

**Bernhard Klingenberg**  
**Professor of Statistics**  
**Williams College**

**CONTACT INFORMATION**

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**EDUCATION**

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- **Ph.D. in Statistics, Dept. of Statistics, Univ. of Florida (2004)**  
*Dissertation topic:* Analysis of discrete time series data via generalized linear mixed models. (Advisor: Drs Agresti, Booth, Casella and Littell)  
*Research interest and training:* Categorical Data Analysis, (Generalized) Linear Mixed Models, Multivariate binary data, Simultaneous inference, Monte Carlo methods, Statistical computing.
- **Master of Science (Diplomingenieur, with highest honors), Graz Univ. of Technology, Austria (1998)**  
Major in mathematics, statistics and operations research. Minor in business administration.  
Master Thesis: Statistical Quality Control.
- **Study Abroad** at the Dept. of Statistics, **Univ. of Sheffield, England (1997)**
- **Bachelor of Art (Major in Mathematics): Graz Univ. of Technology, Austria (1996)**

**PROFESSIONAL WORK EXPERIENCE**

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**Positions:**

- Full Professor, Williams College (*since 2016*)
- Visiting Professor, Institute of Statistics, Technical University Graz, Austria (*Fall 2014, Spring 2012, Fall 2007*)
- Visiting Professor Institute of Mathematics, University of Salzburg, Austria (*2011/12*)
- Associate Professor, Williams College (*2010-2016*)
- Assistant Professor, Williams College, (*2004-2010*)
- Biostatistician, Novartis Pharma, Basel, Switzerland (*2004*), Supervisor: Dr. Jose Pinheiro
- Teaching Assistant, Dept. of Statistics, Technical University Graz, (*1999*)
- Independent Statistical Consultant (*1998-1999*)

### Research & Consulting:

- Statistical Consulting: TreeAge Software, MA (*since 2014*), Clear Passage Physical Therapy, FL. (*since 2011*), Novartis Vaccines, Cambridge, MA (*2009-2014*), Novartis Pharma, Biostatistical Research Group, Basel, Switzerland (*2004-2012*),
- Research Assistant, Dept. of Statistics, Univ. of Florida, (*2001-04*) Supervisor: Dr. Alan Agresti
- Graduate Research Assistant, Institute for Food and Agricultural Sciences (IFAS), Statistical Consulting Unit, Univ. of Florida, (*2000/01*) Supervisor: Prof. Ramon Littell
- Consulting Statistician with “Energie Steiermark” (Electrical Utility Company), Graz, Austria, (*1997– 1999*)

### BOOKS, RESEARCH PAPERS & TALKS

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#### Books and Book Chapters:

1. Agresti, A., Franklin, C., Klingenberg B., (2017). "*Statistics: The Art and Science of Learning from Data*", Pearson, 816 pages. See also: [www.ArtofStat.com](http://www.ArtofStat.com)
2. Klingenberg, B. and Rahman, F, (2014). "Pairwise comparisons with binary responses: Multiplicity adjusted p-values and simultaneous confidence intervals" in *Clinical Trial Biostatistics and Biopharmaceutical Applications*, Young, W and Chen, D. (editors), Chapman and Hall, 2014

#### Papers:

1. Fry, Ellis, Koontz, Shyne, Klingenberg, Fields, Chern and Blank. (2017) "Ovarian cancer survivors' acceptance of treatment side effects evolves as goals of care change over the cancer continuum", *Gynecologic Oncology*, Vol. 146, Issue 2, 386–391.
2. Rice, Patterson, Reed, Wurn, Klingenberg, King, Wurn. (2016). "Treating Small Bowel Obstruction with a Manual Physical Therapy: A Prospective Efficacy Study", *BioMed Research International*, Vol. 2016, Article ID 7610387, doi:10.1155/2016/7610387
3. Klingenberg, B. (2015) "Multiple Comparison of Marginal Probabilities Following GEE estimation", *Proceedings of the 30<sup>th</sup> International Workshop on Statistical Modelling*, Vol.1.
4. Klingenberg, B. (2014) "A new and improved confidence interval for the Mantel-Haenszel risk difference", *Statistics in Medicine* (33), 2968-2983.
5. Rice, Wakefield, Patterson, Reed, Wurn, Klingenberg, King, Wurn. (2014) "Development and Validation of a Questionnaire to Measure Serious and Common Quality of Life Issues for Patients Experiencing Small Bowel Obstructions", *Healthcare* (2) 139-149.
6. Klingenberg, B. and Satopaa, V. (2013), "Simultaneous confidence intervals for comparing margins of multivariate binary data", *Computational Statistics & Data Analysis* (64), 87-98.
7. Klingenberg, B. (2013), "On a null variance estimator for the Mantel-Haenszel risk difference and corresponding confidence interval", *Proceedings of the 28<sup>th</sup> International Workshop on Statistical Modelling*, Vol 2, 651-654.

