

KEITH SHARP

BASIC INFORMATION

Birth: January 13, 1952, London U.K.
Citizenship: Canadian and British
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DEGREES

1988 Ph.D. (Management Science, field: Finance-Interest Rate Models) Univ. of Waterloo
1976 M.A. (Statistics) University of California, Berkeley (Ranked second or third in final exam for M.A.)
1974 M.A. (Astronomy) University of California, Berkeley: Earle C. Anthony Fellowship
1972 B.A. & M.A. (Mathematics) Cambridge University, U.K. (Ranked sixth out of 177 in final B.A. exam)

PROFESSIONAL QUALIFICATIONS

2007 Chartered Financial Analyst
1990- Fellow, Society of Actuaries (Chicago)
1983- Fellow, Canadian Institute of Actuaries
1982-2006 Fellow, Institute of Actuaries (London)

EXPERIENCE

2007-date Teaching actuarial & investment courses at University of Toronto, Mississauga
2006-date Teaching actuarial & investment courses at University of Toronto, Scarborough
2005-date Teaching actuarial & investment courses at University of Toronto, Main campus, Dept of Statistics
2000-2005 Actuarial exam preparation instruction
1989-2000 Tenured Associate Professor (& Associate Chair for five years) University of Waterloo, Ontario
1982-89 Assistant Professor, Dept. of Statistics and Actuarial Science, University of Waterloo, Ontario
1980-82 Associate actuary at TPF&C, consulting actuaries, Toronto
1977-80 Trainee actuary at PTOW/TPF&C, consulting actuaries, Melbourne, Australia
1977 Trainee actuary at Commercial Union Assurance, London, U.K.
1976 Research assistant to J. Neyman, University of California, Berkeley
1973-76 Head teaching assistant, University of California, Berkeley
1972 Supervisor, Christ's College, Cambridge University, U.K.

PAPERS IN REFEREED JOURNALS

1. "CARVM and Actuarial Guidelines 33 and 34", *Journal of Actuarial Practice*, Vol. 7, No. 1, pp 125-146 (K.P. Sharp) 1999
2. "The Commissioners Annuity Reserve Valuation Method", *Journal of Actuarial Practice*. Vol. 7. No. 1. pp 107-124 (K.P. Sharp) 1999
3. "Reserves for Policies with Non-Annual Premiums," *North American Actuarial Journal*, Vol. 2, No. 3. pp 118-127 (K.P. Sharp) 1998
4. "Lapses and Termination Assumptions in Reserve Calculations", *Journal of Insurance Regulation*, Vol. 15, No. 2, pp. 194-211 (K.P. Sharp) 1996
5. "Pension Funding by Normal Costs or Amortization of Unfunded Liabilities". *Journal of Actuarial Practice*, Vol. 4, No. 2, pp. 257-274 (K.P. Sharp) 1996
6. "Equivalence of Reserve Methodologies". *Transactions. Society of Actuaries*. Vol. XLVII. pp. 455-478 (K.P. Sharp) 1995
7. "A Mathematical Analysis of Financial Accounting Standard No. 88", *Transactions, Society of Actuaries*, Vol. XLV, pp. 485-497 (K.P. Sharp) 1993
8. "Funding Methods and Pension Plan Amendments", *Journal of Actuarial Practice*, Vol. 1. No. 2, pp. 111-126 (K.P. Sharp) 1993
9. "Modeling Canadian Price and Wage Inflation", *Proceedings of the Canadian Institute of Actuaries*, Vol. 24, No. 3. pp. 565-587 (K.P. Sharp) 1993
10. "Inflation and Investment Returns: An Overview ", *Proceedings of the Canadian Institute of Actuaries*, Vol. 24, No. 3, pp. 588-599 (K.P. Sharp) 1993
11. "Stochastic Differential Equations in Finance", *Applied Mathematics and Computation*, Vol. 37, No. 2. pp. 131-148 (K.P. Sharp) 1990
12. "Mortgage Rate Insurance Pricing Under an Interest Rate Diffusion with Drift", *Journal of Risk and Insurance* Vol. 56, No. 1, pp. 34-49 (K.P. Sharp) 1989
13. "Tests of U.S. Short and Long Interest Rate Seasonality", *Review of Economics and Statistics*. Vol. 70, No. 1, pp. 177-182 (K.P. Sharp) 1988
14. "Applications of Economic Statistics to the Indexation of Occupational Pensions", *Proceedings of the Canadian Institute of Actuaries* Vol. 16, No. 3, pp. 322-334 (K.P. Sharp) 1988
15. "The Valuation of Sick Leave Plans", *Proceedings of the Canadian Institute of Actuaries* Vol. 18, No. 1, pp. 363-377 (K.P. Sharp) 1987
16. "A Model for Determining Early Retirement Incentives", *Insurance: Mathematics and Economics* Vol. 6, No. 2, pp. 117-127 (K.P. Sharp) 1987
17. "Mortgage Rate Insurance in Canada", *Canadian Public Policy* Vol. 12, No. 2, pp. 432-437 (K.P. Sharp) 1986

