

# Curriculum Vitae

## Joseph B. Lang

**Business Address:** Department of Statistics and Actuarial Science  
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## EDUCATIONAL AND PROFESSIONAL HISTORY

### Higher Education

|      |                                  |   |
|------|----------------------------------|---|
| 1992 | Doctor of Philosophy, Statistics | University of Florida, Gainesville, FL    |
| 1988 | Masters of Statistics            | University of Florida, Gainesville, FL    |
| 1986 | Bachelor of Arts, Mathematics    | St. Cloud State University, St. Cloud, MN |

### Professional and Academic Positions

|             |                          |  |
|-------------|--------------------------|--|
| 2015-date   | Department Chair         | Department of Statistics and Actuarial Science   |
| 2006-date   | Professor                | Department of Statistics and Actuarial Science and<br>Department of Biostatistics, University of Iowa, IA. |
| 2005-2009   | Dir. of Graduate Studies | Department of Statistics and Actuarial Science,<br>University of Iowa, IA.                                 |
| 1997-2006   | Associate Professor      | Department of Statistics and Actuarial Science,<br>University of Iowa, IA.                                 |
| 1995 summer | Visiting Professor       | Department of Social Statistics, University of<br>Southampton, Southampton, England                        |
| 1992-1997   | Assistant Professor      | Department of Statistics and Actuarial Science,<br>University of Iowa, IA.                                 |
| 1988-1990   | Biostatistics Consultant | Division of Biostatistics, J. Hillis Miller Health<br>Center, Gainesville, FL.                             |

### Honors and Awards

- ◆ *Lane Davis Award for Honors Team Teaching*, UI, 2012.
- ◆ Elected *Fellow* of the American Statistical Association, 2007.
- ◆ *Distinguished Alumnus Award*, Dept of Statistics, University of Florida, 2004.
- ◆ *Collegiate Teaching Award*, University of Iowa, 2003.
- ◆ *Old Gold Summer Fellowship*, University of Iowa, 1995.
- ◆ *Old Gold Summer Fellowship*, University of Iowa, 1994.
- ◆ Eastern North American Region of the Biometrics Society *Travel Award*, 1992.
- ◆ *Statistics Faculty Award* for outstanding senior graduate student (UF), 1991.
- ◆ *William Mendenhall Award* for outstanding first year graduate student (UF), 1988.
- ◆ Mathematics and Computer Science Scholarships (SCSU), 1985 and 1986.

## Memberships

- ◆ American Statistical Association
  - Fellow, 2007
  - Member of Committee on Law and Justice Statistics (2007-2009)
  - Secretary/Treasurer, Iowa Chapter (2003--2014)
- ◆ Biometric Society
- ◆ Institute of Mathematical Statistics

## SCHOLARSHIP

### Refereed Papers

Lang, J. B. (2017). Mean-Minimum Exact Confidence Intervals. *The American Statistician*, 71(4), 354-368.

Lauritsen, J., Heimer, K., Lang, J. B. The Enduring Significance of Racial and Ethnic Disparities in Male Violent Victimization: An Analysis of National Crime Survey Victimization Data, 1973-2010. *DuBois Review*. Accepted/In Press January 2017.

Iannario, M., Lang, J.B. (2016). Improved Tests of Conditional Independence in Stratified Tables. *Statistics in Medicine*, 35(25), 4573-4587.

Barrett, T., Ormsby, M., Lang, J.B. (2016). Non-Destructive Analysis of 14th – 19th Century Papers. *Restaurator*, 37(2), 93-135.

Lang, J.B. (2015), “A Closer Look at Testing the ‘No-Treatment-Effect’ Hypothesis in Comparative Experiments,” *Statistical Science*, 30(3), 352-371.

Lang, J.B. (2014). “Pearson’s Score Statistic for Multinomial-Poisson Models,” *Communications in Statistics—Theory and Methods*, 43(21), 4471-4491

Lang, J.B. and Iannario, M. (2013). “Improved Tests of Independence in Singly-Ordered Two-Way Contingency Tables,” Vol. 68, 339-351. *Computational Statistics and Data Analysis*, DOI: <http://dx.doi.org/10.1016/j.csda.2013.06.014>

Lang, J.B. (2013). “Maximum Likelihood Estimation for Multinomial-Poisson Distributions: A Generalization of Birch’s Invariance Results.” *Scandinavian Journal of Statistics*, 40, 3, 530-548. DOI: <http://dx.doi.org/10.1002/sjos.12001>

Lang, J.B. (2012) “Upon Closer Inspection...Testing in Comparative Experiments,” *Proceedings of the 27th International Workshop on Statistical Modelling*. Edited by Komárek, A.

