

Curriculum Vitae
Laura Ziegler

Department of Statistics
3409 Snedecor Hall
Iowa State University
Ames, IA 50010
Phone: 402-658-0437
Email: lziegler@iastate.edu

EDUCATION

Ph.D. (2014), Educational Psychology, Quantitative Methods in Education track, concentration in Statistics Education, University of Minnesota
Dissertation: *Reconceptualizing Statistical Literacy: Developing an Assessment for the Modern Introductory Statistics Course*
Advisor: Dr. Joan Garfield

M.S. (2006), Statistics, University of Nebraska-Lincoln
Thesis: *Investigation Into the Hidden Structure of Folk Music: The Jig is Up!*
Advisor: Dr. Stephen Kachman

B.S. (2004), Mathematics and Computer Science, Wayne State College-Wayne, Nebraska

TEACHING EXPERIENCE

Teaching Professor, Iowa State University, Department of Statistics, 2022-present

Associate Teaching Professor, Iowa State University, Department of Statistics, 2020-2022

Assistant Teaching Professor, Iowa State University, Department of Statistics, 2019-2020

Lecturer, Iowa State University, Department of Statistics, 2014-2019

Courses Taught:

Principles of Statistics (STAT 101; fall 2014, spring 2015), Introduction to Statistics (STAT 104; fall 2015, spring 2016, fall 2016, spring 2017, fall 2017, spring 2018, fall 2018, spring 2019, fall 2019, spring 2020, fall 2020, spring 2021, fall 2021, spring 2022), Intermediate Statistical Concepts and Methods (STAT 301; spring 2017, fall 2017, fall 2018, fall 2019, fall 2020, fall 2021), Statistical Methods for Researchers (STAT 401; fall 2014, spring 2016), Regression in Social and Behavioral Research (STAT 482/582; spring 2015, fall 2015, spring 2016, fall 2016, spring 2017, spring 2018, spring 2019, spring 2020, spring 2022), and HON 322 (spring 2021)

Courses Coordinated:

Principles of Statistics (STAT 101; spring 2015) and Introduction to Statistics (STAT 104; fall 2015, spring 2016, fall 2016, spring 2017, fall 2017, spring 2018, fall 2018, spring 2019, fall 2019, spring 2020, fall 2020, spring 2021, fall 2021, spring 2022)

Graduate Teaching Assistant, University of Minnesota, Department of Educational Psychology, 2010-2014

Courses taught:

Basic and Applied Statistics (EPSY 3264), and Introductory Statistical Methods (EPSY 5261)

Courses assisted:

Survey Design, Sampling, and Implementation (EPSY 5244), and Statistical Methods II: Regression and the General Linear Model (EPSY 8262)

Instructor, St. Cloud State University, Department of Statistics and Computer Networking, 2006-2010

Courses taught:

Statistics for the Social Sciences (STAT 219), Statistics for the Physical Sciences (STAT 229), Senior Project (STAT 480), Regression and Analysis of Variance I (STAT 321), Nonparametric Statistics (STAT 433/533), Statistical Thinking (STAT 193), Biometrics (STAT 319), and Statistics for Engineers (STAT 353)

Students Supervised:

Graduate assistants and undergraduate learning assistants for introductory statistics course (Statistical Thinking; STAT 193), 2008-2010
Graduate research assistant, 2010

Graduate Teaching Assistant, University of Nebraska-Lincoln, Department of Statistics, 2004-2006

Courses taught:

Introduction to Statistics (STAT 218)

CURRICULUM DEVELOPMENT

Iowa State University:

Developed an online course for an undergraduate level introductory statistics course (Introduction to Statistics; STAT 104). Video lectures were recorded and labs were converted to be synchronous virtual labs. 2020

Converted lecture notes into a course packet to encourage cooperative learning in an undergraduate level introductory statistics course (Introduction to Statistics; STAT 104). 2019-2020

Redesigned an undergraduate level introductory statistics course (Introduction to Statistics; STAT 104) by developing a randomization-based and traditional statistical methods curriculum. 2016-2017

University of Minnesota:

Redesigned a graduate level introductory statistics course (Introductory Statistical Methods, 5261) by co-developing a randomization-based and traditional statistical methods curriculum that utilizes cooperative learning. 2012-2013

Graduate Research Assistant for the CATALST project: Assisted in redesign of an undergraduate level introductory statistics course (Basic and Applied Statistics; EPSY 3264) for the Change Agents for Teaching and Learning Statistics (CATALST) Project (NSF DUE-0814433) with delMas, R., Garfield, J., Zieffler, A., Le, L., Isaak, R. by helping write a cooperative curriculum incorporating only randomization-based methods. 2010-2012