CONFERENCE PROCEEDINGS, REPORTS TO INDUSTRY, STUDY MANUALS ETC.

18. *Actex Study Manual for the Course 5 Examination of the Society of Actuaries*, 2004 edition (R.L. Brown and K.P. Sharp) 2004
19. *Actex Study Manual for the Course 8 - Individual Examination of the Society of Actuaries*, 2002 edition (N.J. Desmarais and K.P. Sharp) 2002
20. *Canadian Standard Ordinary Life Experience 1997 and 1998*, (58 pages, V. Borchert, R.L. Brown and K.P. Sharp). 2000
21. *Report on Canadian Economic Statistics 1924-1999*, Canadian Institute of Actuaries (39 pages, Committee on Economic Statistics/H.H. Panjer and K.P. Sharp, annual 1992-2000). 1992-2000
22. *Actex Study Manual for the Course 5 Examination of the Society of Actuaries*, 2000 edition (R.L. Brown and K.P. Sharp, my contribution 107 new pages) 2000
23. *Actex Study Manual for the Course 8 - Individual Examination of the Society of Actuaries*, 2000 edition (N.J. Desmarais and K.P. Sharp, my contribution 56 new pages) 2000
24. *Annuities in Canada: A Report Prepared for the World Bank*, Institute of Insurance and Pension Research (Waterloo) Working Paper (73 pages) (Hyun Tae Kim and K. P. Sharp) 1999
25. *Canadian Standard Ordinary Life Experience 1996 and 1997*; Canadian Institute of Actuaries Monograph (56 pages, V. Borchert, R.L. Brown and K.P. Sharp). 1999
26. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries*, (K.P. Sharp) 1998
27. *Canadian Standard Ordinary Life Experience 1995 and 1996*, Canadian Institute of Actuaries Monograph (V. Borchert, H.H. Panjer and K.P. Sharp) (41 pages). 1998
28. *Actex Study Manual for the Course 1-443U Examination of the Society of Actuaries*, 1998 Edition (R. De Caro and K.P. Sharp; my contribution 6 new and 10 revised pages for 1998). 1998
29. *Canadian Standard Ordinary Life Experience 1994 and 1995*, Canadian Institute of Actuaries Monograph (V. Borchert, H.H. Panjer and K.P. Sharp) (38 pages). 1997
30. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries*, 1997 Edition (74 new or revised pages for 1997). (K.P. Sharp) 1997
31. *Actex Study Manual for the Course 1-443U Examination of the Society of Actuaries* 1997 Edition (R. De Caro and K.P. Sharp; my contribution 10 new and 31 revised pages 1997). 1997
32. *Actex Study Manual for the Course 1-340 Examination of the Society of Actuaries* (joint authorship; my contribution 10 new pages for 1997). 1997
33. *The Savings Rate to Provide an Adequate Pension*, Institute of insurance and Pension Research, Research Report 96-22 (44 pages, 1996). (K.P. Sharp) 1996
34. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries*, (105 new and 25 revised pages for 1996). (K.P. Sharp) 1996
35. *Actex Study Manual for the Course 1-443U Examination of the Society of Actuaries*, (D. Kidwell and K.P. Sharp; my contribution 34 new pages for 1996). 1996
36. *Actex Study Manual for the Course 1-340 Examination of the Society of Actuaries*, (joint authorship; my contribution 14 new pages for 1996). 1996
37. *Equity Conversion Plans for the Elderly*, Institute of Insurance and Pension Research, Research Report 95-16, (John Di Meo, R. L. Brown and K.P. Sharp) (96 pages). 1995
38. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries*, 1995 Edition. (196 revised pages for 1995). (K.P. Sharp) 1995

