Jessica Chapman

Department of Mathematics, Computer Science, & Statistics
Bewkes Hall 127
St. Lawrence University
Canton, NY 13617
Email: jchapman@stlawu.edu
Phone (Office): (315) 229-5471

EDUCATION

2005 – 2008	**IOWA STATE UNIVERSITY**	Ames, IA

Ph.D. in Statistics
Advisor: Max D. Morris, Ph.D.
Dissertation Title: Computationally efficient resource allocation for complex system reliability studies.

2003 - 2006	**IOWA STATE UNIVERSITY**	Ames, IA

M.S. in Statistics
Advisor: Philip M. Dixon, Ph.D.
Creative Component Title: A Comparison of Methods for Analyzing Binary Data From Cluster Randomization Trials

1999 - 2003	**TRUMAN STATE UNIVERSITY**	Kirksville, MO

B.S. in Mathematics, minors in Statistics and Computer Science, Cum Laude

RESEARCH AND TEACHING EXPERIENCE

2014 – Present	**ST. LAWRENCE UNIVERSITY**	Canton, NY

Associate Professor of Statistics; Grace J. Fippinger '48 Professor in the Sciences
- Courses: Stat 113: Applied Statistics; Stat 213: Applied Regression Analysis; Stat 325: Probability; Stat 326: Mathematical Statistics; Stat 450: An Introduction to Exploratory Data Analysis and Data Mining

2009 - 2014	**ST. LAWRENCE UNIVERSITY**	Canton, NY

Assistant Professor of Statistics
- Courses: Stat 113: Applied Statistics; Stat 213: Applied Regression Analysis; Stat 325: Probability; Stat 326: Mathematical Statistics; Stat 450: Senior Seminar on Bayesian Statistics; CS140: Introduction to Computer Programming

Fall 2008	**IOWA STATE UNIVERSITY**	Ames, IA

Research Assistant, Department of Statistics
- Conducted research on Resource Allocation for Complex System Reliability studies.
- Spent summer/fall 2006 and summer/fall 2007 as research assistant.

Spring 2008	**IOWA STATE UNIVERSITY**	Ames, IA

Teaching Assistant- Course Instructor, Department of Statistics
- Taught introductory Statistics course.
- Also taught in 2004-2005 and spring 2007.

Spring 2006	**IOWA STATE UNIVERSITY**	Ames, IA

Statistical Consultant, Agriculture Experiment Station
- Worked one-on-one explaining Statistical Methods to clients from different departments.
- Spent summer 2005 as an AES Consultant.

HONORS AND AWARDS

Grace J. Fippinger '48 Professorship in the Sciences
- The Grace J. Fippinger Professorship was established in 1998 through the generosity of Grace J. Fippinger '48 and her foundation, the Grace J. Fippinger Foundation, along with a major grant from the Pfizer Corporation, on whose board of directors Grace sat for many years. This fund honors Grace J. Fippinger '48 by encouraging the success of women in the sciences.

Iowa State University Teaching Excellence Award
- This award honors the top 10% of graduate students at Iowa State University whose teaching, as evaluated by their academic departments, is outstanding.

PAPERS (* indicates post-tenure)

8. *Rosales, J. and **Chapman, J.L.** (2015). "Perceptions of Obvious and Disruptive Climate Change: Community-based Risk Assessment in Two Native Villages in Alaska." *Climate* (Climate Risk Assessment and Management Special Issue), 3, 812-832; doi:10.3390/cli3040812.

7. ***Chapman, J.L.**, Lu, L., and Anderson-Cook, C.M. (2015). "Impact of Response Variability on Pareto Front Optimization." *Statistical Analysis and Data Mining* (CODA Special Issue), 8, 314-328.

6. ***Chapman, J.L.**, Lu, L., and Anderson-Cook, C.M. (2014). "Incorporating Response Variability and Estimation Uncertainty into Pareto Front Optimization." *Computers and Industrial Engineering*, 76: 253-267.

5. **Chapman, J.L.**, Lu, L., and Anderson-Cook, C.M. (2014). "Process Optimization for Multiple Responses Utilizing the Pareto Front Approach." *Quality Engineering*, 26(3), 253-268.

4. Lu, L., **Chapman, J.L.**, and Anderson-Cook, C.M. (2013). "A Case Study on Selecting a Best Allocation of New Data for Improving the Estimation Precision of System and Subsystem Reliability Using Pareto Fronts." *Technometrics* (CODA Special Issue), 55(4), 473-487.

3. **Chapman, J.L.** (2013). "A Matrix Representation of System Structure with Application to Computational Reliability Assessments." *Quality Engineering*, 25(4), 418-436.

2. **Chapman, J.L.**, Morris, M.D., and Anderson-Cook, C.M. (2012). "Computationally Efficient Comparison of Experimental Designs for System Reliability Studies with Binomial Data." *Technometrics*, 54(4), 410 – 424.

1. Ramler, I.P. and **Chapman, J.L.** (2011) "Introducing Statistical Research to Undergraduate Mathematical Statistics Students using the Guitar Hero Video Game Series." *Journal of Statistics Education*, 19(3).

