

David B. Hitchcock, Ph.D.

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EMPLOYMENT

- **University of South Carolina**, Associate Professor of Statistics, 2011-
- **University of South Carolina**, Assistant Professor of Statistics, 2004-2011

EDUCATION

- **University of Florida**, Doctor of Philosophy (Ph.D.) degree in Statistics, 2004
- **Clemson University**, Master of Science degree in Mathematical Sciences, with concentration in Statistics, 1999
- **University of Georgia**, Bachelor of Arts degree in Journalism, magna cum laude with high honors, 1996

RESEARCH INTERESTS

- Functional Data Analysis and Smoothing Methods
- Cluster Analysis and Multivariate Data Analysis
- Environmental and Ecological Applications
- Computer-Intensive Statistical Methods
- History of Statistics

RESEARCH PAPERS

Statistical Methodology and Theory

1. **Hitchcock, D. B.** (2003), "A History of the Metropolis-Hastings Algorithm," *The American Statistician*, 57, 254-257.
2. Agresti, A. and **Hitchcock, D. B.** (2005), "Bayesian Inference for Categorical Data Analysis," *Statistical Methods and Applications*, 14, 297-330.
3. **Hitchcock, D. B.**, Casella, G., and Booth, J. G. (2006), "Improved Estimation of Dissimilarities by Presmoothing Functional Data," *Journal of the American Statistical Association*, 101, 211-222.

4. **Hitchcock, D. B.** (2007), "Bandwidth-based Nonparametric Inference," *Statistical Methodology*, 4, 204-216.
5. **Hitchcock, D. B.**, Booth, J. G., and Casella, G. (2007), "The Effect of Pre-smoothing Functional Data on Cluster Analysis," *Journal of Statistical Computation and Simulation*, 77, 1043-1055.
6. **Hitchcock, D. B.** and Chen, Z. (2008), "Smoothing Dissimilarities to Cluster Binary Data," *Computational Statistics and Data Analysis*, 52, 4699-4711.
7. **Hitchcock, D. B.** (2009), "Yates and Contingency Tables: 75 Years Later," *Electronic Journal for History of Probability and Statistics*, 5, No. 2.
8. Ferreira, L. and **Hitchcock, D. B.** (2009), "A Comparison of Hierarchical Methods for Clustering Functional Data," *Communications in Statistics: Simulation and Computation*, 38, 1925-1949.
9. Gao, J. and **Hitchcock, D. B.** (2010), "James-Stein Shrinkage to Improve K-means Cluster Analysis," *Computational Statistics and Data Analysis*, 54, 2113-2127.
10. Jang, J. and **Hitchcock, D. B.** (2012), "Model-based Cluster Analysis of Democracies," *Journal of Data Science*, 10, 297-319.
11. Grego, J. M. and **Hitchcock, D. B.** (2012), "Limited-Information Modeling of Loggerhead Turtle Population Size," submitted for publication.

Interdisciplinary Research

12. Arthington, J. D., Roka, F. M., Mullahey, J. J., Coleman, S. W., Muchovej, R. M., Lollis, L. O., and **Hitchcock, D.** (2007), "Integrating Ranch Forage Production, Cattle Performance, and Economics in Ranch Management Systems for Southern Florida," *Rangeland Ecology & Management*, 60, 12-18.
13. Singh, C. K., Kumar, A., **Hitchcock, D. B.**, Fan, D., Goodwin, R., LaVoie, H. A., Nagarkatii, P., DiPette, D. J., Singh, U. S. (2011), "Resveratrol Prevents Embryonic Oxidative Stress and Apoptosis Associated with Diabetic Embryopathy, and Improves Glucose and Lipid Profile of Diabetic Dam," *Molecular Nutrition and Food Research*, 55, 1186-1196.
14. Suranyi, Zs., **Hitchcock, D. B.**, Hittner, J., Urban, R., and Vargha, A. (2012), "Different types of sensation seeking: A new person-oriented approach in sensation seeking research," submitted for publication.
15. Guinn, C. H., Baxter, S. D., Royer, J. A., **Hitchcock, D. B.**, Devlin, C. M. (2011), "Explaining the Positive Relationship between Fourth-Grade Children's Body Mass Index and Energy Intake at School-Provided Meals," submitted for publication.