- Barrett, T., Shannon, R., Wade, J., and Lang, J.B. (2012). "XRF analysis of historical paper in open books," Chapter in book, *Current Advances in the Use of Handheld XRF in the Fields of Art Conservation and Archaeology*, Ed. Aaron Shugar and Jennifer L. Mass. Leuven University Press.
- Heimer, Karen, Kecia R. Johnson, Joseph B. Lang, Andres F. Rengifo, and Don Stemen (2012). "Race and Women's Imprisonment: Poverty, African American Presence, and Social Welfare." *Journal of Quantitative Criminology*. DOI 10.1007/s10940-011-9144-8.28: 219-244. (Lead article.)
- Ormsby, M., Barrett, T., Lang, J. B., Mazurek, J., & Schilling, M. (2011). "Estimation of gelatin content in historical papers using NIR spectroscopy," *e-Preservation Science*.
- Lang, J.B. (2010). "Shadow Graphs for Contingency Tables," *Proceedings of the 25<sup>th</sup> International Workshop on Statistical Modelling*. Edited by Bowman, A., University of Glasgow Print Unit.
- Lang, J.B. (2008). Score and Profile Likelihood Confidence Intervals for Contingency Table Parameters. *Statistics in Medicine*, 27, 5975-5990.
- Villarini, G., Lang, J.B., Lombardo, F., Napolitano, F., Russo, F. Krajewski, W.F. (2007). "Impact of different regression frameworks on the estimation of the scaling properties of radar rainfall." *Atmospheric Research*, 86, 340-349.
- Stucky, T.D., Heimer, K. and Lang, J.B. (2007) "A Bigger Piece of the Pie?: An Analysis of State Corrections Spending over Time." *Journal of Research on Crime and Delinquency*, 44, 91-123.
- Lang, J.B. (2006), Applications of Profile Confidence Intervals for Contingency Table Parameters, *Proceedings of the 2006 International Statistical Modelling Workshop*.
- Lang, J.B. (2005), Homogeneous Linear Predictor Models for Contingency Tables, *Journal of the American Statistical Association-Theory and Methods*, 100, 121-134.
- Stucky, T., Heimer, K., and Lang, J.B. (2005), Partisan Politics, Electoral Competition, and Imprisonment: An Analysis of States over Time, *Criminology*, 43, 211-248.
- Lang, J.B. (2004), Multinomial-Poisson Homogeneous Models for Contingency Tables, *Annals of Statistics*, 32, 340-383.
- Dykstra, R.L., Lang, J.B., Oh, M., and Robertson, T. (2002), Order Restricted Inference for Hypotheses Concerning Qualitative Dispersion. *Journal of Statistical Planning and Inference*, 107, 249-265
- Lang, J.B. and Aspelund, T. (2001), Binormal Association-Marginal Models for Empirically Evaluating and Comparing Diagnostics. *Statistical Modelling: An International Journal*, 1, 49-64.

- Lang, J.B., McDonald, J.W., and Smith, P.W.S. (1999), Association-Marginal Modeling of Multivariate Categorical Responses: A Maximum Likelihood Approach. *Journal of the American Statistical Association-Theory and Methods*, **94**, 1161-71.
- Lang, J.B. (1999), Bayesian Ordinal and Binary Regression Models with a Parametric Family of Mixture Links. *Comp Statist and Data Analysis*, **31**, 59-87.
- Meeden, G., Geyer, C., Lang, J.B., and Funo, E. (1998), The Admissibility of the Maximum Likelihood Estimator for Decomposable Loglinear Interaction Models for Contingency Tables. *Communications in Statistics*, **27**, No. 2, 473-494.
- Lang, J.B. and Eliason, S.R. (1997), Application of Association-Marginal Models to the Study of Social Mobility. *Sociological Methods and Research*, **26**, No. 2, 183-212.
- Lang, J.B. (1996), Maximum Likelihood Methods for a Generalized Class of Loglinear Models. *Annals of Statistics*, **24**, No. 2, 726-752.
- Lang, J.B. (1996), On the Partitioning of Goodness-of-Fit Statistics for Multivariate Categorical Response Models. *Journal of the American Statistical Association-Theory and Methods*, **91**, No. 435, 1017-1023.
- Lang, J.B. (1996), On the Comparison of Multinomial and Poisson Loglinear Models. *Journal of the Royal Statistical Society--Series B*, **58**, No. 1, 253-266.
- Balagtas, C.C., Becker, M.P., and Lang, J.B. (1995), Marginal Modelling of Categorical Data from Crossover Experiments. *Journal of the Royal Statistical Society, Series C*, **44**, 63-77.
- Harris, M., Consorte, J.G., Lang, J.B., and Byrne, B. (1995), A Reply to Tellas. *Social Forces*, **73**, 1613-1614.
- Lang, J.B. and Agresti, A. (1994), Simultaneously Modeling the Joint and Marginal Distributions of Multivariate Categorical Response Data. *Journal of the American Statistical Association-Theory and Methods*, **89**, 625-632.
- Agresti, A. and Lang, J.B. (1993), Quasi-Symmetric Latent Class Models with an Application to Rater Agreement Data. *Biometrics*, **49**, 131-139.
- Agresti, A. and Lang, J.B. (1993), A Proportional Odds Model with Subject-Specific Effects for Repeated Ordered Categorical Responses. *Biometrika*, **80**, 527-534
- Agresti, A., Lang, J.B., and Mehta, C. (1993), Some Empirical Comparisons of Exact, Modified Exact, and Higher-Order Asymptotic Tests of Independence for Ordered Categorical Variables. *Communications in Statistics-Simulat and Comput*, **22**, 1-18.
- Harris, M., Consorte, J.G., Lang, J.B., and Byrne, B. (1993), Who are the Whites?: Imposed Census Categories and the Racial Demography of Brazil. *Social Forces*, **72**, 451-462.
- Agresti, A., Lipsitz, S., and Lang, J.B. (1992), Comparing Marginal Distributions of Large, Sparse Contingency Tables. *Computational Statistics Data Analysis*, **14**, 55-73.