PAPERS IN PROGRESS

1. Lu, L., **Chapman, J.L.**, and Anderson-Cook, C.M. "Multiple Response Optimization for Higher Dimensions in Factors and Responses." Submitted to *Applied Stochastic Models in Business and Industry* for a special issue for the Quality and Productivity Research Conference (QPRC) on August 3, 2015.

FUNDING

1. Principal Investigator. *The Liberal Arts Science Scholars Program: Providing Scholarships and Support to Increase Diversity in the Next Generation of Scientists* (Award 1458712). **National Science Foundation**. Award amount $618,524. Duration: April, 1 2015 – March 31, 2020. (Co-PIs: Jeff Chiarenzelli, Adam Hill, Judith Nagel-Myers, and Ivan Ramler.)

ORAL PRESENTATIONS

5. "Strategic Data Collection for Improved Estimation of Complex System Reliability." Invited Session at the Quality and Productivity Research Conference (QPRC), June 2013.
4. "Identifying the Origin of Driftwood Found in Native Alaskan Villages." Statistical Sciences Seminar Series at the Los Alamos National Laboratory, March 2013. With Jon Rosales and Alexander Stewart.
3. "The Role of Statistics in Science and Everyday Life: A First-Year Seminar." Joint Statistical Meetings (JSM), August 2010.
2. "Computationally Efficient Resource Allocation for Complex System Reliability Studies." Joint Statistical Meetings (JSM), August 2008. With Max D. Morris and Christine M. Anderson-Cook.
1. "Comparing Competing Resource Allocation Strategies Using Entropy and "Strategic Binning" for Reliability of Complex Systems." Los Alamos National Laboratory Seminar, August 2007.

POSTER PRESENTATIONS (* indicates a student)

7. "If a Tree Falls into a River, Can We Identify Where It Came From? A Simulation Study on Identifying the Origin of Driftwood." Joint Statistical Meetings (JSM), August 2014.
6. "Advice for Using Faculty Connections to Create Research Opportunities for Undergraduates." International Conference on Teaching Statistics (ICOTS), July 2014. With Ivan Ramler.
5. "Pareto Front Optimization for Multiple Process or Product Responses in the Presence of Model Estimation Uncertainty." Joint Statistical Meetings (JSM), August 2013. With Lu Lu and Christine M. Anderson-Cook.
4. "Analysis of Driftwood from Alaskan Villages." Joint Statistical Meetings (JSM), August 2012. With Emma Kearney*, Jon Rosales, and Alexander Stewart.
3. "Using Video Games to Introduce Statistical Research in Undergraduate Statistics Courses." US Conference on Teaching Statistics (USCOTS), May 2011. With Ivan Ramler.
2. "An Efficient Approach for Finding Optimal Resource Allocations in a Missile Reliability Study." Joint Statistical Meetings (JSM), August 2009. With Max D. Morris and Christine M. Anderson-Cook.
1. "Computationally Efficient Resource Allocation for Complex System Reliability Studies." "MCMSki": Markov Chain Monte Carlo in Theory and Practice, January 2008. With Max D. Morris and Christine M. Anderson-Cook.

BOOK REVIEWS (* Indicates post-tenure)

14. *Review of "Statistics for the Life Sciences (4th ed.)" by Myra L. Samuels, Jeffrey A. Witmer, and Andrew Schaffner. *The American Statistician*. 69(2). May 2015.
13. *Review of "Probability and Statistics for Computer Scientists (2nd ed.)" by Michael Baron. *The American Statistician*. 69(1). February 2015.
12. *Review of "JMP Start Statistics: A Guide to Statistics and Data Analysis Using JMP (5th ed.)" by John Sall, Ann Lehman, Mia Stephens, and Lee Creighton. 68(4). November 2014.
11. Review of "Simulation (5th ed.)" by Sheldon M. Ross. *Journal of the American Statistical Association*. 108(504). December 2013.
10. Review of "Statistics: Informed Decisions Using Data (4th ed.)" by Michael Sullivan III. *The American Statistician*. 67(3). August 2013.
9. Review of "Statistical Concepts: A Second Course (4th ed.)" by Richard G. Lomax and Debbie L. Hahs-Vaughn. *The American Statistician.* 67(1). February 2013.
8. Review of "Understanding Probability (3rd ed.)" by Henk Tijms. *The American Statistician.* 67(1). February 2013.
7. Review of "Introduction to Mathematical Statistics (7th ed.)" by Robert V. Hogg, Joseph W. McKean, and Allen T. Craig. *Journal of the American Statistical Association*. 107(499). September 2012.

6. Review of "A First Course in Statistics (11th ed.)" by James McClave and Terry Sincich. *The American Statistician*. 66(3). August 2012.
5. Review of "Handbook of Parametric and Nonparametric Statistical Procedures (5th ed.)" by David J. Sheskin. *Journal of the American Statistical Association*. 107(498). June 2012.
4. Review of "Elementary Statistics (8th ed.)" by Neil A. Weiss. *The American Statistician*. 65(4). November 2011.
3. Review of "STATS: Data and Models (3rd ed.)" by Richard D. DeVeaux, Paul F. Velleman, and David, E. Bock. *The American Statistician*. 65(4). November 2011.
2. Review of "Introductory Statistics (9th ed.)" by Neil A. Weiss. *The American Statistician*. 65(4). November 2011.
1. Review of "Elementary Statistics: Picturing the World (4th ed.)" by Ron Larson and Elizabeth Farber. *The American Statistician*. 62(4). November 2008.

