.

Patrick L. Brockett and Samuel H. Cox. Insurance calculations using incomplete information. *Scandinavian Actuarial Journal*, pages 94 – 108, 1985.

Patrick L. Brochett and Samuel H. Cox, Jr. Optimal ruin calculations using partial stochastic information. *Transactions of the Society of Actuaries*, XXXVI:49–62, 1984.

Patrick L. Brockett and Samuel H. Cox, Jr. Statistical adjustment of mortality tables to reflect known information. *Transactions of the Society of Actuaries*, 36:63–75, 1984.

Patrick L. Brockett, Samuel H. Cox, Jr., and Robert C. Witt. Self-insurance and the probability of financial regret. *Journal of Risk and Insurance*, 51:720–729, December 1984.

Samuel H. Cox, Jr. and John D. Martin. Abandoment value and capital budgeting under uncertainty. *Journal of Economics and Business*, 35:331 – 341, 1983.

S. H. Cox, Jr. The preparation theorem and the freeness of $A[[x]]/I$. *Proceedings of the American Mathematical Society*, 1976.

S. H. Cox, Jr. and David Rush. Finiteness in flat modules and algebras. *Journal of Algebra*, 32:44–50, 1974.

S. H. Cox, Jr. Commutative endomorphism rings. *Pacific Journal of Mathematics*, 45:87 – 91, 1973.

S. H. Cox, Jr. and David Rush. Endomorphisms of finite rank flat modules. *Duke Mathematics Journal*, 39:323 – 326, 1972.

S. H. Cox, Jr. and Robert L. Pendleton. Rings for which certain flat modules are projective. *Transactions of the American Mathematical Society*, 160:139 – 156, 1970.

S. H. Cox, Jr. and Sam B. Nadler. Supremum norm differentiability. *Annales Societatis Math. Polonae*, 1970. Series I.

S. H. Cox, Jr. Determinantal rank and flat modules. *Proceedings of the American Mathematical Society*, pages 104 – 106, 1969.

Book reviews and other articles

Samuel H. Cox. Book review of *Derivatives: The tools that changed finance* by Phelim Boyle and Feidhlim Boyle. Risk Waters Group, London, 2001. *North American Actuarial Journal*, 7(2):145 – 146, 2003.

Samuel H. Cox. '98 Bowles Symposium. *The Actuary*, 32(8):8–9, October 1998.

Samuel H. Cox. Poland's first actuaries. *The Actuary*, 26(1):10–11, January 1992.

Samuel H. Cox. Book review of *Life Insurance Mathematics* by Hans U. Gerber. *Transactions of the Society of Actuaries*, XLII:755 – 756, 1990.

Patrick L. Brockett and Samuel H. Cox. Book review of *Stochastic Methods in Economics and Finance* by Malliaris and Brock. *Journal of the American Statistical Association*, 80:236 – 237, 1984.

S. H. Cox, Jr. Joint life annuity formulations. *The Actuary*, 12(1):4–6, January 1978.

Samuel H. Cox. Book review of *Differential Equations with Applications and Historical Notes* by George F. Simmons. *American Mathematical Monthly*, 82:862 – 863, 1975.

Books and chapters in books

Phelin P. Boyle, Samuel H. Cox, Daniel Dufresne, Hans U. Gerber, Heinz H. Mueller, Harry H. Panjer (editor), Hal W. Pedersen, Stanley R. Pliska, Michael Sherris, Elias S. Shiu, and Ken Sen Tan. *Financial Economics with Applications to Investments, Insurance, and Pensions*. The Actuarial Foundation, Schaumburg, Il 60173-2226, 1998.

Samuel H. Cox. Risk and insurance in a financial context. In Harold Skipper, Jr., editor, *International Risk Management: An Environmental Managerial Approach*, chapter 6. MacGraw Hill, first edition, 1997.

Hans U. Gerber and Samuel H. Cox. *Life Insurance Mathematics*. Springer-Verlag, Berlin, third edition, 1997. Translator for the first edition: Walter Neuhaus.

John D. Martin, Samuel H. Cox Jr, and Richard D. MacMinn. *The Theory of Finance: Evidence and Applicaions*. Dryden, 1987.