Lang, J.B. (1992), Obtaining the Observed Information Matrix for the Poisson Loglinear Model with Incomplete Data. *Biometrika*, **79**, 405-7.

## Published Web Sites

Barrett, T., Ormsby, M., Shannon, R., Bruckle, I., Lang, J.B., Schilling, M., Mazurek, J., Wade, J., White, J. *Paper through Time: Nondestructive Analysis of 14th- through 19th-Century Papers*. The University of Iowa. Last modified January 17, 2012.  
<http://paper.lib.uiowa.edu/index.php> .

## Other Papers

Lang, J.B. (2018). A Randomization P-Value Test to Detect Copying on Multiple-Choice Exams, submitted to *J. Educational Behavioral Statistics*.

Iannario, M., Lang, J. B. (2015). Improved Tests of Conditional Independence in Stratified Tables. Proceedings of the 30th International Workshop on Statistical Modelling.

Lang, J.B. (2014). "Smoothing the Transition from Data to Statistical Inference," *UI Technical Report #416*, Department of Statistics and Actuarial Science.

Lang, J.B. (2012). A. Komarek (Ed.), Upon Closer Inspection...Testing in Comparative Experiments. Proceedings of the 27th International Workshop on Statistical Modelling.

Lang, J.B. (2012). "A Closer Look at Testing the 'No-Treatment-Effect' Hypothesis in Comparative Experiments," *UI Technical Report #415*, Department of Statistics and Actuarial Science, 1-28.

Lang, J.B. (2010). A. Bowman (Ed.), Shadow Graphs for Contingency Tables. Proceedings of the 25th International Workshop on Statistical Modelling. University of Glasgow Print Unit

Lang, J.B. (2008). Maximum Likelihood Estimation of Multinomial-Poisson Models: Birch (1963) Re-Visited. *Conference Proceedings of the Italian Institute of Statistics*.

Lang, J.B. (2007). Generalized Linear Models, Chapter in *Recent Advances in Statistics*, edited by Batmaz, I. and Ayhan, H.O. Ankara: Turkish Statistical Institute Press.

Ormsby, M. Barrett, T., Lang, J.B., Mazurek, J. and Schilling, M. (2007) "Nondestructive Measurement of the Gelatin Content of Historic Papers Using Near Infrared Spectroscopy," *Proceedings of the Book and Paper Group Annual 26*.

Lang, J.B. (2006), A Multinomial-Poisson Homogeneous Model Large Approach to Computing Profile Confidence Intervals for Contingency Table Parameters. *Proceedings of the 2005 Joint Statistical Meetings*.

- Lang, J.B. (2005), Profile Confidence Intervals for Contingency Table Parameters, *Technical Report #351, Department of Statistics and Actuarial Science, University of Iowa.*
- Heimer, K., Lang, J.B., Wittrock, S.M., and Stowell, J. (2005), "Gender, Crime and Welfare: A Multilevel Analysis of Cities and States." National Consortium for Violence Research Workshop on Multilevel Modeling of Macro-Level Data on Crime. Workshop Paper.
- Lang, J.B. (2003), Review of "An Introduction to Generalized Linear Models," by A.J. Dobson. *Journal of the American Statistical Association.*
- Lang, J.B. (2002), "Multinomial-Poisson Homogeneous (MPH) and Homogeneous Linear Predictor (HLP) Models: A Brief Description," Online HTML document, <http://www.stat.uiowa.edu/~jblang/mph.fitting/mph.hlp.description.htm>
- Lang, J.B. and Aspelund, T. (2000), Binormal Association-Marginal Models for ROC Analysis based on Correlated Ordinal Rating Data. *UI Technical Report #299.*
- Lang, J.B. (2000), Maximum Likelihood Method for Useful Classes of Multinomial-Poisson Homogeneous Models. *UI Technical Report #298.*
- Lang, J.B. (2000), Multinomial-Poisson Homogeneous Function Models for Categorical Data. *UI Technical Report #297.*
- Lang, J.B. (2000), Review of "Statistical Analysis of Categorical Data," by C.J. Lloyd. *Journal of the American Statistical Association.*
- Lang, J.B. and Aspelund, T. (1999), Binormal Association-Marginal Models for ROC Analysis. *Proceedings of the 14th International Workshop on Statistical Modeling*, pp. 251-8.
- Lang, J.B. (1997), Bayesian Ordinal and Binary Regression Models with a Parametric Family of Mixture Links. *University of Iowa Technical Report #267.*
- Lang, J.B., McDonald, J.W., Smith, P.W.S. (1997), Association-Marginal Modeling of Multivariate Polytomous Responses: A Maximum Likelihood Approach for Large, Sparse Tables. *University of Iowa Technical Report #263.*
- Lang, J.B. (1996), An Approximating Class of Binomial Logit Models Useful for Fitting the Poisson Regression Model with Offset. *University of Iowa Technical Report #252.*
- Lang, J.B. (1996), Large-Sample Theory for a Broad Class of Multinomial and Poisson Categorical Data Models. *University of Iowa Technical Report #249.*
- Lang, J.B. (1995), On the Asymptotic Independence of Certain Goodness-of-Fit Statistics for Multivariate Categorical Models. *University of Iowa Technical Report #232.*
- Lang, J.B. (1994), On Likelihood Methods for Generalized Loglinear Models. *Proceedings of the 9th International Workshop on Statistical Modelling.*

