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# JERALD FRANKLIN LAWLESS

August 5, 1944 (Pembroke, Ontario)

# **DEGREES**

1966 B.Sc. University of Waterloo
1967 M.Sc. University of Waterloo
1969 Ph.D. University of Waterloo

# ACADEMIC APPOINTMENTS

1965	Summer Fellow	Biometrics Division
		National Research Council
1967-8	Lecturer	University of Waterloo
		Department of Statistics
1968-9	Lecturer (part-time)	University of Waterloo
		Department of Statistics
1969-70	NRC Post-Doctoral Fellow	University of Edinburgh
1970-2	Assistant Professor	University of Manitoba
		Department of Statistics
1972-3	Assistant Professor	University of Waterloo
		Department of Statistics
1973-80	Associate Professor	University of Waterloo
		Department of Statistics
1973-77	Graduate Officer	University of Waterloo
		Department of Statistics
1978-79	Visiting Fellow	University of Reading and
		Imperial College, London
1979-84	Chair	University of Waterloo
		Department of Statistics and Actuarial Science
1980-2007	Professor	University of Waterloo
		Department of Statistics and Actuarial Science
1986	Visiting Fellow	University College and
		Imperial College, London.
1987-88	Acting Chair	University of Waterloo
		Department of Statistics and Actuarial Science
1994-2004	GM-NSERC Industrial	University of Waterloo
	Research Chair	Department of Statistics and Actuarial Science
2000	Visiting Professor	University of Auckland
2004-05	Acting Chair	University of Waterloo
		Department of Statistics and Actuarial Science
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2008- Distinguished Professor Emeritus University of Waterloo

Department of Statistics and Actuarial Science

2010-2017 Adjunct Professor University of Toronto

Dalla Lana School of Public Health

#### SELECTED PROFESSIONAL ACTIVITIES

Associate Editor, Technometrics (1975-82). Editor-Elect (1983).

Editor, Technometrics (1984-86).

Member of N.S.E.R.C. Statistical Sciences Grant Selection Committee (1984-87).

Member of Board of Directors, American Statistical Association (1985).

Member of Board of Directors, Statistical Society of Canada (1985-89, 1992-95).

Chair, Technometrics Management Committee (1988-1990).

President, Statistical Society of Canada (1993-94).

Holder of General Motors - NSERC Industrial Research Chair in Quality and Productivity (1994-2004).

Associate Editor, Biometrika (1994-97).

Editorial Board, Springer-Verlag Series in Statistics for Engineering and Information Science (1996-2002).

Member, Statistics Canada Advisory Committee on Statistical Methods (1997-2006).

Member, Scientific Advisory Board, Centre de Recherches Mathématiques (1998-2002).

Associate Editor, Canadian Journal of Statistics (1998-2006).

Member, N.S.E.R.C. Committee on Research Grants and Group Chair (1998-99)

Co-editor, Lifetime Data Analysis, 1999-2002, Associate Editor, 2003-2007

Chair, Royal Society of Canada Synge Committee (2005-7), Member (2004-5)

Member, Royal Society of Canada Fellows Selection Committee for Physical and Mathematical Sciences (2004-7)

Member, Scientific Advisory Panel, Fields Institute of Mathematical Sciences (2005-2008)

Member, Scientific Technical Advisory Committee of Scientific Registry of Transplant Recipients, USA (2008-2012)

Guest Editor, Canadian Journal of Statistics, Papers on Covid-19 Research (2020-22)

Visiting appointments at Universities of Reading, Toronto, Imperial College London, University College London, University of California at San Francisco, University of Auckland.

Statistical consultant to various individuals and organizations.

Program Chair for various research conferences.

Consultant to numerous organizations in the public and private sector; expert witness.

## SCHOLARSHIPS AND FELLOWSHIPS

1962	Ontario Scholarship, Herculano Scholarship	
1962-6	University of Waterloo Scholarship	
1962-3	University Faculty Prize	
1964-5	University Faculty Prize	
1966-7	National Research Council Scholarship	
1968-9	Queen Elizabeth II Ontario Scholarship	
1969-70	National Research Council Post-Doctoral Fellowship	