8. Bälter, O., Enström, E. and Klingenberg, B. (2013), "The effect of short formative diagnostic web quizzes with minimal feedback", *Computers & Education* (60), 234-242.
9. Klingenberg, B. (2012), "Simultaneous score bounds for risk differences in multiple comparison to a control", *Computational Statistics & Data Analysis* (56), 1079-1089.
10. Klingenberg, B. (2010), "Simultaneous confidence bounds for relative risks in multiple comparisons to control ", *Statistics in Medicine* (29), 3232-3244.
11. Klingenberg, B. (2009), "Proof of Concept and dose estimation with binary responses under model uncertainty", *Statistics in Medicine* (28), 274-292.
12. Klingenberg, B. (2008), "Dose-Response Modelling with Bivariate Binary Data under Model Uncertainty", *Proceedings of the 23<sup>rd</sup> International Workshop on Statistical Modelling, Utrecht*, 297-302.
13. Klingenberg, B., Solari, A., Salmaso, L. and Pesarin, F. (2008) "Testing Marginal Homogeneity against Stochastic Order in Multivariate Ordinal Data", *Biometrics* (65), 452-462.
14. Klingenberg, B. (2008), "Regression Models for Binary Time Series with Gaps", *Computational Statistics and Data Analysis* (52), 4076-4090.
15. Klingenberg, B. and Xu, Y. (2007), "Simultaneous Confidence Intervals for Margins of Multivariate Data", *Proceedings of the Conference on Complex Models and Computational Intensive Methods for Estimation and Prediction (S.Co. 2007)*, Venice, Italy.
16. Klingenberg, B. and Agresti, A. (2006), "Multivariate Extensions of McNemar's Test", *Biometrics* (62), 921-928.
17. Agresti, A. and Klingenberg, B., (2005), "Multivariate Tests Comparing Two Vectors of Binomial Probabilities, with Application to Safety Studies for Drugs", *Journal of the Royal Statistical Society, Series C* (54), 691-706

#### **Invited Talks since 2005:**

1. "Intro Stats in the Cloud",
  - a. 2017 United States Conference on Teaching Statistics, Penn State University, College Station, PA, May 2017
  - b. 29th International Conference on Technology in Collegiate Mathematics, Chicago, USA, March 2017.
2. "Short Course on Modeling Categorical Longitudinal Data", City of Hope Cancer Research Center, Pasadena, CA, USA, April 2016.
3. "Art of Stat: Web Apps for Introductory Statistics", 28th International Conference on Technology in Collegiate Mathematics, Atlanta, USA, March 2016.
4. "Statistical Questions in Neural Engineering", Institute of Neural Engineering, Graz University of Technology, Austria, August 2015.
5. "A new and improved confidence interval for the Mantel-Haenzsel risk difference", Center for Medical Statistics, Informatics and Intelligent Systems, Medical University of Vienna, November 2014.