St. Cloud State University:

Redesigned an undergraduate level introductory statistics course (Statistical Thinking; STAT 193) by incorporating group activities led by learning assistants. 2008-2009

ADDITIONAL PROFESSIONAL EXPERIENCE

Question Leader, Advanced Placement Statistics Reading, 2021-2022

Rubric Team Member, Advanced Placement Statistics Reading, 2014, 2020

Table Leader, Advanced Placement Statistics Reading, 2013-2014, 2016, 2018-2019

Reader, Advanced Placement Statistics Reading, 2006-2012

AWARDS

Best ICOTS9 paper by an Early Career scholar, awarded by the *International Association for Statistical Education (IASE)*, 2014

Lesson Plan Competition Award, presented for the “How Random is the iPod’s Shuffle?” lesson plan, awarded to Garfield, J. & Ziegler, L. by the *Statistics Education Web (STEW)*, 2014

The Peter Holmes Prize, best classroom idea published in *Teaching Statistics*, 2013

PUBLICATIONS, REFEREED

Peterson, A., & **Ziegler**, L. (2021). Building your multiple regression model with Lego bricks. *Journal of Statistics and Data Science Education*, 29(3), 297-303. doi: 10.1080/26939169.2021.1946450

Justice, N., Le, L., Sabbag, A., Fry, E., **Ziegler**, L., & Garfield, J. (2020). The CATALST curriculum: A story of Change. *Journal of Statistics Education*, 28(2), 175-186. doi: 10.1080/10691898.2020.1787115

Ziegler, L., & Garfield, J. (2018). Developing a statistical literacy assessment for the modern introductory statistics course. *Statistics Education Research Journal*, 17(2), 161-178. doi: 10.52041/serj.v17i2.164

Stanhope, L., **Ziegler**, L., Haque, T., Le, L., Vines, M., Davis, G. K., Zieffler, A., Brodfuehrer, P., Preest, M., Belisky, J., Umbanhowar Jr., C., & Overvoorde, P. J. (2017). Development of a biological science quantitative reasoning exam (BioSQuaRE). *CBE-Life Sciences Education*, 16(4). doi: 10.1187/cbe.16-10-0301

Ziegler, L., & Garfield, J. (2013). Exploring students' intuitive ideas of randomness using an iPod shuffle activity. *Teaching Statistics*, 35(1), 2-7. doi: 10.1111_j.1467-9639.2012.00531

PRESENTATIONS, INVITED

Foti, S., Loy, A., Le, L., Whitaker, D., & **Ziegler**, L. (2021, June). *Online/hybrid teaching in statistics and data science: Lessons for the future from a year of COVID teaching*. Invited Web panel presentation for the Symposium on Data Science and Statistics, Virtual Meeting.

Ziegler, L. (2014, July). *Reconceptualizing statistical literacy: Developing an assessment for the modern introductory statistics course*. Invited paper presented at the International Conference on Teaching Statistics, Flagstaff, AZ.

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., **Le, L.**, Isaak, R. & **Ziegler**, L. (2012, January). *Change agents for teaching and learning statistics: The catalyst cooks come to Harvard*. Invited presentation at Harvard University, Cambridge, MA.

Ziegler, L., Zieffler, A., Garfield, J., delMas, R., Rossman, A., Chance, B., Holcomb, J., Cobb, G., Isaak, R., & Le, L. (2011, August). *CART in CATALST*. Invited panel presentation at the Joint Statistical Meetings, Miami, FL.

delMas, R., Garfield, J., Zieffler, A., Le, L., Isaak, R., & **Ziegler**, L. (2011, February). *A different flavor of introductory statistics: Teaching students to really cook*. Invited presentation at Stat Chat, Macalester College, St. Paul, MN.

PRESENTATIONS, CONTRIBUTED (previously presented as L. Sather)

Ziegler, L. (2022, August). *The role of context in developing statistics assessment items*. Contributed paper presentation at the Joint Statistical Meetings, Washington, D.C.

Genschel, U., & **Ziegler**, L. (2021, June). *Zombie statistics: The coming apocalypse and how to avoid it*. Web breakout session presentation at the United States Conference on Teaching Statistics, Virtual Meeting.

Ziegler, L., Peterson, A., Kasper, K., & Genschel, U. (2019, May). *Preparing graduate student instructors to use cooperative learning activities in the classroom*. Breakout session presented at the United States Conference on Teaching Statistics, State College, PA.

Ziegler, L. (2017, August). *Graduate students teaching simulation-based inference*. Contributed paper presentation at the Joint Statistical Meetings, Baltimore, MD.