#### SELECTED AWARDS AND HONOURS

1979	Youden Award (for paper 25, below)
1983	Fellow, American Statistical Association
1990	Fellow, Institute of Mathematical Statistics
1994	GM-NSERC Industrial Research Chair in Quality and Productivity
1999	Canadian Journal of Statistics Award (for paper 74, below)
1999	Statistical Society of Canada Gold Medal
1999	Wilcoxon Award (for paper 70, below)
2000	Elected Fellow, Royal Society of Canada
2002	Induction to University of Waterloo Athletics Hall of Fame
2008	Distinguished Professor Emeritus, University of Waterloo
2012	Shewhart Medal, American Society for Quality
2014	Honorary Member, Statistical Society of Canada

### PROFESSIONAL SOCIETIES

Member of American Statistical Association, Royal Statistical Society, International Statistical Institute, Statistical Society of Canada, Biometric Society, Institute of Mathematical Statistics

AREAS OF INTEREST: Analysis of lifetime and life history data; biostatistics; data integration; epidemiology; incomplete data; inference; prediction.

## SUPERVISION OF THESES

1. Combinatorial Problems in Confounded, Factorial Designs, by D.W. Mallenby, M.Sc. Thesis, University of Manitoba, May 1972.

- 2. On Pooling Sample Means from Exponential and Poisson Distributions, by K. Singhal, M. Math Thesis, University of Waterloo, September 1974.
- 3. Topics in Exponential Regression Models, by K. Singhal, Ph.D. Thesis, University of Waterloo, October, 1978.
- 4. A Generalized Chisquare Goodness of Fit Procedure, by R. Shillington, Ph.D. Thesis, University of Waterloo, December 1978. (Winner of 1979 Pierre Robillard Award of the Statistical Society of Canada for best Statistics Thesis of 1978). Joint supervision with J.D. Kalbfleisch.
- 5. Some Issues in the Regression Analysis of Survival Data, by A. Gould, Ph.D. Thesis, University of Waterloo, October 1986.
- Goodness of Fit Tests and Two Sample Tests for Grouped and Censored Lifetime Data, by J. Cook, Ph.D. Thesis, University of Waterloo, March 1988.
- 7. Mixed Poisson Models and Regression Methods for Count Data, by C. Dean, Ph.D. Thesis, University of Waterloo, June 1988.
- 8. Some Methods for the Analysis of Toxicological Mortality Data Grouped Over Time, by R.J. O'Hara Hines, Ph.D. Thesis, University of Waterloo, December, 1989.
- 9. An Implementation of a Lifetime Model, by A.J. Myrvold, M. Math Thesis, University of Waterloo, September, 1990.
- 10. Some Methods for Multi-State Life History Analysis with Incomplete Data, by P. Yan, Ph.D. Thesis, University of Waterloo, September, 1992.
- 11. Empirical Likelihood and Semiparametric Models, by J. Qin, Ph.D. Thesis, University of Waterloo, December, 1992. (Winner of 1993 Pierre Robillard Award of the Statistical Society of Canada for best Statistics Thesis of 1992).
- 12. Estimation from Truncated Data with Supplementary Information, with Application to Field Reliability, by X. Joan Hu, Ph.D. Thesis, University of Waterloo, March, 1995. (Winner of 1996 Pierre Robillard Award of the Statistical Society of Canada for best Statistics Thesis of 1995.)
- 13. Inference for Point Processes Through Estimating Functions, by C. Nadeau, Ph.D. Thesis, University of Waterloo, August, 1995.
- 14. Variation Transmission in Multi-stage Industrial Processes, by R. Agrawal, Ph.D. Thesis, University of Waterloo, April, 1997. Joint supervision with R.J. MacKay.
- 15. State Space Models and Filtering Methods in Longitudinal Studies, by D.Y.T. Fong, Ph.D. Thesis, University of Waterloo, August 1997.
- 16. Inference in Nonhomogeneous Poisson Process Models, with Applications to Software Reliability, by J. Jean, Ph.D. Thesis, University of Waterloo, November 1998.