6. "Analysis of Ordinal Categorical Data", *City of Hope Cancer Research Center*, Pasadena, CA, April 2014.
7. "Comparing Margins of Multivariate Binary Data", Conference on Simultaneous Inference, Institute of Biostatistics, *Leibniz University Hannover*, Germany, September 2013.
8. "Data Mining", 2-day continuing education workshop for the Mathematical Association of America (MAA), *Williams College*, MA, June 2013 (with Dick DeVeaux).
9. "On Things that are Thus and So: The 2 x 2 table", Department of Mathematics & Statistics, *Colby College*, ME, April 2013.
10. "Simultaneous Inference for Dose Selection with Binary Responses",
  - a. Department of Statistics, *University of Milan*, Italy, August 2012.
  - b. *Joint Statistical Meetings (JSM)*, San Diego, 2012.
11. "Simultaneous score bounds for risk differences",
  - a. Dept. of Biostatistics, *Karolinska Institute*, Sweden, August 2010.
  - b. Institute of Medical Statistics, *Medical University of Vienna*, Austria, June 2010.
12. "Analysis of Clustered Categorical Data", Two-day short course at the 65<sup>th</sup> annual *Deming Conference on Applied Statistics*, Atlantic City, NJ, December 2009 (with Alan Agresti).
13. "Simultaneous upper confidence bounds for relative risks"
  - a. *FDA/Industry Statistics Workshop*, Washington, DC, September 2009,
  - b. 30<sup>th</sup> annual *International Society for Clinical Biostatisticians (ISCB)* meeting, Prague, Czech Republic, July 2009,
  - c. Institute of Statistics, *Technical University Graz*, Graz, Austria, June 2009,
  - d. Webinar for *Novartis Vaccines*, December 2008.
14. "Marginal homogeneity in multivariate ordinal data", Department of Biostatistics, *Yale University*, New Haven, CT, January 2009.
15. "Proof of concept and dose estimation with binary data"
  - a. Institute for Medical Informatics, Statistics and Documentation, *Medical University Graz*, Austria, June 2008,
  - b. Dept. of Statistics, *University of Padua*, Italy, June 2007,
  - c. *First Dose Finding Conference*, Philadelphia, February 2007.
16. "Testing marginal homogeneity in multivariate ordinal data, with applications in toxicity and drug safety"
  - a. Biostatistical Research Group, *Novartis Pharma AG*, Basel, Switzerland, May 2008,
  - b. Institute of Statistics, *Technical University Graz*, Graz, Austria, May 2008.
17. "Statistical inference", short course at the 2008 *Board of European Students of Technology (BEST)* educational conference, Graz, February 2008.
18. "Testing dose-response with multivariate ordinal data", Institute of Medical Statistics, *Medical University of Vienna*, Austria, October 2007.

19. "Combining multiple comparison and modeling in dose finding studies", Conference on Dose Finding, *Novartis Pharma AG*, Basel, Switzerland, February 2007.
20. "Analyzing adverse events in drug safety studies", invited talk at the biannual meeting of the Austrian-Swiss chapter of the *International Biometric Society*, Graz, Austria, September 2005.

**Conference Talks (contributed):**

1. "Multiple Comparisons of marginal probabilities following GEE estimation", 30<sup>th</sup> *International Workshop on Statistical Modelling*, Linz, Austria, July 2015
2. "Comparing Margins of Multivariate Binary Data",
  - Austrian Statistical Days, organized by the Austrian Statistical Association, Graz, Austria, September 2011,
  - ENAR Spring conference, Miami, FL, March 2011.
3. "Exchangeability for multivariate binary observations", 31<sup>st</sup> annual International Society for Clinical Biostatisticians (ISCB) meeting, Montpelliere, France, August 2010.
4. "Simultaneous score bounds for risk differences", 31<sup>st</sup> annual International Society for Clinical Biostatisticians (ISCB) meeting, Montpelliere, France, August 2010.
5. "Dose-response for bivariate binary data under model uncertainty", 23<sup>rd</sup> *International Workshop on Statistical Modelling (IWSM 2008)*, Utrecht, Netherlands, July 2008.
6. "Proof of concept and dose estimation with binary data", *Multiple Comparison Conference (MCP 2007)*, Vienna, July 2007.
7. "A unified framework for dose-response with binary data", annual meeting of the *Eastern North American Region/International Biometric Society (ENAR)*, Atlanta, GE, March 2007.
8. "Multivariate extensions of McNemar's test, with application to drug safety", annual *Joint Statistical Meetings (JSM)*, Minneapolis, August 2005.
9. "Multivariate analysis of binary data from drug safety trials", annual meeting of the *Eastern North American Region/International Biometric Society (ENAR)*, Austin, TX, March 2005.
10. "Regression models for discrete-valued time series", annual *Joint Statistical Meetings (JSM)*, New York, August 2004.