Overvoorde, P., Stanhope, L., **Ziegler**, L., Haque, T., Le, L., Vines, M., Davis, G. K., Zieffler, A., Brodfuehrer, P., Preest, M., Belisky, J., & Umbanhowe, C., Jr. (2017, May). *Development of a biological science quantitative reasoning exam (BioSQuaRE)*. Poster presented at the Making Meaning Through Modeling: Problem Solving in Biology Workshop, East Lansing, MI.

Ziegler, L., & Peterson, A. (2017, May). *Building your multiple regression model with bricks*. Poster presented at the United States Conference on Teaching Statistics, State College, PA.

Le, L., **Ziegler**, L., & Zieffler, A. (2014, March). *Developing a quantitative skills assessment for incoming biology students*. Poster presented at the Graduate Student Research Day, University of Minnesota, Minneapolis, MN.

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

Garfield, J., delMas, R., Zieffler, A., Rossman, A., Chance, B., Holcomb, J., Cobb, G., Le, L., Isaak, R., Park, J., & **Ziegler**, L. (2011, January). *A different flavor of introductory statistics: Teaching students to really cook*. Poster presented at The Joint Mathematics Meetings, New Orleans, LA.

Le, L., Isaak, R., & **Ziegler**, L. (2011, May). *Using TinkerPlots for teaching bootstraps and randomizations*. Demonstration session at the United States Conference on Teaching Statistics, Raleigh, NC.

Krystyniak, B., Dvorak, M., Goerdts, S., & **Sather**, L. (2010, February). *Utilizing Undergraduate Learning Assistants (LAs) in STEM Courses*. Presentation at The Realizing Students Potential/ITeach: Communities in Higher Education Conference, Minneapolis, MN.

Goerdts, S., Johnson, S., Naraine, B., **Sather**, L., Krystyniak, B., & Dvorak, M. (2010, January). *Learning Assistants: Supporting Student Learning in Large Sections of Chemistry, Mathematics and Statistics Courses*. Presentation at The Center for Excellence in Teaching and Learning Workshops, St Cloud State University, MN.

Sather, L. (2009, February). *Course Redesign for Statistical Thinking*. Poster presented at The Realizing Students Potential/ITeach: Communities in Higher Education Conference, Minneapolis, MN.

PRESENTATIONS OF MY COLLABORATIVE WORK PRESENTED BY COLLABORATORS, INVITED (presenters in bold)

Isaak, R., Garfield, J., delMas, R., Zieffler, A., Rossman, A., Chance, B., Holcomb, J., Cobb, G., Everson, M., Ziegler, L., & Le, L. (2011, August). *The course as a textbook*. Invited paper presented at the Joint Statistical Meetings, Miami, FL.

Zieffler, A., Garfield, J., delMas, R., Rossman, A., Chance, B., Holcomb, J., Cobb, G., Isaak, R., Le, L., & Ziegler, L. (2011, April). *It takes a village to effect change: The CATALST course teaching experiment*. Invited presentation made at the National Council of Teachers of Mathematics Research Presession, Indianapolis, IN.

delMas, R., Garfield, J., Zieffler, A., Le, L., Isaak, R., & Ziegler, L. (2011, March). *A different flavor of introductory statistics: Teaching students to really cook*. Invited presentation to the Center for Statistical Information, Rikkyo University, Tokyo, Japan.

delMas, R., Garfield, J., Zieffler, A., Le, L., Isaak, R., & Ziegler, L. (2011, February). *A different flavor of introductory statistics: Teaching students to really cook*. Invited presentation at the Fariborz Maseeh Department of Mathematics and Statistics, Portland State University, Portland, OR.

delMas, R., Garfield, J., Zieffler, A., Le, L., Isaak, R., & Ziegler, L. (2011, February). *A different flavor of introductory statistics: Teaching students to really cook*. Invited presentation at the Department of Statistics, Brigham Young University, Salt Lake City, UT.

delMas, R., Garfield, J., Zieffler, A., Le, L., Isaak, R., & Ziegler, L. (2011, January). *A different flavor of introductory statistics: Teaching students to really cook*. Invited presentation at the Centre for Methodology of Educational Research, Katholieke Universiteit Leuven, Belgium.

Garfield, J., delMas, R., Zieffler, A., Le, L., Isaak, R., & Ziegler, L. (2011, January). *A different flavor of introductory statistics: Teaching students to really cook*. Invited poster presented at the AAAS and NSF sponsored CCLI-TUES Principal Investigators' conference, Transforming Undergraduate Education in STEM: Making and Measuring Impacts, Washington, DC.