39. *Actex Study Manual for the Course I-443U*, Examination of the Society of Actuaries (D. Kidwell and K.P. Sharp), (My contribution 65 new pages for 1995). 1995
40. *Actex Study Manual for the Course I-340*, Examination of the Society of Actuaries (Joint authorship; my contribution 8 new pages for 1995). 1995
41. "Costing of Pension Plan Amendments", ARCH 1994.1, pp. 15-24 (K.P. Sharp) 1994
42. "An Academic View of Economic Forecasting", *Proceedings of the Investment Seminar*. Canadian Institute of Actuaries/AFIR, Vol. 4, pp. 41-52 (K.P. Sharp) 1994
43. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries*. 1994 Edition, (25 new pages for 1994). (K.P. Sharp) 1994
44. *Actex Study Manual for the Course I-443U*, Examination of the Society of Actuaries (D. Kidwell and K.P. Sharp), (77 new pages for 1994). 1994
45. *Pension Mathematics for Actuaries - Commentary and Solutions* (180 pages) Actex Publications (K.P. Sharp) 1993
46. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries, 1993 Edition*, (222 new or revised pages for 1993). (K.P. Sharp) 1993
47. *Actex Study Manual for the Course F-483U Examination of the Society of Actuaries, 1993 Edition*, (joint authorship, my 1993 contribution 57 pages). 1993
48. *Actex Study Manual for the Course I-443U Examination of the Society of Actuaries, 1993 Edition* (D. Kidwell and K.P. Sharp; my 1993 contribution 30 pages). 1993
49. "Aspects of Interest. Rate Models", *Transactions of the 24th International Congress of Actuaries*, Vol. 1, pp. 187-205 (K.P. Sharp) 1992
50. *Actex Study Manual for the Course I-443U Examination of the Society of Actuaries, 1992 Edition* (D. Kidwell and K.P. Sharp; my 1992 contribution 36 pages). 1992
51. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries, 1991 Edition* (W.H. Aitken and K.P. Sharp; my 1991 contribution 57 pages). 1991
52. *Report on Canadian Economic Statistics*, Canadian Institute of Actuaries (36 pages, Committee on Economic Statistics/P.P. Boyle, H.H. Panjer, K.P. Sharp, annual 1983-91). 1983-1991
53. *Actex Study Manual for the Course I-442C and I-443U Examinations of the Society of Actuaries, 1991 Edition* (D. London, F.G. Reynolds and K.P. Sharp; my 1991 contribution 92 pages). 1991
54. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries, 1990 Edition* (W.H. Aitken and K.P. Sharp; my 1990 contribution 59 pages). 1990
55. *Actex Study Manual for the Course P-461U Examination of the Society of Actuaries, 1990 Edition* (24 pages written in 1990). (K.P. Sharp) 1990
56. *Actex Study Manual for the Course I-442C and I-443U Examination of the Society of Actuaries, 1990 Edition* (D. London, F.G. Reynolds and K.P. Sharp; my 1990 contribution 21 pages). 1990
57. "An Application of an Interest Rate Diffusion Model to the Valuation of Mortgage Rate Insurance", ARCH 1988.2, pp. 47-66 (K.P. Sharp) 1989
58. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries, 1989 Edition* (W.H. Aitken and K.P. Sharp; my 1989 contribution 105 pages). 1989
59. *Actex Study Manual for the Course P-461U Examination of the Society of Actuaries. 1989 Edition* (123 pages written in 1989). (K.P. Sharp) 1989