16. Baxter, S. D., **Hitchcock, D. B.**, Guinn, C. H., Royer, J. A., Wilson, D. K., Pate, R. R., McIver, K. L., and Dowda, M. (2011), “Results from a Pilot Study Concerning which Interview Content (Dietary Intake Only or both Dietary Intake and Physical Activity) Yields More Accurate Dietary Information from Children,” submitted for publication.
17. Paxton-Aiken, A. E., Baxter, S. D., Royer, J. A., **Hitchcock, D. B.**, Guinn, C. H. (2012), “Fourth-grade Childrens Body Mass Index and Participation in the School Breakfast Program and National School Lunch Program: Does the Information Source of Participation Matter?” submitted for publication.
18. Guinn, C. H., Baxter, S. D., Finney, C. J., **Hitchcock, D. B.** (2012), “Examining variations in fourth-grade children’s participation in school-breakfast and school-lunch programs by weekday, month, socioeconomic status, absenteeism, sex, and school-breakfast location,” submitted for publication.

Invited Articles

- **Hitchcock, D. B.** (2007), “Smoothing,” in the *Encyclopedia of Measurement and Statistics*, (ed: Neil J. Salkind), Sage Publications, Inc.

OTHER RESEARCH WORK

- Ph.D. Dissertation, University of Florida (2004): “Smoothing Functional Data for Cluster Analysis” (Advisors: George Casella and Jim Booth)
- Master’s Research Project, Clemson University (1999): “Properties and Applications of a New Discrete Probability Distribution for Survival Data” (Advisor: K. B. Kulasekera)

GRANTS FUNDED

- South Carolina Department of Education Grant (7/1/2007-8/30/2007), “2007 Advanced Placement Teacher Institute in Statistics,” \$16,440.
- University of South Carolina Research and Productive Scholarship Grant (4/1/2006-6/30/2007), “Bandwidth-based Functional Data Analysis: Detecting Outlying Curves and Influential Points,” \$6,917.

OTHER GRANT PROPOSALS

- National Science Foundation DMS Grant (2011), “Clustering Data with Mixed Variable Types,” \$115,718. Under review.
- National Security Agency Young Investigator Grant (2011), “Clustering Data with Mixed Variable Types,” \$34,688. Under review.
- National Security Agency Young Investigator Grant (2009), “Advances in the Cluster Analysis of Binary Data,” \$29,946. Not funded.

- National Science Foundation DMS Grant (2009), “Advances in the Cluster Analysis of Binary Data,” \$135,526. Not funded.
- National Science Foundation DMS Grant (2008), “Stochastic and Shrinkage-based Methods in Cluster Analysis,” \$135,665. Not funded.
- National Security Agency Young Investigator Grant (2008), “Stochastic and Shrinkage-based Methods in Cluster Analysis,” \$29,939. Not funded.
- National Science Foundation DMS Grant (2007), “Detection of Outliers in Functional Data Analysis,” \$119,989. Not funded.
- National Security Agency Young Investigator Grant (2007), “Detecting Outliers in Functional Data Analysis,” \$29,886. Not funded.
- National Science Foundation DMS Grant (2006), “Bandwidth-based Inference in Functional Data Analysis,” \$130,453. Not funded.
- USC Research and Productive Scholarship Grant (2005), “Issues in Functional Data Analysis: Clustering Smoothed Curves and Improving Inference about Nonparametric Curves,” \$18,157. Not funded.