PRESENTATIONS OF MY COLLABORATIVE WORK PRESENTED BY COLLABORATORS, CONTRIBUTED (presenters in bold)

Maxwell, D., & Hulsizer, H. (2022, August). *Developing a learning map for introductory statistics*. Contributed paper presentation at the Joint Statistical Meetings, Washington, D.C.

Overvoorde, P., Belitsky, J., Brodfuehrer, P., Davis, G., Haque, T., Le, L., Preest, M., Stanhope, L., Umbanhowe, C., Jr., Vines, M., Zieffler, A., & Ziegler, L. (2016, April). *Lessons learned during the development of BioSQuaRE, an instrument to assess undergraduate biological quantitative skills*. Presentation at the HHMI Constellation Studios for Science Education, Chevy Chase, MD.

Vines, M., Stanhope, L., Belitsky, J., Brodfuehrer, P., Davis, G., Haque, T., Le, L., Overvoorde, P., Preest, M., Umbanhowe, C., Jr., Zieffler, A., & Ziegler, L. (2015, November). *Development of BioSQuaRE, an instrument, an instrument to assess undergraduate biological quantitative skills*. Poster presented at the Crossing Boundaries: Transforming STEM Education, Network for Academic Renewal STEM Conference, Seattle, WA.

Davis, G., Stanhope, L., Belitsky, J., Brodfuehrer, P., Haque, T., Le, L., McFadden, C., Overvoorde, P., Preest, M., Umbanhowe, C., Jr., Vines, M., Zieffler, A., & Ziegler, L. (2015, June). *Defining the quantitative skills of incoming biology students* Poster presented at the HHMI Constellation Studio A meeting, Chevy Chase, MD.

Belitsky, J., Vines, M., Darling, N., Brodfuehrer, P., Davis, G., Haque, T., Le, L., McFadden, C., Overvoorde, P., Preest, M., Stanhope, L., Umbanhowe, C., Jr., Zieffler, A., & Ziegler, L. (2015, May). *Assessing quantitative skills preparedness and learning*. Presentation at the Ohio Project Kaleidoscope Conference, Otterbein University, Westerville, OH.

Overvoorde, P., Belitsky, J., Brodfuehrer, P., Davis, G., Haque, T., Le, L., McFadden, C., Preest, M., Stanhope, L., Umbanhowe, C., Jr., Vines, M., Zieffler, A., & Ziegler, L. (2015, May). *Defining the quantitative and computational skills of incoming biology students*. Presentation at the Understanding Interventions Conference, San Diego, CA.

Overvoorde, P., Belitsky, J., Brodfuehrer, P., Davis, G., Haque, T., Le, L., McFadden, C., Preest, M., Stanhope, L., Umbanhowe, C., Jr., Vines, M., Zieffler, A., & Ziegler, L. (2015, February). *Past and future of BioSQuaRE as an instrument developed by the Q6 Consortium*. Presentation at the Quantitative Undergraduate Biology Education Summit, Raleigh, NC.

WORKSHOPS AND WEBINARS

Peterson, A., & **Ziegler, L.** (2022, April). *Building a multiple linear regression model with LEGO brick data*. Invited Web seminar for the Consortium for the Advancement of Undergraduate Statistics Education (CAUSE), The Ohio State University, Columbus, OH.

delMas, R., Le, L., & **Ziegler, L.** (2013, May). *How to implement the CATALST Curriculum*. A workshop for CATALST implementers presented at The United States Conference on Teaching Statistics, Raleigh, NC.

Isaak, R., Le, L., **Ziegler, L.**, Garfield, J., Zieffler, A., & delMas, R. (2012, May). *A flavor of the CATALST Course: Using randomization-based methods in an introductory statistics course*. Invited Web workshop for the Consortium for the Advancement of Undergraduate Statistics Education (CAUSE), Penn State University, University Park, PA.

Garfield, J., delMas, R., Zieffler, A., Le, L., **Ziegler, L.**, & Isaak, R. (2012, January). *CATALST implementers workshop*. A workshop for CATALST implementers presented at the Joint Mathematics Meetings, Boston, MA.

Isaak, R., Le, L., **Ziegler, L.**, Garfield, J., Zieffler, A., & delMas, R. (2011, June). *Create an Iron Chef in statistics classes?* Invited Web seminar for the Consortium for the Advancement of Undergraduate Statistics Education (CAUSE), The Ohio State University, Columbus, OH.