60. *Actex Study Manual for the Course I-442C and I-443U Examinations of the Society of Actuaries. 1989 Edition* (D. London, F.G. Reynolds and K.P. Sharp; my 1989 contribution 201 pages). 1989
61. Ph.D. Thesis: Jan. 1988 *Applications of Stochastic Models of Interest Rates* (272 pages). (K.P. Sharp) 1988
62. "Seasonality of Canadian Mortgage Rates" ARCH 1988.1, pp. 175-189 (K.P. Sharp) 1988
63. "Stochastic Models of Interest Rates", Proceedings of the International Congress of Actuaries, Helsinki, 1988, book 5, *The Applications of Modern Techniques to the Investment of Insurance and Pension Funds*, pp. 247-261 (K.P. Sharp) 1988
64. "Pension Funding Assumptions and Pension Indexation" *Report of the Task Force on Inflation Protection; Research Studies, Vol. 1, pp. 301-325*, Government of Ontario, 1988, (K.P. Sharp). 1988
65. "Early Retirement Incentives Under High Termination Rates" *Pension Forum*, Vol. 3, No. 3, pp. 7-10 (K.P. Sharp) 1987
66. "Time Series Analysis of Mortgage Rate Insurance", *Advances in the Statistical Sciences*, edited by I.B. MacNeill and G.J. Umphrey, Reidel Publishing, Vol. 6, pp. 201-219 (K.P. Sharp) 1987

UNIVERSITY OF TORONTO TEACHING:

	ACT230 UTSG	ACT239 UTM	ACT240 UTSG	ACT244 UTM	ACT245 UTSG	ACT247 UTSG	ACT349 UTSG	ACTB40 UTSC	ACTB47 UTSC
2009W		x			x				x
2008F	x			x			x	x	
2008SumS					x	x			
2008SumF			x						
2008W		x			x				x
2007F				x			x	x	
2007SumS					x	x			
2007SumF			x						
2007W					x				x
2006F			x				x	x	
2006SumS					x	x			
2006SumF			x				x		
2006W									
2005F			x					x	

<i>Texts:</i>	
ACT240, B40	<i>Mathematics of Investment and Credit, 3rd Ed.</i> , S.A. Broverman
ACT245	<i>Derivatives Markets, 2nd. Ed.</i> , R.L. McDonald
ACT349	<i>Principles of Corporate Finance, 9th. Ed.</i> , Brealey, Myers, Allen

UNIVERSITY OF WATERLOO

1982-01 Taught numerous Actuarial Science courses with excellent teaching ratings (available)
2000 Undergraduate Officer, Actuarial Science
1997-98 Faculty Committee on Student Appeals
1996-98 Appointments Committee, Department of Statistics and Actuarial Science
1996-98 Programs Committee, Department of Statistics and Actuarial Science
1996-99 Undergraduate Officer, Actuarial Science
1996-99 Associate Director, Institute of Insurance and Pension Research
1994-95 Undergraduate Officer, Actuarial Science
1999-00 Board, Institute of Insurance and Pension Research
1982-00 Actuarial Science Advisory Board, University of Waterloo
1992-94 Graduate Affairs Committee, Department of Statistics and Actuarial Science
1991-95 Associate Chair, Actuarial Science
1989-91 Library Committee, Faculty of Mathematics
1989-91 Undergraduate Officer, Actuarial Science
1989-91 Standings and Promotions Committee, Faculty of Mathematics
1986-95 Toronto Actuarial Courses coordinator
1985-91 Undergraduate Affairs Committee, Department of Statistics and Actuarial Science
1983-84 Alumni Advisory Committee, Faculty of Mathematics

PROFESSIONAL ACTIVITIES

1997-00 Associate Editor, North American Actuarial Journal
1997-99 Committee on Economic Statistics, Canadian Institute of Actuaries
1996-98 Supervisor, Society of Actuaries Fall examinations
1996-98 Examination Committee, Society of Actuaries, Course 165
1982-95 Committee on Economic Statistics, Canadian Institute of Actuaries (Chair 1983-1988)
1990-92 Committee on Investment Practice, Canadian Institute of Actuaries