

## Elizabeth Brondos Fry, PhD

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### Education

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- University of Minnesota, Twin Cities  
Ph.D. in Educational Psychology 2017  
(Quantitative Methods in Education program; Statistics Education track)  
Advisors: Dr. Robert delMas and Dr. Andrew Zieffler
- The Ohio State University, Columbus, Ohio  
M.S. in Statistics 2009  
Graduate Interdisciplinary Specialization in College  
and University Teaching  
Advisor: Dr. Elizabeth Stasny
- Valparaiso University, Valparaiso, Indiana  
B.S. in Mathematics *summa cum laude* 2006  
B.A. in French *summa cum laude*  
Christ College Scholar (Interdisciplinary Honors Program)  
Phi Beta Kappa

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### Experience

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- Center for Creative Leadership, Greensboro, NC  
*Evaluation Associate (remote)* 2022-present
- Support program evaluation for leadership development across the social sector.
  - Lead evaluation of higher education leadership development initiatives.
- St. Catherine University, St. Paul, MN  
Department of Mathematics, Data Science and Statistics  
*Assistant Professor* 2019-2022

#### Courses taught:

- STAT 1090: Statistical Analysis
- Introductory statistics course for undergraduate students in a wide variety of fields of study.
- STAT 3090: Statistical Computing
- Statistical learning course intended for undergraduate statistics minors.
- STAT 2080: Statistical Modeling
- Regression and ANOVA course intended for undergraduate statistics minors.

DSCI 1000: Data Visualization

- Introduction to Data Visualization course for undergraduate students, using service-learning in conjunction with [Mapping Prejudice/Welcoming the Dear Neighbor?](#)

DSCI 3200W: Analyzing Social Issues with Data

- Writing-intensive course where students learn data wrangling and data visualization, with applications to social issues

STAT 4994: Topics Course: *Data Science with R*

- Data visualization and data wrangling for Data Science majors, using R/RStudio.

STAT 2994: Topics Course: *Intermediate Statistical Investigations*

- Intermediate statistical methods course intended for statistics minors, with focus on the statistical investigative process and multivariable thinking.

University of Minnesota, Twin Cities

Department of Educational Psychology

*Lecturer (Full-time faculty)*

2017-2019

*Teaching Specialist (Full-time faculty)*

2015-2017

*Graduate Instructor*

2012-2015

Courses taught:

EPSY 5262: Intermediate Statistical Methods

- Intermediate statistics course (focusing on multiple regression and ANOVA) designed for master's level graduate students. Taught the course both online and in person.

EPSY 5271: Becoming a Teacher of Statistics

- Course intended to prepare excellent teachers of statistics who are well-versed in the current practice, issues, and challenges of statistics education.

EPSY 5261: Introductory Statistical Methods

- Introductory statistics course designed for master's level graduate students and upper level undergraduate students, which uses both simulation-based and parametric methods.
- Taught the course face-to-face and online.

EPSY 3264: Basic and Applied Statistics

- Introductory statistics course for undergraduate liberal arts students, which uses simulation-based methods to teach inference (CATALST; Change Agents in Teaching and Learning Statistics curriculum developed at the University of Minnesota).

*Graduate Teaching Assistant* Summer 2014

EPSY 5261: Introductory Statistical Methods

- Monitored discussion boards, held office hours and graded assignments for an online introductory statistics course.

Saint Mary's University of Minnesota, Minneapolis, Minnesota Summer 2012

*Adjunct Instructor*

PY 620: Statistical Techniques and Research Methods

- Taught introductory statistics for graduate students in psychology programs.

Columbus State Community College, Columbus, Ohio 2010-2011

*Adjunct Instructor and Tutor*

Math 135: Elementary Statistics

- Taught two sections of introductory statistics per quarter, which included giving lectures, leading labs and activities, writing assessments, and grading.
- Tutored statistics and calculus 10-20 hours per week.

The Ohio State University, Columbus, Ohio 2009-2010

*Graduate Teaching Assistant*

Stat 133: Statistics for the Business Sciences

Stat 145: Introduction to the Practice of Statistics

- Led recitation/lab sections, graded papers, and tutored two hours per week.

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### **Professional Development**

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St. Catherine University, St. Paul, MN

Foundations of Online Course Design course (8 weeks) 2020

University of Minnesota, Twin Cities

TREKS Instructional Technology Program 2018-2019

Preparing Future Faculty Program 2012-2014

Advanced Placement Statistics Reading, Kansas City, Missouri

*Reader*

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### Grants Received

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Academic Professional Development Committee grant (St. Catherine University) to develop community-engaged learning-based Data Visualization course, fall 2020.