- 17. Analysis of Incomplete Event History Data, by M. Zhan, Ph.D. Thesis, University of Waterloo, March 1999.
- 18. Multiple Time Scales in Survival Analysis, by T. Duchesne, Ph.D. Thesis, University of Waterloo, September 1999.
- 19. Accounting for Misclassification in Binary Longitudinal Data, by Rhonda Rosychuk, Ph.D. Thesis, University of Waterloo, September 1999. Co-Supervisor with M.E. Thompson.
- 20. Methods for the Analysis of Multivariate Failure Times, by Wenqing He, Ph.D. Thesis, University of Waterloo, December 2001.
- 21. Duration Data Analysis in Longitudinal Surveys, by Christian Boudreau, Ph.D. Thesis, University of Waterloo, May 2003.
- 22. Prediction of Recurrent Events, by Marc Fredette, PhD Thesis, University of Waterloo, September 2004.
- 23. Goodness of Fit Tests for Lifetime Data Models When Responses are Interval Censored, by Denise Babineau, Ph.D. Thesis, University of Waterloo, May 2005.
- 24. Design and Efficient Estimation in Regression Analysis with Missing Data in Two Phase Studies, by Yang Zhao, Ph.D. Thesis, University of Waterloo, May 2005. Co-Supervisor with D.L. McLeish.
- 25. Prediction Performance of Survival Models, by Yan Yuan, Ph.D. Thesis, University of Waterloo, September 2008.
- 26. Estimation and Goodness of Fit for Multivariate Survival Models Based on Copulas, by Yildiz Yilmaz, Ph.D. Thesis, University of Waterloo, August 2009.
- 27. Analysis of Duration Data from Longitudinal Surveys Subject to Loss-to-Followup, by Dagmar Mariaca Hajducek, Ph.D. Thesis, University of Waterloo, September 2010.
- 28. Some Models and Tests for Carryover Effects and Trends in Recurrent Event Processes, by Candemir Cigsar, Ph.D. Thesis, University of Waterloo, September 2010.
- 29. Statistical Methodologies for Genetic Association Studies with Rare Variants, by Andriy Derkach, Ph.D. Thesis, University of Toronto, June 2014. Co-Supervisor with Lei Sun.
- 30. Multistate Models for Biomarker Processes, by Narges Nazeri Rad, Ph.D. Thesis, University of Waterloo, August 2014.
- 31. Event History Analysis in Longitudinal Cohort Studies with Intermittent Inspection Times, by Yayuan Zhu, Ph.D. Thesis, University of Waterloo, January 2016. Co-Supervisor with C. Cotton.

32. Empirical Likelihood Methods for Some Incomplete Data Problems, by Menglu Che, Ph.D. Thesis, University of Waterloo, December 2020. Co-supervisor with Peisong Han.

I have been involved in the supervision of various other Ph.D. and Masters students and have served on thesis committees in Departments of Statistics, Public Health, Electrical Engineering, Chemical Engineering, Systems Design Engineering, Management Science, and Combinatorics and Optimization.

#### **PUBLICATIONS**

#### **BOOKS**

- 1. Lawless, J.F. (1982). Statistical Models and Methods for Lifetime Data. John Wiley and Sons, New York, 580 pp.
- 2. Lawless, J.F. (2003). Statistical Models and Methods for Lifetime Data, 2nd edition. John Wiley and Sons, Hoboken, 630 pp.
- 3. Cook, R.J. and Lawless, J.F. (2007). The Statistical Analysis of Recurrent Events. Springer, New York, 403 pp. (Website http://www.math.uwaterloo.ca/~rjcook/cooklawless-recurrent.html)
- 4. Lawless, J.F. (2014). Statistics in Action: A Canadian Outlook (Editor). Taylor and Francis/CRC Press, Boca Raton, 360 pp.
- 5. Cook, R.J. and Lawless, J.F. (2018). Multistate Models for the Analysis of Life History Data. Taylor and Francis/CRC Press, 414 pp. (Website http://www.math.uwaterloo.ca/~rjcook/cook-lawless-multistate.html)

### PAPERS IN REFEREED JOURNALS

- 1. Lawless, J.F., Mullin, R.C. and Stanton, R.G. (1969). Quasi-Residual Designs, Aequationes Mathematicae 2, 274-281.
- 2. Lawless, J.F. (1970). Block Intersections in Quasi-Residual Designs, *Aequationes Mathematicae* 5, 40-46.
- 3. Lawless, J.F. (1971). An Investigation of Bhattacharya-Type Designs, J. of Combinatorial Theory II, 139-147.