COLLABORATIVE WORK ON FUNDED RESEARCH

- Co-Investigator, National Heart, Lung, and Blood Institute (NHLBI)/NIH grant (2011-2014), “Children’s Dietary Recalls: Prompts, Retention Interval, and Accuracy” (PI: Dr. Suzanne Domel Baxter on grant R01HL103737)
- Co-Investigator, National Heart, Lung, and Blood Institute (NHLBI)/NIH grant (2011-2012), “Integrated Recall of Diet and Physical Activity in Children” (PI: Dr. Suzanne Domel Baxter on grant R21HL093406)
- Co-Investigator, National Heart, Lung, and Blood Institute (NHLBI)/NIH grant (2011-2012), “Is Childhood Obesity Related to Participation in School Meals?” (PI: Dr. Suzanne Domel Baxter on grant R21HL088617)
- Served (2010-2011) as statistical collaborator on research on resveratrol in diabetic embryopathy (research funded in part by NIH grant R21AA016121; PI: U. S. Singh)

PRESENTATIONS

- Presented invited talk at 2008 SRCOS Summer Research Conference in Charleston, SC: “Bandwidth-based Inference: A Review and Ideas for New Directions”
- Presented invited talk at 2007 Current Trends in Nonparametrics Conference in Columbia, SC: “Smoothing Dissimilarities for Cluster Analysis: Binary Data and Functional Data”

- Presented invited seminar talks at:
 - Texas A & M University, Department of Statistics (Sept. 2011)
 - University of South Carolina, Department of Statistics Research Forum (Oct. 2010)
 - University of South Carolina, Department of Statistics Research Forum (Dec. 2009)
 - University of South Carolina, Department of Statistics Research Forum (April 2009)
 - Clemson University, Department of Mathematical Sciences (Nov. 2007)
 - University of Georgia, Department of Statistics (Oct. 2007)
 - University of South Carolina, Department of Biostatistics (Nov. 2006)
 - Clemson University, Department of Mathematical Sciences (Nov. 2005)
 - University of South Carolina, Department of Statistics (Sept. 2005)
 - University of South Carolina, Department of Biostatistics (April 2005)
 - University of Florida, Department of Statistics (July 2004)
 - Auburn University, Department of Mathematics and Statistics (Feb. 2004)
 - Villanova University, Department of Mathematical Sciences (Feb. 2004)
 - James Madison University, Department of Mathematics and Statistics (Feb. 2004)
 - University of South Carolina, Department of Statistics (Feb. 2004)
 - The Ohio State University, Department of Statistics (Jan. 2004)
- Presented poster at 2010 SRCOS Summer Research Conference in Virginia Beach, VA: “James-Stein Shrinkage to Improve K-means Cluster Analysis”
- Presented contributed talk at 2008 Joint Statistical Meetings in Denver: “A Comparison of Several Measures of the Center of a Functional Data Set”
- Presented contributed talk at 2007 Joint Statistical Meetings in Salt Lake City: “Smoothing the Dissimilarities Among Binary Data for Cluster Analysis”
- Presented contributed talk at 2006 Joint Statistical Meetings in Seattle: “Bootstrap Investigation of the Median Curve of a Functional Data Set”
- Presented poster at 2006 IMS New Researchers Conference at the University of Washington: “Bootstrap Investigation of the Median Curve of a Functional Data Set”
- Presented contributed talk at 2005 Joint Statistical Meetings in Minneapolis: “Improved Estimation of Dissimilarities by Presmoothing Functional Data”

- Presented poster at 2005 SRCOS Summer Research Conference at Clemson University: “Pre-smoothing Functional Data to Improve Dissimilarity Estimation and Cluster Analysis”
- Presented poster at 2003 IMS Mini-Meeting on Functional Data Analysis at the University of Florida: “Clustering Smoothed Functional Data”
- Co-winner, Student Paper Competition (1999) at South Carolina ASA Chapter meeting: “Properties and Applications of a New Discrete Probability Distribution for Survival Data”
- Presented poster at 1999 University of Florida Symposium on Nonparametric Statistics: “Modeling Discrete Lifetime Data with a New Distribution”