OTHER EXPERIENCE

2012   Wrote the computerized test bank for "Statistics: Unlocking the Power of Data" by Lock et al. (Wiley)
2005   Reviewed the draft of an introductory Statistics textbook for Brooks/Cole – Duxbury Press.

SUMMER RESEARCH STUDENTS

1. Katherine Abramski (2013 SLU Fellowship): *Improving the Statistical Method for Classifying Geomagnetic Storms.*

INDEPENDENT and HONORS SENIOR YEAR EXPERIENCE (SYE) STUDENTS (* represents Honors)

11. Colleen Bradley* (2015). *Studying the Effects of Sleep on Mental Health Using Mixed Effects Modeling*.
10. Katherine Abramski* (2014). *Improving the Statistical Method for Classifying Geomagnetic Storms.*
9. Devyn LaFrance (2014). *Using Cluster Analysis to Identify Groups in Cancer Gene Expression Data.*
8. Daniel Mulcahey* (2014). *Identifying Similarly Performing Mutual Funds Using Cluster Analysis.*
7. Nassir Abou Ziki* (2012). *A Bayesian Approach for Assessing the Performance of a Biometric Authentication Device.*
6. Emma Kearney* (2012). *The Future of Driftwood as a Subsistence Resource in Shaktoolik and Savoonga, Alaska: A Statistical Analysis of a Translocal Phenomenon.*
5. Maryn Manning* (2012). *Is Your Country Better than the Rest? Using Bayesian Statistics to Model the Top 100 Ranked Countries and Explore the Issue of Multicollinearity.*
4. Robert Romeo* (2012). *The Effect of Pressure on NFL Field Goal Kickers.*
3. Ryan Meyer (2011). *An Analysis of Bayesian Reliability.*
2. Hau Nguyen* (2011). *Bayesian vs. Frequentist Approaches to Modeling Seal Populations.*
1. Catherine Lane* (2010). *Comparing Methods of Analyzing Binary Data from Cluster Randomization Trials.*

UNIVERSITY AND DEPARTMENTAL SERVICE

- Staffing Committee (August 2015)
- Faculty Council, Secretary (Fall 2014 – Spring 2015)
- Salary and Benefits Committee (Co-Chair, Fall 2013 – Spring 2015)
- Search Committee for Tenure Track position in Chemistry (Fall 2014)
- Scholarships, Fellowships, and Grants Committee (Fall 2013 – Spring 2014)
- Search Committee for Visiting Position for Psychology (Spring 2014)
- Actuary Study Group (Fall 2013)

- Q-Club Co-Adviser (Fall 2013 – Spring 2014; Fall 2011 – Spring 2012)
- Accompanied Students to Visit the Los Alamos National Laboratory (Summer 2013; Summer 2012)
- HEOP Summer Math 110 Course (Summer 2012)
- Educational Technologies Committee (Fall 2011 – Spring 2012; Fall 2010 – Spring 2011; Spring 2010)
- Student Life Committee (Spring 2012)
- Selection Committee for Denmark Study Abroad Program (Fall 2011 – Spring 2012)
- Alpha Phi Omega, Faculty Adviser (Fall 2010 – Spring 2012)
  - Helped students organize St. Lawrence's first Relay for Life event, which raised over $12,000 for the American Cancer Society
- Search Committee for Visiting Position for Psychology Lab Coordinator (Spring 2011)
- Taught Sample Course for Admitted Students (Spring 2012; Spring 2011)
- Accompanied Students to the Hudson River Undergraduate Mathematics Conference (Spring 2013; Spring 2012; Spring 2011; Spring 2010)
  - Chaired two sessions at 2011 HRUMC
- Attended Writing Assessment Workshop (June 2011)
- Presentation at Winter Institute (January 2011)
- Co-taught Talented Juniors Course with R. Lock, M. Schuckers, and I. Ramler (Fall 2010)

PROFESSIONAL SERVICE

- Associate Editor for Reviews (*JASA/TAS*), January 2011 – Present
- Session Organizer and Chair (Invited Session for the Section on Statistical Education: Session #575 - "Expanding the Statistics Curriculum: Exciting Electives for Modern Undergraduates"), Joint Statistical Meetings, August 2015
- Session Chair, Joint Statistical Meetings, August 2014
- Senior Associate Editor for Reviews (*Journal of the American Statistical Association* and *The American Statistician*), August 2012 – December 2013
- Session Chair, Joint Statistical Meetings, August 2010
- AP Statistics Reading (2006; 2009; 2010)
- Peer reviewed journal articles for *Quality Engineering*, *Journal of Statistics Education*, *The American Statistician*, and *Applied Stochastic Models in Business and Industry*.

PROFESSIONAL MEMBERSHIPS

American Statistical Association, ASA Sections on Statistical Education and Learning and Data Mining