- 4. Lawless, J.F. (1971). A Note on Certain Types of B.I.B.D.'s Balanced for Residual Effects, *Annals of Math. Stats.*, 1439-1441.
- 5. Lawless, J.F. (1971). Note on a Family of B.I.B.D.'s and Sets of Mutually Orthogonal Latin Squares, *J. of Combinatorial Theory II*, 101-105.
- 6. Lawless, J.F. (1971). A Prediction Problem Concerning Samples from the Exponential Distribution, with Applications in Life-Testing, *Technometrics* 13, 725-730.
- 7. Lawless, J.F. and Stanton, R.G. (1971). Covering Problems and a Family of Symmetrical P.B.I.B.D.'s, *Sankhya*, *Series A*, 433-440.
- 8. Lawless, J.F. (1972). On Prediction Intervals for Samples from the Exponential Distribution and Prediction Limits for System Survival, Sankhya, Series B, 34, 1-14.
- 9. Lawless, J.F. (1972). Conditional Confidence Interval Procedures for the Location and Scale Parameters of the Cauchy and Logistic Distributions, *Biometrika* 59, 377-386.
- 10. Lawless, J.F. (1972). Confidence Interval Estimation for Parameters of the Weibull Distribution, *Utilitas Mathematica* 2, 71-87.
- 11. Lawless, J.F. (1972). Some Comments on Two Papers by Bury and Bernholtz, *INFOR* 10, 320-324.
- 12. Lawless, J.F. (1973). On Prediction of Safe Life When the Underlying Life Distribution is Weibull, *Technometrics* 15, 857-865.
- 13. Lawless, J.F. (1973). Conditional vs. Unconditional Confidence Intervals for the Parameters of the Weibull Distribution, *J. American Statist. Assoc.* 68, 605-609.
- 14. Lawless, J.F. (1974). On the Construction of Handcuffed Designs, J. Combinatorial Theory, Series A, 16, 78-86.
- 15. Lawless, J.F. (1974). Further Results Concerning the Existence of Handcuffed Designs, *Aequationes Mathematicae* 11, 97-106.
- 16. Lawless, J.F. (1974). On Prediction of Survival Time for Individual Systems, *IEEE Transactions on Reliability* 23, 235-241.
- 17. Lawless, J.F. (1974). Approximations to Confidence Intervals for Parameters in the Extreme Value and Weibull Distributions, *Biometrika* 61, 123-129.
- 18. Lawless, J.F. (1975). Construction of Tolerance Bounds for the Extreme Value and Weibull Distributions, *Technometrics* 17, 255-261.
- 19. Lawless, J.F. and Mann, N.R. (1976). Tests for Homogeneity for Extreme Value Scale Parameters, *Communications in Statistics*, A5, 389-405.
- 20. Lawless, J.F. and Wang, P. (1976). A Simulation Study of Ridge and Other Regression Estimators, *Communications in Statistics*, A5, 307-323.

- 21. Lawless, J.F. (1976). Confidence Interval Estimation in the Inverse Power Law Model, *Applied Statistics*, 25, 128-138.
- 22. Lawless, J.F. (1977). Prediction Intervals for the Two Parameter Exponential Distribution, *Technometrics* 19, 469-72.
- 23. Lawless, J.F. (1978). Ridge and Related Regression Estimators: Theory and Practice, Communications in Statistics, A7, 139-64.
- 24. Lawless, J.F. and Singhal, K. (1978). Efficient Screening of Nonnormal Regression Models, *Biometrics* 34, 318-27.
- 25. Lawless, J.F. (1978). Confidence Interval Estimation for the Weibull and Extreme Value Distributions, *Technometrics*, 20, 355-64.
- 26. Lawless, J.F. and Stone, G.C. (1979). The Application of Weibull Statistics to Insulation Aging Tests. *IEEE Transactions on Electrical Insulation*, EI-14, 233-9.
- 27. Lawless, J.F. (1980). Inference in the Generalized Gamma and Log Gamma Distributions, *Technometrics*, 22, 409-19.
- 28. Lawless, J.F. and Singhal, K. (1980). Analysis of Data from Factorial Life Test Experiments. *Naval Research Logistics Quart.*, 27, 323-34.
- 29. Lawless, J.F. (1981). Mean Square Error Properties of Some Generalized Ridge Regression Estimators, J. Amer. Statist. Assoc. 76, 462-66.
- 30. Ciampi, A., Hogg, S.A. and Lawless, J.F. (1982). GGDMLE: Computer Program Which Finds Maximum Likelihood Estimates for the Generalized Log Gamma Distribution. *Computer Programs in Biomedicine*, 15, 201-216.
- 31. Kalbfleisch, J.D., Lawless, J.F. and Vollmer, W.M. (1983). Estimation in Markov Models from Aggregate Data. *Biometrics* 39, 907-19.
- 32. Lawless, J.F. (1983). Statistical Methods in Reliability (with discussion). *Technometrics*, 25, 305-15.
- 33. Kalbfleisch, J.D. and Lawless, J.F. (1984). Least Squares Estimation of Transition Probabilities from Aggregate Data. *Canad. J. Statistics*, 12, 169-182.
- 34. Lawless, J.F. and McLeish, D.L. (1984). The Information in Aggregate Data from Markov Chains. *Biometrika*, 31, 419-430.
- 35. Kalbfleisch, J.D. and Lawless, J.F. (1985). The Analysis of Panel Data under a Markov Assumption. *J. Amer. Statist. Assoc.*, 80, 863-871.
- 36. Lawless, J.F. (1986). A Note on Lifetime Regression Models. *Biometrika*, 73, 509-512.
- 37. Lawless, J.F. and Singhal, K. (1987). ISMOD: An All-Subsets Regression Program for Generalized Linear Models, Parts 1 and II. *Computer Methods and Programs in Biomedicine*, 24, 117-124 and 125-134.