- Lang, J.B. (1994), An Alternative Approach to Showing the Equivalences Between Multinomial and Poisson Loglinear Models. *University of Iowa Technical Report #227*.
- Agresti, A., Lipsitz, S. and Lang, J.B. (1993), Analysis of Sparse Repeated Categorical Measurement Data. *SAS Users Group International Conference Proceedings*. SUGI 16. pp. 1453-60.
- Lang, J.B. (1993), Large-Sample Behavior of Full-Likelihood Statistics for a Broad Class of Multivariate Categorical Data Models. *University of Iowa Technical Report #223*.
- Lang, J.B. and Agresti, A. (1993), Simultaneously Modeling Joint and Marginal Distributions of Multivariate Categorical Responses. *University of Iowa Technical Report #213*.
- Lang, J.B. (1992), On Model Fitting for Multivariate Polytomous Response Data. Ph.D. Dissertation, *University of Florida*.

## Software Developed and Software Documentation

**CI.binom()** Supporting software for "Mean-Minimum Exact Confidence Intervals," *The American Statistician* (Lang, 2017).

**ci.table** -- An R program for computing score, profile likelihood, and power divergence confidence intervals for contingency table parameters. Author: J.B. Lang (2008, rev 2009).

Lang, J.B. (2009), "CI.TABLE Examples," Online document to accompany the R program `ci.table`.

**mph.fit** -- An R program for maximum likelihood fitting of multinomial-Poisson homogeneous (MPH) and homogeneous linear predictor (HLP) contingency table models. Author: J.B. Lang (2002, rev. version 3.1, 2009). Available upon request.

Lang, J.B. (2002, rev 2004), "Maximum Likelihood Fitting of MPH Models for Contingency Tables using MPH.FIT," Online document.

[www.stat.uiowa.edu/~jblang/mph.fitting/mph.fit.documentation.htm](http://www.stat.uiowa.edu/~jblang/mph.fitting/mph.fit.documentation.htm).

Lang, J.B. (2002, rev 2009). "ML Fitting of MPH Models using MPH.FIT: Numerical Examples," Online document.

[www.stat.uiowa.edu/~jblang/mph.fitting/mph.numerical.examples.htm](http://www.stat.uiowa.edu/~jblang/mph.fitting/mph.numerical.examples.htm).

Lang, J.B. (2009). "Basic Numerical Examples," Online document.

<http://www.stat.uiowa.edu/~jblang/mph.fitting/mph.basic.numerical.examples.htm>

**gllm** -- Splus/R program for maximum likelihood fitting of generalized loglinear models. Author: J.B. Lang (2000).

## Grants

### External

NSF Grant: Heimer, Karen (PI) and Joseph B. Lang (Co-PI). 2011- March 31, 2013. "Violent Victimization in the U.S.: The Vulnerability of Minorities and Women over Time." \$204,566. Janet L. Lauritsen (Co-PI) on University of Missouri-St. Louis part of the grant.

"Analysis of 15th through 19th Century Papers Using Non-Destructive Techniques." PI: Timothy Barrett, Consultant: Joseph B. Lang. 2007 Conservation Project Support, U.S. Institute of Museum and Library Services (\$184,740; 2007-2012)

Co-PI on National Institute of Health/NIGMS Pre-doctoral Training Grant (\$69,470 1<sup>st</sup> year, projected 5 years), "Statistics in Microbiology, Infectious Diseases & Bioinformatics". PI: Kathryn Chaloner, Biostatistics, University of Iowa. (2006-2010)

Heimer, K. and Lang, J.B. (Co-PIs) . "Gender, Race, Ethnicity and Violent Delinquency." National Consortium on Violence Research, funded by the National Science Foundation (\$59,576; 2002-2003).

"Dental care access & cost for children in a SCHIP program," PI: Damiano, P., Public Policy Center; Consultant: Lang, J.B. Agency for Healthcare Research and Quality (\$99,000; 2003)

Co-Investigator on National Institute of Health grant (\$1,208,125). Title: "New ROC Methodology for Diagnostic Radiology." PI: D. Dorfman, Dept. of Psychology, University of Iowa. (1997-2000)

National Science Foundation Scientific Computing Research Equipment for the Mathematical Sciences grant (\$67,330). PI: D. Zimmerman, Co-PI's: R. Lenth, K.S. Chan, J.B. Lang, J. Huang. (1996)

## Lectures and Conference Presentations

### International

Meetings of the European Society of Criminology, "Revealing the Structural Nexuses of Race and Risk for Intimate Partner Violence in the United States," European Society of Criminology, Cardiff, Great Britain Presenters/Authors: Heimer, Karen, Lauritsen, Janet, Levchak, Philip, Lang, Joseph B. (2017)

"Improved Confidence Intervals for Binomial  $p$ ," Lancaster University, UK, Lancaster, United Kingdom Presenters/Authors: Lang, Joseph B. (2017)

Annual Meeting of the European Society of Criminology, "Stranger Violence Against Women: Findings from the National Crime Victimization Survey.", European Society of Criminology,

Muenster, Germany Presenters/Authors: Karen, Heimer, Janet, Lauritsen, Joseph, Lang B. (2016)

International Workshop on Statistical Modelling, “Improved Tests of Conditional Independence in Stratified Tables,” Presenters/Authors: Iannario, Maria, Lang, Joseph B. Linz, Austria (2015).