**Conference Posters and Abstracts:**

- Klingenberg and Franklin. (2017). "Take a Risk: Talk about the Risk Ratio", *2017 United States Conference on Teaching Statistics*, Penn State University, College Station, PA, May 2017
- Rice, King, Wurn, Wurn, Klingenberg. (2015). "Treating Small Bowel Obstruction with a Manual Physical Therapy: A Controlled Prospective Efficacy Study", *Gastroenterology* (148), 4, Supplement 1, S-644.
- Klingenberg, B. (2013) "A new variance estimator for the Mantel-Haenszel risk difference", 28th *International Workshop on Statistical Modelling*, Palermo, Italy.
- Klingenberg, S., Leitner, J., Klingenberg, B., Ulrich, D. and Schoell, W. (2008) "Steigende Sectorate und kindliche Kurzzeitmorbidity" *Geburtshilfe und Frauenheilkunde* (68) 424. (in German)

**Other publications (non-statistical):**

- My photograph “Grand Canyon – Bright Angle Trail” was published in “Discovering Physical Geography”, by Alan F. Aborgast, John Wiley & Sons, 2007.
- My photograph “New York – Brooklyn Bridge” was used by IBM e-business Innovation, Atlanta, Georgia and appeared on the CD cover and on the CD for their conference.

**AWARDS, HONORS AND SCHOLARSHIPS**

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- 2015: Internal Grant (World Fellowship): Project: "Statistics in the Digital Age" (\$18,082)
- 2013: Internal Grant (World Fellowship): Project: "Evaluating Vaccine Safety for Efficient Public Health Interventions" (\$13,800)
- 2007 Hellman Foundation. Project1: "Statistical Evaluation of Drug Safety and Toxicology". & 2008: (\$10,700). Project 2: "Statistical Considerations in Drug Development" (\$2,150)
- 2005: Young Researcher's Travel Award (\$1,000), Univ. of Florida Winter Workshop 2005.
- 2002: Alec-Courtelis Award for outstanding international graduate student
- 2000: William Mendenhall Award, for the most outstanding first year graduate student.
- 1999: Post-graduate stipend from the Austrian Department of Science and Technology (\$20,000)
- 1998: **Fulbright Scholarship** for 5 years of sponsored graduate studies in the United States.

**ACTIVITIES AT WILLIAMS COLLEGE**

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**Courses offered at Williams:**

STAT 101: Elementary Statistics and Data Analysis	STAT 360: Statistical Inference
STAT 201: Statistics and Data Analysis	STAT 440: Categorical Data Analysis
STAT 231: Design of Experiments	STAT 013: Roulette (Winter Study)
STAT 346: Regression and Forecasting	STAT 010: Displaying Multivariate Data with R
STAT 358: Introduction to Biostatistics	STAT 014: A Taste of Austria (Winter Study)

**Scientific Talks at Williams since 2006:**

- "Multiple Comparisons of Marginal Probabilities", Statistics Colloquium Series, Oct. '15
- "Eph R-users", organized and gave several talks in Oakley Seminar Series, Feb. – May '14
- "Interactive Stats", Faculty Seminar, April '14
- "Ordinal Models", Math/Stat Major colloquium series, Nov '13.
- "On a null variance estimator for the Mantel-Haenszel risk difference", Faculty Seminar, March '13.
- "Milk or Tea first?", MathBlast '12
- "On things that are thus and so", Science Center Seminar, October 2012.
- "Comparing Margins of Multivariate Binary Data", Faculty Seminar, Fall 2010.
- "Testing Marginal Homogeneity", Faculty Seminar, Spring 2010.
- "Proof of Concept under Model Uncertainty", Science Center Seminar, November 2008.
- "Simultaneous Confidence Intervals for the Relative Risk", Faculty Seminar, October 2008.
- "Dose Estimation under Model Uncertainty", Faculty Seminar, March 2007.
- "StatCon: Statistical Consulting for the Sciences", Science Center Seminar, May 2006.
- "Stat Lite: Great Taste - Less Filling", Family Weekend Talk, April 2006.

**Thesis Students:**

- Ya Xu (2005), Doug Hammond (2006), Alec Graeves-Tunnell (2011), Faraz Rahman (2014), Hae-Min Jung (2017)