Teaching

2008 – I will teach one undergraduate class in actuarial mathematics duirng the academic year 2008 – 2009.

1994 - 2007 At Georgia State University I taught graduate courses in actuarial mathematics, primarily in the areas of non-life insurance loss modeling and financial engineering.

PhD Students

Hua Chen. *Contingent Claim Pricing with Applications to Financial Risk Management*. PhD thesis, Georgia State University, Atlanta, Georgia, May 2008.

Ruilin Tian. *Moment Problems with Applications to Value-at-Risk and Portfolio Management*. PhD thesis, Georgia State University, Atlanta, Georgia, May 2008.

Edoh Afambo. *Operational Risk of Banks and Insurance Companies*. PhD thesis, Georgia State University, Atlanta, Georgia, May 2006.

Yijia Lin. *Mortality Risk Management*. PhD thesis, Georgia State University, Atlanta, Georgia, May 2006.

Cheng-kun Kuo. *The Risk of Ruin in Futures Market Trading*. PhD thesis, University of Texas at Austin, 1986.

Wai Kin Lueng. *Option Pricing and the Pricing of Contingent Claims*. PhD thesis, University of Texas at Austin, 1986.

MBA and MS Students

Shumei Rose Kuo. Estimating loss distributions. Master's thesis, University of Texas at Austin, 1986.

Yul Wha Lee. Martingale properties and their applications to financial and economic theory. Master's thesis, University of Texas at Austin, 1986.

Yingying Pamela Pan. Ridge regression: Biased estimation in practice. Master's thesis, University of Texas at Austin, 1984.

Sarah Kathleen Kelso. An inventory approach to cash management. Master's thesis, University of Texas at Austin, 1982.

Ever Cristoff Miranda. Programación lineal: El método del simplex y sus aplicaciónes. Master's thesis, Universidad de Puerto Rico, Rio Piedras, 1975.

Benjámin Ustáriz. I. Dimensión de Krull de anillos de funciones continuas II. Normalización de un anillo cuasi-regular. Master's thesis, Universidad de Puerto Rico, 1974.

Service to the Actuarial Profession since 2002

Since 2007 I serve as an editor of *The ASTIN BUlletin*, a journal of the International Actuarial Association.

2008 I served as a member of the Society of Actuaries Knowledge Management Strategic Action Team.

2007-2008 I served on a joint Casualty Actuarial Society and Society of Actuaries financial economics examination committee.

2002-2005 I was elected to a three year term on the Society of Actuaries Board of Governors in 2002. I served on several task forces and committees as a Board member.

Invited Presentations 2006-2008

April 16, 2008 *Insurance company capital, improving skewness, and default risk* at the Enterprise Risk Management Symposium in Chicago.

September 14, 2007 *Conceptos y fundamentos de probabilidad y estadística para la modelación de riesgos catastróficos* at the ASTIN Seminar in Ixtapa, México, presented in English.

July 23, 2007 *Emerging Risks and Potential Solutions* at the annual meeting of the Asia Pacific Risk and Insurance Association, Taipei, Taiwan.

May 5, 2007 *Improving VaR and Skewness of Mean-Variance Portfolios* at the Financial Engineering for Actuarial Mathematics Workshop, Department of Mathematics, University of Michigan, Ann Arbor.

August 25, 2006 *Cobertura Natural de Riesgos de Mortalidad en Productos de Vida y Anualidades* at the Simposio

Internacional en Actuaría, Universidad de Los Andes, Bogota, presented in English.

May 11, 2006 *Securitization of Mortality Risks* at the Symposium on Finance and Insurance, Norwegian School of Economics and Business Administration, Bergen, Norway.

April 13, 2006 *Securitization of Mortality Risks* to the Department of Statistics, University of Toronto.

Presentations at Conferences 2006 - 2008

December 14, 2007 *Improving VaR and Skewness of Mean-Variance Portfolios* at the Quantitative Methods in Finance 2007 Conference, School of Finance and Economics, University of Technology, Sydney.

August 6, 2007 *Longevity Risk, Rare Event Premia and Securitization* with Yijia Lin at the American Risk and Insurance Association annual meeting, Quebec City.