Prague, Czech Republic (2012). Contributed paper. “Upon Closer Inspection...Testing in Comparative Experiments.” *27<sup>th</sup> International Workshop on Statistical Modelling*.

Glasgow, Scotland (2010). Contributed paper, “Shadow Graphs for Contingency Tables,” *25<sup>th</sup> International Workshop on Statistical Modelling*.

Ljubljana, Slovenia (Nov 14, 2008). "NIR/Chemometrics for Rag Paper Diagnostics," Keynote presentation delivered by first author Mark Ormsby (National Archives) at the "NIR/Chemometrics for Cultural Heritage" workshop as part of the 8th European Conference on Research for Protection, Conservation and Enhancement of Cultural Heritage. Authors: Ormsby, Barrett, Shannon, Schilling, Mazurek, Wade, Bruckle, Lang, White.

Cosenza, Italy (2008). Invited speaker, Conference of the Italian Statistical Institute.

Ankara, Turkey (2007). Invited to give a short course on “Generalized Linear Models,” METU, July 2007.

Galway, Ireland (2006). Contributed paper, “Applications of Profile Confidence Intervals for Contingency Table Parameters.” *International Workshop on Statistical Modelling*.

Tilburg, the Netherlands (2002). Invited speaker, Society for Multivariate Analysis in the Behavioral Sciences.

Rostock, Germany (2000). Invited speaker, Biometric Society German Region's 46<sup>th</sup> Biometrical Colloquy 'Biometrie 2000.'

Graz, Austria (1999). Invited participant at the *14th International Workshop on Statistical Modeling*.

Munich, Germany (1998). Invited talk and week-long visit at Ludwig-Maximilians Universitat.

Limburgs, Belgium (1997). Invited instructor of Discrete Data Analysis course, as part of the the ninth international MSc. in Biostatistics program (spring 1997), at the Limburgs Universitair Centrum, Belgium. (Could not attend.)

Southampton, England (1995). Invited talk “Separability of Hypotheses for Simultaneous Multivariate Categorical Data Models,” University of Southampton.

## **National Talks**

Annual Meetings of the American Society of Criminology, Gender and Victimization by Strangers: The Impact of Race, Urban Residence and Poverty, American Society of Criminology, Philadelphia, Pennsylvania, United States Presenters/Authors: Heimer, Karen, Lauritsen, Janet, Levchak, Philip, Lang, Joseph B (2017)

Joint Statistical Meeting, Mean-Minimum Confidence Intervals for Binomial p, American Statistical Association, etc., Chicago, Illinois, United States Presenters/Authors: Lang, Joseph B. (2016)

Race, Place, Poverty and Violence Against Women: New Findings from the National Crime Victimization Survey., University of Oklahoma, Dept of Sociology, Oklahoma, United States Presenters/Authors: Karen, Heimer, Janet, Lauritsen, Joseph, Lang B. (2016)

Annual Meeting of the American Society of Criminology, The Enduring Significance of Race, Ethnicity and Poverty for Male Victimization: 1973-2010., ASC, New Orleans, Louisiana, United States Presenters/Authors: Janet, Lauritsen, Karen, Heimer, Joseph, Lang B. (2016)

Heimer, Karen, Joseph B. Lang, Janet L. Lauritsen, and Ryne VanKrevelen, "Stranger and Known Offender Violence Against Women: Findings from the National Crime Victimization Survey, 1980-2010." Paper presented at the Annual Meetings of the American Society of Criminology. November 2013, Atlanta, GA.

Lang, J.B., "Paths, Patterns, and Possibilities." Invited keynote speaker, 2013 Iowa Summer Research Symposium, ISIB, Iowa City, IA Summer 2013.

Heimer, Karen, Janet L. Lauritsen, Joseph B. Lang, and Ryne VanKrevelen. "Race, Disadvantage, Family Structure, and Violence Against Women, 1980-2010." Paper presented at the Annual Meetings of the American Society of Criminology held in Chicago, November, 2012.

"Upon Closer Inspection...Testing in Comparative Experiments," UI Department of Statistics and Actuarial Science, September 2012.

Heimer, Karen, Joseph Lang, Janet L. Lauritsen and Ryne VanKrevelen. "The Trials and Tribulations of Analyzing 'Big' Data: Using the Pooled NCVS to Study the Violent Victimization of Blacks and Latinos Over Time." Public Policy Center, University of Iowa. April 2012.

"The Vulnerability of Blacks and Latinos to Violent Victimization over Time: An Analysis of Pooled NCVS Micro Data," Janet Lauritsen, Karen Heimer, and Joseph B. Lang. Meetings of the American Society of Criminology, November 2011, Washington, D.C.

"Barrett et al.- New Research Results," Invited talk, Buffalo State College Graduate School in Conservation, Buffalo, NY, October 2011.

"Unpacking the Punitive Turn in the American States: Race, Politics, and Incarceration, 1977-2004" Karen Heimer, Andres Rengifo and Joseph B. Lang, Annual Meetings of the American Sociological Association, August 2011. Las Vegas.

“A New View of Early Book Printing in Europe--As Reported by 1,579 14th-19th C paper specimens,” Invited talk, History of Material Texts Workshop Series, University of Pennsylvania, Philadelphia, PA, February 2011.