- 38. Lawless, J.F. (1987). Regression Methods for Poisson Process Data. J. Amer. Statist. Assoc. 82, 808-815.
- 39. Lawless, J.F. (1987). Negative Binomial and Mixed Poisson Regression. *Canadian J. Statistics* 15, 209-225.
- 40. Kalbfleisch, J.D. and Lawless, J.F. (1988). Likelihood Analysis of Multi-State Models for Disease Incidence and Mortality. *Statistics in Medicine*, 7, 149-160.
- 41. Ciampi, A., Lawless, J.F., McKinney, S. and Singhal, K. (1988). Regression and Recursive Partitioning Strategies in Medical Survival Studies. *J. Clinical Epidem.* 41, 737-748.
- 42. Gould, A. and Lawless, J.F. (1988). Consistency and Efficiency of Regression Coefficient Estimates in Location-Scale Models. *Biometrika* 73, 535-40.
- 43. Kalbfleisch, J.D. and Lawless, J.F. (1988). Estimation of Reliability from Field Performance Studies (with discussion). *Technometrics* 30, 365-378.
- 44. Kalbfleisch, J.D. and Lawless, J.F. (1988). Estimating the Incubation Period for AIDS Patients (Letter). *Nature* 333, 504.
- 45. Gould, A. and Lawless, J.F. (1988). The Information about Lifetime Regression Models when Responses are Censored or Grouped. *Comm. Statistics B* 17, 689-712.
- 46. Dean, C. and Lawless, J.F. (1989). Tests for Detecting Overdispersion in Poisson Regression Models. *J. Amer. Statist. Assoc.* 84, 467-72.
- 47. Dean, C., Lawless, J.F. and Willmot, G.E. (1989). A Mixed Poisson-Inverse Gaussian Regression Model. *Canadian J. Statistics* 17, 171-181.
- 48. Kalbfleisch, J.D. and Lawless, J.F. (1989). Estimating the Incubation Time Distribution and Expected Number of Cases for Transfusion-Associated Acquired Immune Deficiency Syndrome. *Transfusion*, 29, 672-76.
- 49. Kalbfleisch, J.D. and Lawless, J.F. (1989). Inference Based on Retrospective Ascertainment. An Analysis of the Data on Transfusion Related AIDS. *J. Amer. Statist. Assoc.* 84, 360-72.
- 50. Cook, J.A. and Lawless, J.F. (1991). Two Sample Tests with Multinomial or Grouped Failure Time Data. *Biometrics* 47,445-459.
- 51. Kalbfleisch, J.D. and Lawless, J.F. (1991). Regression Models for Right Truncated Data, with Applications to AIDS Incubation Times and Reporting Lags. *Statistica Sinica* 1, 19-32.
- 52. Kalbfleisch, J.D., Lawless, J.F. and Robinson, J.A. (1991). Methods for the Analysis and Prediction of Warranty Claims. *Technometrics* 33, 273-285.