GRADUATE STUDENTS SUPERVISED

- Jaewon Jang, M.S., May 2011, University of South Carolina.
Thesis: “Model-based Cluster Analysis Using Variables Characterizing Types of Democracy”
- Craig Whitlow, M.I.S., December 2010, University of South Carolina.
Project: “Multivariate Analyses of Economic Indicators”
- Lalita Das, Ph.D., December 2009, University of South Carolina.
Dissertation: “Functional ANOVA Models with Application to Corporate Bonds”
- Jinxin Gao, Ph.D., August 2009, University of South Carolina.
Dissertation: “Cluster Analysis Using Shrinkage and Stochastic Methods”
- Bonnie Coggins, M.S., May 2009, University of South Carolina.
Thesis: “Comparing Models for Fitting Count Data”
- Laura Ferreira, M.S., May 2009, University of South Carolina.
Thesis: “Clustering Functional Data: A Comparison of Hierarchical Clustering Methods”
- Zhengjia Sun, M.S., August 2008, University of South Carolina.
Thesis: “A Comparison of Smoothed Bootstrap Confidence Interval Methods”
- Jinxin Gao, M.S., May 2008, University of South Carolina.
Thesis: “Comparing Two Measures of Clustering Accuracy with a Misspecified Number of Groups”
- Qi Wu, M.S., August 2007, University of South Carolina.
Thesis: “Diagnostic Methods for Influential Points in Nonparametric Regression”

- Zhimin Chen, M.S., December 2006, University of South Carolina.
Thesis: “Smoothing the Dissimilarities among Binary Data for Cluster Analysis”
- Sumithran Rasathurai, M.S., December 2006, University of South Carolina.
Thesis: “Model Fitting and Comparison of Gamma and Log-normal Models for Cancer Data”
- Jennifer Haynsworth, M.S., May 2006, University of South Carolina.
Thesis: “Coverage Probabilities for Bootstrap Confidence Intervals”

CURRENT GRADUATE STUDENTS

- Nicole Lewis, Ph.D. student (co-advisor with Ian Dryden). Studying functional data analysis functional and MCMC-based classification of proteomics data.
- JeanMarie Thompson, Ph.D. student. Studying cluster analysis for mixed data types.
- Younsok Yeo, M.A.S. student.
- Andrew Fath, M.A.S. student.

TEACHING EXPERIENCE

Courses Taught:

- Data Analysis II (STAT 705), University of South Carolina [Spring 2008, Spring 2009, Spring 2010]
- Data Analysis I (STAT 704), University of South Carolina [Fall 2007, Fall 2008, Fall 2009]
- Applied Statistics II (STAT 701), University of South Carolina [Spring 2007]
- AP Statistics Topics for Teachers (STAT 599C), University of South Carolina [Summer II 2007]
- Special Topics: Bayesian Statistics (STAT 599A), University of South Carolina [Spring 2011]
- Introduction to Bayesian Data Analysis (STAT J535), University of South Carolina [Spring 2012]
- Applied Multivariate Statistics (STAT J530), University of South Carolina [Fall 2010]
- Computing in Statistics (STAT 517), University of South Carolina [Fall 2005, Fall 2006, Fall 2008]
- Statistical Methods II (STAT 516), University of South Carolina [Spring 2006, Spring 2007, Spring 2008, Summer II 2009]

- Statistical Methods I (STAT 515), University of South Carolina [Spring 2005, Fall 2005*, Fall 2006*, Summer I 2007, Fall 2010*, Spring 2011] (* = Honors section)
- Mathematical Statistics (STAT 512), University of South Carolina [Summer II 2010, Spring 2012]
- Probability (STAT 511), University of South Carolina [Fall 2011]
- Statistics for Engineers (STAT 509), University of South Carolina [Fall 2011]
- Honors Proseminar in Statistics (SCCC 312A), University of South Carolina [Fall 2004, Spring 2005, Spring 2006]
- Introduction to Descriptive Statistics (STAT 110), University of South Carolina [Fall 2009]
- Regression Analysis (STAT 4210), University of Florida [Fall 2002]
- Statistics for Social Sciences (STAT 2122), University of Florida [Fall 2000, Spring 2001]
- Introduction to Math Analysis (MTHSC 102), Clemson University [Spring 1998, Fall 1998, Spring 1999]
- College Algebra (MTHSC 104), Clemson University [Fall 1997]

New Courses Developed:

- Introduction to Bayesian Data Analysis (STAT 535), Approved in 2011
- AP Statistics for Teachers (STAT 650), Approved in 2007

CONSULTING EXPERIENCE

- Consulted with members of the USC pathology/microbiology, nutrition/dietetics, chemistry, geography, biology, political science, and accounting departments
- Student Consultant (2001-2002), Institute of Food and Agricultural Sciences Statistics Unit, University of Florida

PROFESSIONAL MEMBERSHIPS

- American Statistical Association
- South Carolina SAS Users Group
- SC Chapter of American Statistical Association

PROFESSIONAL SERVICE

- Refereed papers for: *Statistica Sinica*, *Biostatistics*, *Journal of the American Statistical Association* (four times), *Journal of Applied Statistics* (three times), *The American Statistician*, *Handbook for Philosophy of Statistics*, *Psychological Methods*, *Journal of Statistical Planning and Inference* (three times), *Computational Statistics and Data Analysis* (three times), *Statistical Science*, *Lifetime Data Analysis*, *Journal of Statistical Computation and Simulation*, *Statistical Modelling*, *Bernoulli*, *Scandinavian Journal of Statistics*, *Communications in Statistics: Theory and Methods*, *Test*, *Electronic Journal of Statistics*, *Biometrics*.
- Reviewer, *Mathematical Reviews*.
- Reviewed books or book proposals for: Elsevier Publishing, Springer Publishing, Sage Publishing.
- Secretary/President-elect, South Carolina SAS Users Group, 2011-2012.
- Member-at-large, South Carolina SAS Users Group, 2010-2011.
- Organizing Committee, 2011 SRCOS Summer Research Conference.

CONFERENCE SESSIONS CHAIRED OR ORGANIZED

- Chaired Session 203363, “Graphical Displays, Maps and Active Learning” at the Joint Statistical Meetings, Denver (August 2008)
- Organized and chaired session on “Nonparametric Regression and Density Estimation” at the Current and Future Trends in Nonparametrics Conference, Columbia, SC (October 2007)
- Chaired Session 382, “Clustering and Classification” at the Joint Statistical Meetings, Seattle (August 2006)

SELECTED DEPARTMENTAL AND UNIVERSITY SERVICE

- Carolina Core Analytical Reasoning and Problem Solving specialty team, (2011 - present)
- Undergraduate Advisor (Fall 2004 - present)
- Chair, STAT 704-STAT 705 Planning Committee (2006-07)
- Chair, Instructor Search Committee (2009)
- Faculty Advisor, Mu Sigma Rho (Fall 2004 - present)
- Faculty Advisor, Statistics Club (Summer 2009 - present)

- Chair, Ph.D. Qualifying Exam Committee (December 2010)
- Ph.D. Qualifying Exam Committee (2005, 2008, May 2009, December 2009, May 2010)
- Student Grievance Committee (2006 - present)
- Nonparametrics Conference Planning Committee (2006-07)
- STAT 110 Committee (2009 - present)
- STAT 515 Coordinator (2010 - 2011)
- Distance Education Committee (2010 - present)
- Served on 9 statistics Ph.D. committees
- Served on 20 statistics M.S. committees
- Served on 2 statistics M.I.S. committees
- Served on 7 external Ph.D. committees and one senior honors thesis committee

COMPUTER SKILLS

- Extensive experience with SAS, especially statistical procedures and DATA step
- Extensive experience with S-plus and R
- Familiarity with Ox
- Extensive experience with LaTeX document preparation system
- Knowledge of Microsoft Word and Excel
- Familiarity with Windows and Unix platforms

HONORS AND AWARDS

- William Mendenhall Award (2000), Outstanding First-Year Graduate Student, Department of Statistics, University of Florida
- Graduate Assistant Award for Excellence in Teaching (1999), Department of Mathematical Sciences, Clemson University
- Nominated for Graduate Teaching Award (2001), University of Florida
- ASA Stat Bowl (2003), Team Champion (University of Florida) and Individual Runner-Up
- Alumni Fellowship (1999-2003), University of Florida
- R.C. Edwards Fellowship (1997-98), Clemson University