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### Research Experience

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University of Minnesota, Twin Cities

Department of Educational Psychology

*Graduate Research Assistant*

2011-2014

- Assisted in the e-ATLAS (Evaluation and Assessment of Teaching and Learning About Statistics) project, which involved developing and administering assessments of teaching practice and beliefs, and student learning outcomes.

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### Publications

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Legacy, C., Zieffler, A., **Fry, E.** & Le, L. (2022). COMPUTES: Development of an Instrument to Measure Introductory Statistics Instructors' Emphasis on Computational Practices. *Statistics Education Research Journal*, 21(1).

Justice, N., Morris, S., Henry, V., & **Fry, E.** (2020). Paint-by-number or Picasso? A grounded theory phenomenographical study of students' conceptions of statistics. *Statistics Education Research Journal*, 19(2), 76-102.

Justice, N., Le, L., Sabbag, A., **Fry, E.**, Ziegler, L., & Garfield, J. (2020). CATALST: A Story of Change. *Journal of Statistics and Data Science Education*, 28 (2), 175-186. Taylor & Francis.

Fry, E. (2018.) Students' conceptual understanding of the relationship between study design and conclusions in an introductory statistics course. In Sorto, M. (Ed.), *Proceedings of the Tenth International Conference on Teaching Statistics*. Kyoto, Japan.

Garfield, J., Zieffler, A., & **Fry, E.** (2018). What is statistics education? In D. Ben-Zvi, K. Makar, & J. Garfield (Eds.), *International Handbook of Research in Statistics Education* (pp. 37-70). Cham, Switzerland: Springer International Publishing.

Zieffler, A. and **Fry, E.** (Eds.). (2015). Reasoning about uncertainty: Learning and teaching Informal Inferential Reasoning. Minneapolis, MN: Catalyst Press.

Fry, E. (2014). Introductory statistics instructors' practices and beliefs regarding technology and pedagogy. In Makar, K. (Ed.), *Proceedings of the Ninth International Conference on Teaching Statistics*. Flagstaff, AZ.

Parker, N., **Fry, E.**, Garfield, J., & Zieffler, A. (2014). Graduate teaching assistants' beliefs, practices, and preparation for teaching introductory statistics. In Makar, K. (Ed.), *Proceedings of the Ninth International Conference on Teaching Statistics*. Flagstaff, AZ.

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### Presentations

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**Fry, E.** (2021, August.) *Integrating Community-Engaged Work into the Data Science Curriculum*. Paper presented at the virtual International Association for Statistical Education Satellite Conference.

**Fry, E.** (2021, October.) *Engaging Students in Community-Based Learning*. Speed session presented at the virtual Women in Statistics and Data Science Conference.

**Fry, E.** & Le, L. (2021, May.) *Intentional Community-Building throughout the Entire Course*. Breakout session presented at the U.S. Conference for Teaching Statistics.

**Fry, E.**, Legacy, C., Zieffler, A., & Le, L. (2020, October.) *The State of Computing in Introductory Statistics*. Poster presented at the virtual Women in Statistics and Data Science Conference.

Fry, E. (2018, July.) *Students' conceptual understanding of the relationship between study design and conclusions in an introductory statistics course*. Invited paper presented at the Tenth International Conference of Teaching Statistics, Kyoto, Japan.

Fry, E. (2017, August.) *Introductory statistics students' conceptual understanding of study design and conclusions*. Contributed paper presented at the Joint Statistical Meetings, Baltimore, MD.

Fry, E. (2017, May.) *Introductory statistics students' conceptual understanding of study design and conclusions*. Poster presented at the United States Conference on Teaching Statistics, State College, PA.

Ziegler, L., **Fry, E.**, Beckman, M., Sabbag, A. & Brown, E. (2015, August.) *The quest for good assessments for research and evaluation*. Panel presentation at the Joint Statistical Meetings, Seattle, WA.

**Fry, E.** and Garfield, J. (2015, January.) *What do we know about best practices in teaching the introductory course?* Contributed paper presented at the Joint Mathematics Meetings, San Antonio, TX.

Garfield, J. delMas, R., Zieffler, A., & **Fry, E.** (2015, January.) e-ATLAS: Evaluation and Assessment of Teaching and Learning About Statistics. Poster presented at the Joint Mathematics Meetings, San Antonio, TX.

Fry, E. (2014, July.) *Introductory statistics instructors' practices and beliefs regarding technology and pedagogy.* Contributed paper presented at the Ninth International Conference on Teaching Statistics, Flagstaff, AZ.

Parker, N., **Fry, E.**, Garfield, J. & Zieffler, A. (2014, March.) *Graduate Teaching Assistants' beliefs, practices and preparation for teaching introductory statistics.* Poster presented at the Graduate Student Research Day, University of Minnesota, Minneapolis, MN.

