

Curriculum vitae

Roger B. Nelsen

Professor Emeritus, Department of Mathematical Sciences
Lewis & Clark College, Portland, Oregon 97219-7899
telephone: (503) 768-7565 — facsimile: (503) 768-7668
e-mail: nelsen@lclark.edu

Education:

B.A. (with high distinction)	DePauw University	1964
Ph.D.	Duke University	1969

Employment:

Duke University	course assistant	1966-1967
Lewis & Clark College	assistant professor	1969-1975
	associate professor	1975-1983
	professor	1983-2008
	professor emeritus	2008-
	department chair	1980-1990
Mount Holyoke College	visiting professor	Fall 1986
	visiting professor	Fall 1988
	visiting professor	1990-1991
	visiting professor	1997-1998
University of Massachusetts	visiting professor	2004-2005
	sabbatical lecturer	1983-1984
Portland State University	adjunct professor	Fall 1992
	adjunct professor	2006-

Books:

Proofs without Words: Exercises in Visual Thinking. The Mathematical Association of America, Washington D.C. (1993), viii+152 pp.

Αποδείξεις χωρίς Λόγια: Ασκήσεις στην Οπτική Σκέψη (Greek translation of *Proofs without Words: Exercises in Visual Thinking*). Εκδοσεις Σαββαλα, Athens (1996), 160pp.

An Introduction to Copulas. Springer-Verlag, New York (1999), xi+216 pp. [*Math. Reviews* 99i:60028].

Proofs without Words II: More Exercises in Visual Thinking. The Mathematical Association of America, Washington D.C. (2000), x+142 pp.

Demostraciones sin Palabras: Ejercicios de Pensamiento Visual (Spanish translation of *Proofs without Words: Exercises in Visual Thinking*). Proyecto Sur de Ediciones, Granada (2001), vii+152 pp.

証明の展覧会：眺めて楽しむ数学 (Japanese translation of *Proofs without Words: Exercises in Visual Thinking*). Tokai University Press, Tokyo (2002), xii+196 pp.

証明の展覧会II：眺めて楽しむ数学 (Japanese translation of *Proofs without Words II: More Exercises in Visual Thinking*). Tokai University Press, Tokyo (2003), xii+178 pp.

An Introduction to Copulas, 2nd Edition. Springer, New York (2006), xi+269 pp.

Math Made Visual: Creating Images for Understanding Mathematics (with Claudi Alsina). The Mathematical Association of America, Washington D.C. (2006), xvi+174 pp.

When Less is More: Visualizing Basic Inequalities (with Claudi Alsina). The Mathematical Association of America, Washington D.C. (2009), xix+183 pp.

The Calculus Collection: A Resource for AP and Beyond (with Caren Diefenderfer, editors). The Mathematical Association of America, Washington D.C. (2009), xx+507 pp.

Charming Proofs: A Journey Into Elegant Mathematics (with Claudi Alsina). The Mathematical Association of America, Washington D.C. (2010), xxiv+295 pp.

Research Papers:

“Randomly delayed appointment streams” (with T. Williams), *Nature*, **219** (1968), pp. 573-574.

“Random displacements of regularly spaced events” (with T. Williams), *Journal of Applied Probability*, **7** (1970), pp. 183-195 [*Math. Reviews* **41**, #4692].

“Properties of a one-parameter family of bivariate distributions with specified marginals,” *Communications in Statistics-Theory and Methods*, **A15** (1986), pp. 3277-3285 [*Math. Reviews* 88d:62033].

“Best-possible bounds for the distribution of a sum—a problem of Kolmogorov” (with M. J. Frank and B. Schweizer), *Probability Theory and Related Fields*, **74** (1987), pp. 199-211 [*Math. Reviews* 88f:60030].

“Discrete bivariate distributions with given marginals and correlation,” *Communications in Statistics-Simulation and Computation*, **B16** (1987), pp. 199-208.