- 53. O'Hara Hines, R.J., Lawless, J.F. and Carter, E.M. (1992). Diagnostics for a multinomial generalized linear model, with applications to grouped toxicological mortality data. J. Amer. Statist. Assoc., 87, 1059-1069.
- 54. Kalbfleisch, J.D. and Lawless, J.F. (1992). Some useful statistical methods for truncated data. J. Qual. Tech. 24, 145-152.
- 55. O'Hara Hines, R.J. and Lawless, J.F. (1993). Modelling overdispersion in toxicological mortality data grouped over time. *Biometrics*, 49, 107-121.
- 56. Qin, Jing and Lawless, J.F. (1994). Empirical likelihood and general estimating equations. *Annals of Statistics*, 22, 300-325.
- 57. Lawless, J.F. (1994). Adjustments for reporting delays and the prediction of occurred but not reported events. *Canadian Journal of Statistics*, 22, 15-31.
- 58. Gentleman, R., Lawless, J.F., Lindsey, J.C. and Yan, P. (1994). Multistate Markov models for analyzing incomplete disease history data, with illustrations for HIV disease. *Statistics in Medicine*, 13, 805-821.
- 59. Lawless, J.F. and Nadeau, J.C. (1995). Some simple robust methods for the analysis of recurrent events. *Technometrics*, 37, 158-168.
- 60. Lawless, J.F. (1995). The analysis of recurrent events for multiple subjects. *Applied Statistics*, 44, 487-498.
- 61. Qin, Jing and Lawless, J.F. (1995). Estimating equations, empirical likelihood, and constraints on parameters, *Canadian Journal of Statistics*, 23, 145-159.
- 62. Lawless, J.F., Hu, X.J. and Cao, J. (1995). Methods for the estimation of failure distributions and rates from automobile warranty data. *Lifetime Data Analysis*, 1, 227-240.
- 63. Hu, X.J. and Lawless, J.F. (1996). Estimation of rate and mean functions from truncated recurrent event data. *J. American Statist. Assoc.*, 91, 300-310.
- 64. Lawless, J.F. and Thiagarajah, K. (1996). A point process model incorporating renewals and time trends. *Technometrics*, 38, 131-138.
- 65. Cook, R.J., Lawless, J.F. and Nadeau, C. (1996). Robust tests for treatment comparisons based on recurrent event responses. *Biometrics*, 52, 557-571.
- 66. Cook, R.J. and Lawless (1996). Interim monitoring of longitudinal comparative studies with recurrent event responses. *Biometrics*, 52, 1311-1323.
- 67. Hu, X.J. and Lawless, J.F. (1996). Estimation from truncated lifetime data with supplementary information on covariates and censoring times. *Biometrika*, 83, 747-762.

- 68. Cook, R.J. and Lawless, J.F. (1997). Marginal analysis of recurrent events and a terminating event. *Statistics in Medicine*, 16, 911-924.
- 69. Hu, X.J. and Lawless, J.F. (1997). Pseudolikelihood estimation in a class of problems with response-related missing covariates. *Canad. J. Statistics*, 25, 125-142.
- 70. Hu, X.J., Lawless, J.F. and Suzuki, K. (1998). Nonparametric estimation of a lifetime distribution when censoring times are missing. *Technometrics*, 40, 3-13.
- 71. Fong, D.Y.T. and Lawless, J.F. (1998). The analysis of variation transmission with multiple measurements. *Statistica Sinica*, 8, 151-164.
- 72. Lawless, J.F. (1998). Statistical analysis of product warranty data. *International Statistical Review*, 66, 41-60.
- 73. Nadeau, C. and Lawless, J.F. (1998). Inferences for means and covariances of point processes through estimating functions. *Biometrika*, 85, 893-906.
- 74. Lawless, J.F. and Zhan, M. (1998). Analysis of interval-grouped recurrent event data using piecewise constant rate functions. *Canad. J. Statistics*, 26, 549-565.
- 75. Whitmore, G.A., Crowder, M. and Lawless, J.F. (1998). Failure inference from a marker process based on a bivariate Wiener model. *Lifetime Data Analysis*, 4, 229-251.
- 76. Lawless, J.F. and Fong, D.Y.T. (1999). State duration models in clinical and observational studies. *Statistics in Medicine*, 18, 2365-2376.
- 77. Lawless, J.F., Wild, C.J. and Kalbfleisch, J.D. (1999). Semiparametric methods for response-selective and missing data problems in regression. *J. Roy. Statist. Soc. B*, 61, 413-438.
- 78. Lawless, J.F., MacKay, R.J. and Robinson, J.A. (1999). Analysis of variation transmission in manufacturing processes Part I. J. Quality Technology, 31, 131-142.
- 79. Agrawal, R., Lawless, J.F. and MacKay, R.J. (1999). Analysis of variation transmission for manufacturing processes Part II. *J. Quality Technology*, 31, 143-154.
- 80. Lawless, J.F. (1999). Statistical Science: concepts, opportunities and challenges. Canadian Journal of Statistics, 27, 671-682.
- 81. Duchesne, T. and Lawless, J.F. (2000). Alternative time scales and failure time models. *Lifetime Data Analysis*, 6, 157-179.
- 82. Lawless, J.F. (2000). Introduction to two classics in reliability theory. *Technometrics*, 42, 5-6.
- 83. Tuli, S., Drake, J.M., Lawless, J.F., Wigg, M.B. and Lamberti-Pasculii, M. (2000). Risk factors for repeated cerebrospinal shunt failures in pediatric patients with hydrocephalus. *Journal of Neurosurgery*, 92, 31-38.