Garfield, J., delMas, R., Zieffler, A., Rossman, A., Chance, B., Holcomb, J., Cobb, G., Isaak, R., Le, L., & **Ziegler, L.** (2011, May). *CATALST implementers workshop*. A workshop for CATALST implementers presented at The United States Conference on Teaching Statistics, Raleigh, NC.

BLOGS

Co-Editor

Statistical Teaching and Learning Center (StatTLC), <https://stattlc.com/>, 2019-2022

Post

Ziegler, L. (2016, May 24). To multitask or not to multitask? That is the... Context for testing students' knowledge of randomization tests. SBI: Simulation-Based Inference. <https://www.causeweb.org/sbi/?author=44>

GRANTS

Utilizing Learning Assistants (LA's) in STEM Courses: STAT 193-Statistical Thinking. PI: **Sather**. Grant awarded by the St. Cloud State University Undergraduate Studies office, 2010. (\$2,000)

Utilizing Learning Assistants (LA's) in STEM Courses. PI: Dr. Rebecca Krystyniak, Co-PIs: Dr. Michael Dvorak, **Sather**. Grant awarded by the Minnesota State Colleges and Universities Office of the Chancellor's Center for Teaching and Learning, 2009-2010. (\$39,918.74)

Integrating Writing Into Lower Division Statistics Classes. PI: Dr. David Robinson, Co-PIs: **Sather**, Dr. Leonard Onyiah, and Dr. Xuemei Yang. Grant funded through IPESL Institutional Awards for Minnesota State Colleges & Universities, 2006-2007. (\$7,739)

EVALUATION PROJECTS

Member of the evaluation team for the Howard Hughes Medical Institute Defining the Quantitative and Computational Skills of Incoming Science Students project headed by Paul Overvoorde (Macalester College), 2013-2014. A pre-test (Science Quantitative Reasoning Exam; BioSQuaRE) was created to measure introductory biology students' quantitative literacy skills. Pilot versions of the assessment were given 2013-2016.

Member of the assessment development team for the Carnegie Foundation for the Advancement of Teaching Pathway project headed by Uri Triesman (Carnegie Foundation and University of Texas, Austin), 2010-2011.

Member of the evaluation team for the Creating a Teaching and Learning Infrastructure for Introductory Statistics Redesign project (NSF DUE-0737126) headed by Dr. Robert Gould (University of California, Los Angeles), 2010.

OTHER PROJECTS

Item writing specialist and member of the learning map development team for the Developing a Learning Map for Introductory Statistics (“Stat-LM”) project (NSF DUE-1544481) headed by Angela Broaddus (Benedictine College, Atchison, Kansas), 2016-2022.

SERVICE

Service to the Statistics Education Profession:

Associate editor:

Journal of Statistics and Data Science Education (2015-2022)

Journal reviewer:

Statistics Education Research Journal (2011-2022), *Journal of Statistics and Data Science Education* (2011-2020), *The American Statistician* (2014), and *Teaching Statistics* (2013)

Review of teaching materials:

Textbooks (Freeman, 2017; John Wiley & Sons, 2011-2013; Cengage Learning, 2009)

Online module for the Consortium for the Advancement of Undergraduate Statistics Education (CAUSE; 2011)

Item writer:

Advanced Placement Statistics (2010-2013)

St. Cloud State University Math Contest (2007-2010)

Judge:

The American Statistical Association National Project Competition (2012)

Statistical consultant:

Assisted a Ph.D. student from the University of Phoenix in analysis of data for her dissertation (2013)

Service to Iowa State University:

Panelist at New Faculty Orientation. Invited orientation for the Office of the Senior Vice President and Provost (fall 2022)

Diversity, Inclusion, and Equity Committee Member (2014-2016, 2022), Chair (2016-2022)

Social Committee Member (2014-2015, 2021-2022)

Undergraduate Committee (2015-2022)

Undergraduate Recruiting Committee Chair (2022)

Student/Faculty Committee on Instruction Member (2014-2021)

Panelist at Preparing for the Next Career Step at ISU: Workshop on Advancement for Term Faculty. Invited Web workshop for the Office of the Senior Vice President and Provost (fall 2020)

Snedecor Sustainability Committee Chair (2014-2016)

Service to St. Cloud State University:

Mathematics, Computer Science and Statistics & Computer Networking Scholarship Committee Member (2006-2010), Chair (2008-2010)

Department Grade Appeals and Student Complaints Committee Member (2009-2010)

Department Professional Development Plan/Report Review Committee Member (2007-2008)

Scientific Discover Program Summer Teacher for High School Students (2007)

PROFESSIONAL MEMBERSHIPS

American Statistical Association (ASA), Section on Statistical Education (2005-2022)