“Copulas and association,” in *Advances in Probability Distributions with Given Marginals* (G. Dall’Aglia, S. Kotz, and G. Salinetti, editors), Kluwer Academic Publishers (1991), pp. 51-74 [*Math. Reviews* 94e:60021].

“Bounds for distribution functions of sums of squares and radial errors” (with B. Schweizer), *International Journal of Mathematics and Mathematical Sciences*, **14** (1991), pp. 561-570 [*Math. Reviews* 92k:60027].

“On measures of association as measures of positive dependence,” *Statistics & Probability Letters*, **14** (1992), pp. 269-274 [*Math. Reviews* 93e:62155].

“On the characterization of a class of binary operations on distribution functions” (with C. Alsina and B. Schweizer), *Statistics & Probability Letters*, **17** (1993), pp. 85-89 [*Math. Reviews* 94e:60013].

“Some concepts of bivariate symmetry,” *Journal of Nonparametric Statistics*, **3** (1993) pp. 95-101 [*Math. Reviews* 94m:62149].

- "A characterization of Farlie-Gumbel-Morgenstern distributions via Spearman's rho and chi-square divergence," *Sankhyā*, **56A** (1994) pp. 476-479.
- "Nonparametric measures of multivariate association," *Distributions with Fixed Marginals and Related Topics* (L. Rüschendorf, B. Schweizer, and M. D. Taylor, eds.), Institute of Mathematical Statistics, Lecture Notes–Monograph Series, v. 28 (1996), pp. 223-232 [*Math. Reviews* 98k:62104].
- "On the derivability of some operations on distributions functions" (with J. J. Quesada-Molina, B. Schweizer, and C. Sempi), *Distributions with Fixed Marginals and Related Topics* (L. Rüschendorf, B. Schweizer, and M. D. Taylor, eds.), Institute of Mathematical Statistics, Lecture Notes–Monograph Series, v. 28 (1996), pp. 233-243 [*Math. Reviews* 98h:60016].
- "Dependence and order in families of Archimedean copulas," *Journal of Multivariate Analysis*, **60** (1997) pp. 111-122 [*Math. Reviews* 98k:62015].
- "Bivariate copulas with cubic sections" (with J. J. Quesada-Molina and J. A. Rodríguez-Lallena), *Journal of Nonparametric Statistics*, **7** (1997) pp. 205-220 [*Math. Reviews* 97k:62128].
- "Diagonal copulas" (with G. Fredricks), in *Distributions with Given Marginals and Moment Problems* (Beneš, V. and Štěpán, J., editors), Kluwer Academic Publishers (1997), pp. 121-128 [*Math. Reviews* 99a:60011].
- "Copulas constructed from diagonal sections" (with G. Fredricks), in *Distributions with Given Marginals and Moment Problems* (Beneš, V. and Štěpán, J., eds.), Kluwer Academic Publishers (1997), 129-136 [*Math. Reviews* 99c:60021].
- "Concordance and Gini's measure of association," *Journal of Nonparametric Statistics* **9** (1998), 227-238 [*Math. Reviews* 99g:62082].
- "Correlation, regression lines, and moments of inertia," *The American Statistician*, **52** (1998), 343-345.
- "Funciones de distribución univariantes de funciones de distribución bivariantes" (with J. J. Quesada Molina, J. A. Rodríguez Lallena, and M. Úbeda Flores), *Actas de Encuentro de Matemáticos Andaluces, Sevilla*, (2000), 681-689 [*Math. Reviews* 2004b:60045].
- "Distribution functions of copulas: A class of bivariate probability integral transforms" (with J. J. Quesada Molina, J. A. Rodríguez Lallena, and M. Úbeda Flores), *Statistics & Probability Letters*, **54** (2001), 227-282 [*Math. Reviews* 2002g:60022].
- "Bounds on bivariate distribution functions with given margins and measures of association" (with J. J. Quesada Molina, J. A. Rodríguez Lallena, and M. Úbeda Flores), *Communications in Statistics–Theory and Methods*, **30** (2001), 1155-1162 [*Math. Reviews* 2002g:62091].
- "Kendall's tau," *Encyclopaedia of Mathematics, Supplement III* (2002), Kluwer Academic Publishers, 226-227.