Lang, J.B. “Shadow Graphs for Contingency Tables,” Invited speaker at the UI Department of Biostatistics, September 2010.

Lang, J.B. “Multinomial-Poisson Homogeneous Models: A Practitioner’s Guide,” Invited speaker at the UF Department of Statistics 12<sup>th</sup> Annual Winter Workshop, Jan 2010.

Heimer, Lauritsen, and Lang, “Women’s Exposure to Intimate Partner Violence: The Impact of Race, Ethnicity and Family Characteristics,” Meetings of the American Society of Criminology, November 2010, San Francisco, California.

“14th-19th C Handmade Papers-- Recent Aesthetic and Scientific Investigations” November 12 2010. WU Libraries Lecture Series, Washington University, St. Louis, MO, Authors: Barrett, Ormsby, Lang, et al.

“Aesthetic and Scientific Investigations of 15th Century Handmade Papers” November 4 2010. Department of Art, Grinnell College, Grinnell, IA. Authors: Barrett, Ormsby, Lang, et al.

“15<sup>th</sup> Century European papermaking materials and techniques.” October 23 2010, Friends of Dard Hunter annual meeting, Arrowmont School of Crafts, Gatlinburg, TN. Authors: Barrett, Ormsby, Lang, et al.

“Parchment versus paper—curious events circa 1500” September 17 2010, Medieval Association of the Midwest Annual Conference, Iowa City, IA. Authors: Barrett, Ormsby, Lang, et al.

“Paper production and research at the University of Iowa” Sept 14 2010, College of Dentistry Faculty Retreat. Authors: Barrett, Ormsby, Lang, et al.

“History of American and European Papermaking” 14-18 June 2010, Charlottesville, VA Rare Book School, University of Virginia. Authors: Bidwell, Barrett, Ormsby, Lang, et al.

“Non-destructive analysis of 14<sup>th</sup>-19<sup>th</sup> century paper,” May 14 2010, American Institute for Conservation Annual Meeting, Milwaukee, WI; Book and Paper Group and Research and Technology joint session. Authors: Barrett, Ormsby, Lang, et al.

"Early Modern European Papermaking Techniques-Precedents, Highpoints, and Lowpoints," February 12 2010, Harvard University Department of History Seminar  
<http://isites.harvard.edu/fs/html/icb.topic702028/paperworkshop.htm> Authors: Barrett, Ormsby, Lang, et al.

“Nondestructive analysis of 14th-19th C papers: early research results,” February 11 2010. Harvard University Conservation Group, Boston, MA. Authors: Barrett, Ormsby, Lang, et al.

“Investigating the stability of paper- Why does some paper rot and some paper not?” February 5 2010, UI Department of Civil and Environmental Engineering, Graduate Seminar. Authors: Barrett, Ormsby, Lang, et al.

Rengifo, Andres, Karen Heimer, Joseph Lang, Donald Stemen, Kecia Johnson and Ethan Amidon. “The Determinants of Male Incarceration Rates by Race over Time and across States.” Paper presented at Racial Democracy, Crime and Justice Network Summer Workshop. Criminal Justice Research Center, The Ohio State University, Columbus, OH (July 2009).

Johnson, K., Heimer, K., Lang, J.B., Rengifo, A. and Stemen, D. “Race and Trends in Women’s Imprisonment: The Consequences of Welfare, Drug Penalties and Economic Hardship,” American Society of Criminology, Annual Meeting, November 2008.

Lang, J.B. “Improved Confidence Intervals for Contingency Table Parameters,” Invited talk at Iowa State University, IA, May 2008.

Heimer, K., Lang, J.B., Johnson, K., Rengifo, A. and Stemen, D. Invited talk, “Race and Trends in Women’s Imprisonment: Drug Penalties, Welfare, and Poverty,” Institute for Inequality Studies, Univ. of Iowa. April 2008.

Heimer, K., Boswell, M., Lang, J.B. and Stucky, T.D. “The Safety Net and Public Safety: The Determinants of Welfare and Imprisonment in the United States.” Paper presented at the Annual Meetings of the American Society of Criminology, Atlanta Georgia, November 2007.

Lang, J.B. “Improved Confidence Intervals for Contingency Table Parameters,” Invited talk at the University of Chicago, IL, April 2007.

Ormsby, M., Barrett, T., Mazurek, J., Schilling, M., and Lang, J.B. “Nondestructive measurement of the gelatin content of historic papers using near infrared spectroscopy,” Presented at the *American Institute for Conservation Book and Paper Group* meeting, April 2007

Heimer, Karen, Joseph B. Lang, Thomas D. Stucky. “Race, Threat and Imprisonment in the United States.” Paper presented at the Annual Meetings of the American Society of Criminology, Los Angeles, California, November 2006.

Lang, J.B. “Model-Based Profile Confidence Intervals for Stratified Contingency Tables,” Invited talk at the *Joint Statistical Meetings*, Seattle, WA, August 2006.

Lang, J.B. “Profile Score and Likelihood Intervals for Contingency Table Parameters,” Invited presentation at Cornell University, Ithaca, NY, October 2005.

Lang, J.B. “A Multinomial-Poisson Homogeneous Model Approach to Computing Profile Confidence Intervals,” Presented at the *Joint Statistical Meetings*, Minneapolis, August 2005.