Ziegler, L., & **Fry, E.** (2014, February). *Battle of the RANDS.* Presentation given at Stat Chat, Macalester College, St. Paul, MN.

delMas, R., **Fry, E.**, Le, L., and Sabbag, A. (2013, May). *Evaluating the Impact of Change in Curriculum and Teaching.* Breakout session presented at the United States Conference on Teaching Statistics, Cary, NC.

**Fry, E.** and Isaak, R. (2013, March). *Evaluating Innovative Courses in Introductory Statistics: Resources from the eATLAS Project.* Webinar presented at <http://www.causeweb.org>.

Garfield, J., delMas, R., Zieffler, A., Pearl, D., and **Fry, E.** (2013, January). *e-ATLAS (updated): Evaluation and Assessment of Teaching and Learning About Statistics.* Poster presented at the Joint Mathematics Meetings, San Diego, CA.

**Fry, E.**, Ziegler, L., Garfield, J., delMas, R., Zieffler, A., Rossman, A., Chance, B., Holcomb, J., Cobb, G., Everson, M., & Le, L. (2013, January). *A flavor of the CATALST Course: Using randomization-based methods in an introductory statistics course.* Invited panel presentation at The Joint Mathematics Meetings, San Diego, CA.

Garfield, J., delMas, R., Zieffler, A., Pearl, D., and **Fry, E.** (2012, January). *e-ATLAS: Evaluation and Assessment of Teaching and Learning About Statistics.* Poster presented at the Joint Mathematics Meetings, Boston, MA.

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### Honors/Awards

University of Minnesota Doctoral Student **Nominee for the Midwestern Association of Graduate Schools Excellence in Teaching Award** (2017)

**Graduate Student Teaching Award**, Department of Educational Psychology, University of Minnesota (2015)

**Susan L. Huntington Distinguished University Fellowship** for graduate studies at The Ohio State University (2007-2009)

**Dean’s Graduate Enrichment Fellowship** for graduate studies at The Ohio State University (2007)

**Lubrizol Award** for graduate studies in statistics (2007)

**Phi Beta Kappa** academic honor society (2006)

**Pi Delta Phi**, national college honor society for students of French (2005-2006)

**Harold and Elizabeth Denig Award**, mathematics endowed scholarship (2006)

**Nancy Wehmeier Nagel and Robert B. Nagel Award**, mathematics award (2005)

**Christ College Diversity Award**, full tuition scholarship (2002-2006)

Valparaiso University **Dean’s List** (2002-2006)

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**Professional Memberships**

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International Association for Statistics Education (IASE)	2018-2019
American Statistical Association (ASA) – section on Statistics Education	2011-present
Caucus for Women in Statistics	2022-present

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**Service**

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Member of Data Science Advisory Group St. Catherine University	2020-2022
Faculty Advisor for Color of STEM; Yarn Arts student organizations St. Catherine University	2020-2022
Mentor for Student Diversity Group, Department of Educational Psychology, University of Minnesota	2019
Poster convenor for <i>International Conference on Teaching Statistics</i>	2018
Educational Psychology Department Diversity Committee, University of Minnesota	2017-2019
Reviewer: <i>Statistics Education Research Journal</i> (SERJ)	2017-present
Reviewer: <i>Journal of Statistics and Data Science Education</i> (JSDSE)	2016-present
Reviewer: <i>Technology Innovations in Statistics Education</i> (TISE)	2013-present
Writer of <i>Teaching Bits: Statistics Education Articles</i> column Appeared periodically in the <i>Journal of Statistics Education</i> (JSE)	2013-2016
Statistics Education Wiki Group Participated in a group contributing to the Wikipedia entry of Statistics Education in order to improve awareness and basic understanding of the field.	2013-2015

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**Additional Professional Experience**

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- Disability Access Assistant for Dr. Joan Garfield* 2012-2015
- Assisted in the planning and coordination of the 2013 Statistical Reasoning, Thinking and Literacy (SRTL) research forum in Two Harbors, Minnesota.
  - Assisted Dr. Garfield in preparing teaching and research materials, such as proofreading and organizing references.
- John Wiley and Sons  
*Textbook Reviewer* 2013
- The Ohio State University Student Athlete Support Services Office  
*Tutor* 2010-2011
- Tutored student athletes taking pre-calculus, calculus, introductory statistics, and mathematical statistics courses.
- The Ohio State University, Columbus, Ohio  
Summer Bridge Program  
*Course Co-facilitator* 2010
- Co-led three-week interactive course about statistics for incoming first-year students.
- Lutheran Volunteer Corps, Chicago, Illinois  
*Youth Director* 2006-2007