- “Pearson’s product-moment correlation coefficient,” *Encyclopaedia of Mathematics, Supplement III* (2002), Kluwer Academic Publishers, 301.
- “Spearman’s rho,” *Encyclopaedia of Mathematics, Supplement III* (2002), Kluwer Academic Publishers, 375-376.
- “The Bertino family of copulas” (with G. A. Fredricks), *Distributions with Given Marginals and Statistical Modelling, Modelling* (C. M. Cuadras, J. Fortiana, and J. A. Rodríguez Lallena, eds.) Kluwer Academic Publishers, Dordrecht (2002), pp. 81-92 [*Math. Reviews* 2005f:60035].
- “Concordance and copulas: A survey,” *Distributions with Given Marginals and Statistical Modelling* (C. M. Cuadras, J. Fortiana, and J. A. Rodríguez Lallena, eds.), Kluwer Academic Publishers, Dordrecht (2002), pp. 169-178.
- “Multivariate Archimedean quasi-copulas” (with J. J. Quesada Molina, J. A. Rodríguez Lallena, and M. Úbeda Flores), *Distributions with Given Marginals and Statistical Modelling* (C. M. Cuadras, J. Fortiana, and J. A. Rodríguez Lallena, eds.), Kluwer Academic Publishers, Dordrecht (2002), pp. 179-186.
- “Some new properties of quasi-copulas” (with J. J. Quesada Molina, J. A. Rodríguez Lallena, and M. Úbeda Flores), *Distributions with Given Marginals and Statistical Modelling* (C. M. Cuadras, J. Fortiana, and J. A. Rodríguez Lallena, eds.), Kluwer Academic Publishers, Dordrecht (2002), pp. 187-194 [*Math. Reviews* 2005b:60032].
- “Kendall distribution functions” (with J. J. Quesada Molina, J. A. Rodríguez Lallena, and M. Úbeda Flores), *Statistics & Probability Letters*, **65** (2003), pp. 263-268 [*Math. Reviews* 2004j:60031].
- “Properties and applications of copulas: A brief survey,” *Proceedings of the First Brazilian Conference on Statistical Modelling in Insurance and Finance* (J. Dhaene, N. Kolev, and P. Morettin, eds.), Institute of Mathematics and Statistics, University of São Paulo (2003), pp. 10-28.
- “The symmetric footrule is Gini’s rank association coefficient” (with M. Úbeda Flores), *Communications in Statistics – Theory & Methods*, **33** (2004), pp. 195-196.
- “Best-possible bounds on sets of bivariate distribution functions” (with J. J. Quesada Molina, J. A. Rodríguez Lallena, and M. Úbeda Flores), *Journal of Multivariate Analysis*, **90** (2004), pp. 348-358 [*Math. Reviews* 2005k:60065].
- “A comparison of bounds on sets of joint distribution functions derived from various measures of association” (with M. Úbeda Flores), *Communications in Statistics – Theory and Methods*, **33** (2004), pp. 2299 – 2305 [*Math. Reviews* 2005f:60048].
- “Copulas and quasi-copulas: An introduction to their properties and applications,” in *Logical, Algebraic, Analytic, and Probabilistic Aspects of Triangular Norms*, E. P. Klement and R. Mesiar, editors. Kluwer Academic Publishers, Amsterdam, 2005, pp. 391-413.