Heimer, K., Lang, J.B., Wittrock, S.M., and Stowell, J. “Down and Out: Gender, Economic Marginalization, Welfare, and Crime.” Invited presentation at University of Missouri, St Louis, May 4-8, 2005.

Heimer, K., Lang, J.B., Stowell, J. and Wittrock, S.M. "Gender, Crime and Welfare." Invited presentation at workshop on Multilevel Modeling of Macro-Level Data on Crime, SUNY-Albany, April 14-15, 2005.

Lang, J.B. "Profile Likelihood Confidence Intervals for Contingency Table Parameters," Invited Distinguished Alumnus Talk, Department of Statistics, University of Florida, December 2004.

Heimer, K., Wittrock, S.M., and Lang, J.B. "Welfare, Economic Marginalization, and the Gender Gap in Violence: A Multi-Level Analysis of 100 U.S. Cities over Time." Paper presented at the Annual Meetings of the American Society of Criminology, Nashville, TN, November, 2004.

Stucky, T.D. Heimer, K. and Lang, J.B. "The Politics of Imprisonment: Assessing the Importance of Electoral Competition." Meetings of the Law and Society Association, Chicago, May 2004.

Heimer, K. and Lang, J.B. "Modeling Race/Ethnic/Sex Patterns of Delinquency: A Non-Parametric Maximum Likelihood Approach," Paper presented at the Annual Meetings of the American Society of Criminology, Denver, CO, November 2003

Wittrock, S.M., Heimer, K., and Lang, J.B. "Variations Across Race in Structural Disadvantage and Violent Delinquency." Paper presented at the Annual Meetings of the American Society of Criminology, Denver, Colorado, November, 2003.

Lang, J.B. "Applications of Non-Standard Homogeneous Linear Predictor Models," Biostatistics Department, University of Iowa, Oct 2002.

Lang, J.B. "Homogeneous Linear Predictor Models," Department of Statistics, Texas A&M University, Oct 2002.

Lang, J.B. and Aspelund, T. "Comparing neonatal radiograph evaluation methods: Models for multivariate ordinal rating data using ROC curves and agreement measures," at the ENAR Spring 2002 Meetings.

Lang, J.B. and Aspelund, T. "Bi-Distribution AM Models for Evaluating Diagnostics," at the Dept of Statistics, University of Minnesota, Feb 2002.

Heimer, K., Unal, H., Lang, J.B., and Stucky, T.D.. "Gendered Justice: Trends in the Gender Gap in Imprisonment in the United States." Paper presented at the Annual Meetings of the American Society of Criminology in Atlanta, Georgia, 2001.

Heimer, K., Stucky, T.D., and Lang, J.B. "Economic Competition, Racial Threat, and Black-Nonblack Disparity in Imprisonment." Paper presented at the 1999 Annual Meetings of the American Society of Criminology in Toronto, Ontario, Canada, 1999.

Lang, J.B. "Bayesian Ordinal and Binary Regression Models with a Parametric Family of Mixture Links," at the Dept of Statistics, University of Florida, Mar 1998.

Lang, J.B. “Bayesian Ordinal and Binary Regression Models with a Parametric Family of Mixture Links,” at the Dept of Statistics, St Cloud State University, MN, Mar 1998.

Lang, J.B. “Bayesian Ordinal and Binary Regression Models with a Parametric Family of Mixture Links,” at West North American Region (WNAR) Biometrics Meetings, in Park City, UT, July 1997.

Lang, J.B. and Eliason, S.R. “The Application of Association-Marginal Models to the Study of Social Mobility,” at a joint Sociology/Statistics conference, Penn State, Sep 1996.

Lang, J.B. “On Maximizing a Multinomial Likelihood Subject to a General Class of Non-Linear Constraints: In Search of a Better Method,” at the Faculty Research Seminar at the Center for Advanced Studies, Oakdale Campus, University of Iowa, August, 1994.

Lang, J.B. “An Alternative Approach to Showing the Equivalence Between Multinomial and Poisson Loglinear Models,” at the Department of Biometry, University of Arizona, April, 1994.

Lang, J.B. “On the Asymptotic Independence of Goodness-of-Fit Statistics,” at University of Michigan, Dept.of Biostatistics, Spring 1993.

Lang, J.B. “Obtaining the Observed Information Matrix for the Poisson Loglinear Model with Incomplete Data,” at the Biometric Society (ENAR) meetings in Cincinnati, 1992. Note: This presentation was supported by a Biometric Society Travel Award.

## **TEACHING AT THE UNIVERSITY OF IOWA**

### **Courses Taught at UI:**

Crime Statistics Investigations  
Statistics for Business  
Statistical Inference II  
Applied Generalized Regression  
Categorical Data Analysis  
Regression  
ALPHA Seminar  
Statistics and Society  
Intro Math Stat I and II  
Math Stat I and II