- 84. Lawless, J.F. (2000). Statistics in Reliability. J. Amer. Statist. Assoc. 95, 989-992.
- 85. Fong, D.Y.T., Lam, K.F., Lawless, J.F. and Lee, Y.W. (2001). Dynamic random effects models for times between repeated events. *Lifetime Data Analysis*, 7, 345-362.
- 86. Lawless, J.F., Wigg, M.B., Tuli, S., Drake, J.M. and Lamberti-Pasculli, M (2001). Analysis of repeated failures or durations, with application to shunt failures for patients with pediatric hydrocephalus. *Journal of the Royal Statistical Society, Series C (Applied Statistics)*, 50, 449-465.
- 87. Cook, R.J. and Lawless, J.F. (2001). Some comments on efficiency gains from auxiliary information for right-censored data. *J. Statist. Plan. Inf. 96*, 191-202.
- 88. Duchesne, T. and Lawless, J.F. (2001). Semiparametric inference methods for general time scale models. *Lifetime Data Analysis*, 8, 263-276.
- 89. Cook, R.J. and Lawless, J.F. (2002). Analysis of repeated events. *Statistical Methods* in *Medical Research* 11, 141-166.
- 90. Farewell, V.T., Lawless, J.F., Gladman, D.D. and Urowitz, M.B. (2003). Analysis of the effect of lost-to-followup on the estimation of mortality from patient registry data. *Applied Statistics*, 52, 445-456.
- 91. Cook, R.J., Lawless, J.F. and Lee, K.-A. (2003). Cumulative processes related to event histories. *Statistics and Operations Research Transactions*, 27, 13-29.
- 92. He, W. and Lawless, J.F. (2003). Flexible maximum likelihood methods for bivariate proportional hazards models. *Biometrics*, 59, 837-848.
- 93. Lawless, J.F. and Crowder, M. (2004). Covariates and random effects in a gamma process model with application to degradation and failure. *Lifetime Data Analysis*, 10, 213-227.
- 94. Lawless, J.F. (2004). A note on interval-censored lifetime data and Oller et al's constant sum condition. *Canad. J. Statistics*, 32, 327-331.
- 95. He, W. and Lawless, J.F. (2005). Bivariate location-scale models for regression analysis, with applications to lifetime data. J. Roy. Statist. Soc. B, 67, 63-78.
- 96. Chen, B., Cook, R.J., Lawless, J.F. and Zhan, M. (2005). Statistical methods for multivariate interval-censored recurrent events. *Statistics in Medicine*, 24, 671-691.
- 97. Lawless, J.F. and Fredette, M. (2005). Frequentist prediction intervals and predictive distributions. *Biometrika*, 92, 529-542.
- 98. Bond, S., Farewell, V.T., Schentag, C., Lawless, J.F. and Gladman, D.D. (2005). Reporting of mortality in a psoriatic arthritis clinic is primarily a function of the number of clinic contacts and not disease severity. *Journal of Rheumatology*, 32, 2364-2367.

- 99. Sankaran, P.G., Lawless, J.F., Abraham, B. and Antony, A.A. (2006). Estimation of distribution function in bivariate competing risk models. *Biometrical Journal*, 46, 399-410.
- 100. Boudreau, C. and Lawless, J.F. (2006). Survival analysis based on the proportional hazards model and survey data. *Canadian Journal of Statistics*, 34, 203-216.
- 101. Lawless, J.F. and Babineau, D. (2006). Models for interval censoring and simulation-based inference for lifetime distributions.

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