- “Copulas with fractal supports” (with G. A. Fredricks and J. A. Rodríguez Lallena) *Insurance: Mathematics and Economics*, **37** (2005), pp. 42-48 [*Math. Reviews* 2006g:28022].
- “The lattice-theoretic structure of sets of bivariate copulas and quasi-copulas” (with M. Úbeda Flores), *C. R. Acad. Sci. Paris, Ser. I*, **341** (2005), pp. 583-586 [*Math. Reviews* 2006g:62017].
- “Some properties of Schur-constant survival models and their copulas,” *Brazilian Journal of Probability and Statistics*, **19** (2005), pp. 179-190 [*Math. Reviews* 2009a:62406].
- “Extremes of nonexchangeability,” *Statistical Papers*, **48** (2007) pp. 329-336 [*Math. Reviews* 2009b:60110a].
- “On the relationship between Spearman’s rho and Kendall’s tau for pairs of continuous random variables” (with G. A. Fredricks), *Journal of Statistical Planning and Inference*, **137** (2007) pp. 2143-2150 [*Math. Reviews* 2008j:62061].
- “Robust fits for copula models” (with B. V. M. Mendes and E. F. L. de Melo), *Communications in Statistics—Simulation and Computation*, **36** (2007) 997-1017.
- “On the construction of copulas and quasi-copulas with given diagonal sections” (with J. J. Quesada Molina, J. A. Rodríguez Lallena, and M. Úbeda Flores), *Insurance: Mathematics and Economics*, **42** (2008) pp. 473-483 [*Math. Reviews* 2009d:60042].
- “Symmetries of random discrete copulas” (with A. Erdely and J. M. González-Barrios), *Kybernetika*, **44** (2008), pp. 846-863.
- “Kendall distribution functions and associative copulas” (with J. J. Quesada Molina, J. A. Rodríguez Lallena, and M. Úbeda Flores), *Fuzzy Sets and Systems*, **160** (2009), pp. 52-57.
- “Worst VaR scenarios with given marginals and measures of association” (with R. Kaas and R. J. A. Laeven), *Insurance; Mathematics and Economics*, **44** (2009), pp. 146-158.
- “Quasi-copulas and signed measures” (with J. J. Quesada Molina, J. A. Rodríguez Lallena, and M. Úbeda Flores), *Fuzzy Sets and Systems*, **161** (2010), pp. 2328-2336.

Invited Lectures:

- “Copulas and association,” Symposium on Distributions with Given Marginals (Fréchet Classes), Rome, April 1990.
- “The case for copulas,” The University of Massachusetts, Amherst, April 1991.
- “Correlation, counterexamples, and copulas,” Reed College, Portland, April 1992.
- “Some nonparametric measures of multivariate dependence,” The University of Massachusetts, Amherst, December 1992.
- “Seeing mathematics,” Portland State University, May 1994.

- "Archimedean copulas and tail dependence," 33rd International Symposium on Functional Equations, Caldes de Malavella, Spain, May 1995.
- "Visual mathematics," Pacific University, February 1996; Mount Hood Community College, April 1996, Whittier College, May 1996.
- "Copulas, characterization, correlation, and counterexamples," Western States Isolated Statisticians Conference, Mills College, June 1996.
- "Copulas constructed from diagonal sections," Conference on Distributions with Given Marginals and Moment Problems, Prague, September 1996.
- "Visualization and the Fubini principle," Mount Holyoke College, October 1997; Smith College, November 1997; University of Montana, Missoula, April 2000; Whitman College, April 2000; Georgetown College, April 2002.
- "Copulas, concordance, and correlation," University of Connecticut, Storrs, September 1997; University of Massachusetts, Amherst, November 1997; Yale University, New Haven, January 1998, Universitat Politècnica de Catalunya, Barcelona, May 1999.
- "Concordance and copulas: A survey," International Conference on Distributions with Given Marginals and Statistical Modeling, Barcelona, July 2000.
- "Proofs without words and words without proofs," Pacific University, September 2000; Miami University, September 2000.
- "Voting: Is democracy possible?" DePauw University, September 2000.
- "Concordance, correlation, and copulas," Portland State University, October 2000.
- "Proofs without words and words without proofs," Linfield College, September 2001; Portland State University, October 2001; Universitat Politècnica de Catalunya, April 2003; Universidad de Granada, May 2003; Universitat de les Illes Balears, May, 2003; Università degli Studi di Lecce, May 2003.
- "Copulas: An introduction to their properties and applications," 24th Linz Seminar on Fuzzy Set Theory, Linz, Austria, February 2003, Universitat de les Illes Balears, May, 2003; Università degli Studi di Lecce, May, 2003; Università degli Studi di Roma, May, 2003, Third Conference in Actuarial Science & Finance in Samos, Karlovassi, Greece, September 2004.
- "Bivariate probability integral transforms," Universidade de São Paulo, Brazil, August 2003; Universidade Federal de Rio de Janeiro, Brazil, August 2003.
- "Properties and applications of copulas; A brief survey," First Brazilian Conference on Statistical Modelling in Insurance and Finance, Ubatuba, Brazil, September 2003, Stern School of Business, New York University, October 2004; Columbia University, April 2005; Louisiana State University in Shreveport, March 2008.
- "Presidential primaries: Is democracy possible?" Pacific University, February 2004; Portland State University, September 2007; Willamette University, October 2008.