### **PhD Students Supervised**

| Degree Obj | Role                | Student       | Years     | Outcome |
|------------|---------------------|---------------|-----------|---------|
| PhD (Stat) | advisor             | Steve Manning | 2017-date |         |
| PhD (Stat) | advisor             | Qiansheng Zhu | 2017-date |         |
| PhD (Stat) | teaching supervisor | Steve Manning | 2017-18   |         |

|               |                     |                   |         |                               |
|---------------|---------------------|-------------------|---------|-------------------------------|
| PhD (Stat)    | teaching supervisor | Riad Jarjour      | 2016    |                               |
| PhD (Stat)    | committee member    | Congrui Yi        | 2015-16 | PhD                           |
| PhD (Math)    | committee member    | Mark Krines       | 2013-14 | PhD                           |
| PhD (Stat)    | committee member    | Hao Chai          | 2013-14 | PhD                           |
| PhD (Stat)    | advisor             | Ryne VanKrevelen  | 2012-16 | PhD                           |
| PhD (Biostat) | committee member    | Knute Carter      | 2012-14 | PhD                           |
| PhD (Stat)    | committee member    | Shu-Ching Chang   | 2011-13 | PhD                           |
| PhD(Soc)      | committee member    | Donna Lancianese  | 2011-14 | PhD                           |
| PhD (Soc)     | committee member    | Phil Levchak      | 2011-13 | PhD                           |
| PhD (Biostat) | committee member    | Mi Jin Jang       | 2010-11 | PhD                           |
| PhD (Biostat) | committee member    | Jingyang Zhang    | 2010-12 | PhD                           |
| PhD (Educ)    | committee member    | Jay Happel        | 2010-12 |                               |
| PhD (OEH)     | committee member    | Ana Capuano       | 2010-12 | PhD                           |
| PhD (Soc)     | committee member    | Samantha Cumley   | 2010-12 | PhD                           |
| PhD (Stat)    | committee member    | Yunlong Xie       | 2009-11 | PhD                           |
| PhD (Biostat) | committee member    | Yu-Hui Chang      | 2009-10 | PhD                           |
| PhD (Stat)    | committee member    | Tianyang Zhang    | 2009-10 | PhD                           |
| PhD (Biostat) | committee member    | Laura Acion       | 2008-11 | PhD                           |
| PhD (Engin)   | committee member    | Gabriele Villarni | 2007-08 | PhD                           |
| PhD (Stat)    | committee member    | Kwang Woo Ahn     | 2007-07 | PhD                           |
| PhD (Math)    | committee member    | Neil Nicholson    | 2007-07 | PhD                           |
| PhD (Soc)     | committee member    | Stacy Wittrock    | 2007-12 |                               |
| PhD (Stat)    | committee member    | Noelle Samia      | 2005-06 | PhD                           |
| PhD (Math)    | committee member    | Ryan Stufflebeam  | 2003-04 | PhD                           |
| PhD (Educ)    | committee member    | Angela Pitkin     | 2003-04 | PhD                           |
| PhD (Soc)     | committee member    | Halime Unal       | 2002-03 | PhD                           |
| PhD (Soc)     | committee member    | Wesley Younts     | 2002-04 | PhD (Spriestersbach Prize 04) |
| PhD (Stat)    | advisor             | Thor Aspelund     | 1999-02 | PhD (Icelandic Heart Assoc)   |
| PhD (Stat)    | committee member    | Michelle Larson   | 1999-02 | PhD                           |
| PhD (Stat)    | co-advisor          | Joy Jordan        | 1997-99 | PhD (Lawrence College, WI)    |
| PhD (Stat)    | committee member    | Chris Carolan     | 1998-99 | PhD                           |
| PhD (Biostat) | committee member    | Shenghui Tang     | 1998-99 | PhD                           |
| PhD (Biostat) | committee member    | Colin West        | 1997-99 | PhD                           |
| PhD (Acct)    | committee member    | Ted Bainbridge    | 1995-00 | PhD                           |

## SERVICE

### Departments

Department Chair (DEO), 2015-  
 Director of Graduate Studies, 2005-2009, Fall 2013  
 Statistics Graduate Student Admissions, Chair 2005-2009  
 Statistics Graduate Student Advising, Chair 2005-2009  
 TA/RA Assignments, 2005-2009  
 Graduate Student Orientations, 2005-2009, 2013.

### College

Large Data Analysis Certificate, advisory board, 2014-  
Social Science Analytics Certificate (proposed 1/29/15) steering committee, 2014-  
Social Science Research Center, 2007-2010  
General Education Curriculum Committee, 2003-2006  
Collegiate Teaching Award Committee, 2003-2005  
Faculty Assembly, 1999-2002  
GER Historical Perspectives Committee, 1997-98

## University

Salary Equity Survey Analyst, commissioned by Office of Equal Opportunity and Diversity, 2013-date

Director of Annual Faculty Activity Survey, commissioned by Provost Office, 2000-2013;  
Consultant, 2014-date.

## Profession

### Professional Society Service

Executive Committee Member, International Statistical Modelling Society, 2012-2014.

Secretary/Treasurer, Iowa Chapter of the American Statistical Association, 2003-5, 2006-14.

Newsletter Editor/Webmaster, Iowa Chapter of the American Statistical Association, 2003-2005, 2006-2014.

Member of Committee on Law and Justice Statistics, American Statistical Association, 2007-2009.

Committee on Connecting Colleges and Universities, American Statistical Association, 2004-2007.

### Editorial and Conference Committee Service

Associate Editor *Statistical Modelling: An International Journal*, 2000-date

Member of the scientific program committee of the *International Workshop on Statistical Modeling*, Prague, Czech Republic, 2011-2012.

Member of the scientific program committee of the *International Workshop on Statistical Modeling*, Ithaca, NY, 2009.

Member of the scientific program committee of the *14th International Workshop on Statistical Modeling*, Graz, Austria, summer 1999.