- “Three episodes in the history of copulas,” Conference in Dependence Modelling: Statistical Theory and Applications in Finance and Insurance, Québec, Canada, May 2004.
- “Proofs without words (and words without proofs)” Smith College, November 2004; Mount Holyoke College, February 2005, Mount Hood Community College, October 2005, 79th annual meeting of the Illinois Section of the MAA, North Central College, April 2006.
- “Some visual proofs in elementary number theory,” Universitat Politècnica de Catalunya, Barcelona, January 2005.
- “Some visual gems from elementary number theory,” MAA Mathfest, Albuquerque, August 2005.
- “Dependence modeling with Archimedean copulas,” Second Brazilian Conference on Statistical Modelling in Insurance and Finance, Maresias, Brazil, August 2005, Portland State University, February 2006, Illinois Institute of Technology, Chicago, April 2006.
- “Kendall distribution functions,” Portland State University, November 2005.
- “Extremes of nonexchangeability,” Portland State University, December 2005, Workshop on Copulas and Other Aggregation Operators, Università di Bologna, June 2006.
- “On the relationship between Spearman’s rho and Kendall’s tau for continuous random variables,” Portland State University, March 2006, Oregon State University, May 2006, Università di Lecce, June 2006, 17^o Simpósio Nacional de Probabilidade e Estatística, Caxambu, Brazil, July 2006, VI Conference of Multivariate Distributions with Fixed Marginals, Tartu, Estonia, June 2007.
- “Archimedean Copulas: Prescriptions and Proscriptions,” 10th International Congress on Insurance: Mathematics and Economics, Leuven, Belgium, July 2006.
- “Visualization in mathematics: Proofs without words and words without proofs,” 14th Annual William Marshall Bullitt Lecture, University of Louisville, March 2007.
- “Copulas I: Basic properties and applications” and “Copulas II: A tool for the study of dependence,” Workshop on Statistical Inference for Dependent Data, Universiteit Hasselt, Belgium, April 2007.
- “A sampler of visual proofs in first-year calculus,” Professional Night Lecture, AP[®] Calculus Reading, Louisville, June 2007.
- “A Course on Copulas,” Barcelona Financial Engineering Summer School, July 2008.
- “The Enchantment of the Equilateral Triangle,” Universidad de Granada, Spain, May 2009; Universidad de Almería, Spain, May 2009; Universitat Politècnica de Catalunya, June 2009; Yildiz Technical University and Fatih University, Istanbul,

Turkey, October 2009; Pacific University, November 2009, Universidade de São Paulo, Brazil, August 2010.

“Dependence Modeling with Copulas,” 14th International Congress on Computational and Applied Mathematics, Antalya, Turkey, September 2009.

“Directional Dependence in Multivariate Distributions,” Oregon State University, October 2009; Georgia Institute of Technology, November 2009, Portland State University, February 2010, Universidade de São Paulo and Univeridade Estadual de Campinas, Brazil, August 2010.

References:

Available upon request.

Tuesday, September 7, 2010.