

Joshua M. Rosenberg

Curriculum Vitae

Contact Information

Associate Professor, STEM Education
Department of Theory and Practice in Teacher Education
Faculty Fellow, Center for Enhancing Education in Mathematics and Sciences
The University of Tennessee, Knoxville
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Research Interests

Educational data science, science education, educational technology

Education

Degrees

2018, PhD, Educational Psychology & Educational Technology
Michigan State University

2012, MA, Education
Michigan State University

2010, BS, Biology
University of North Carolina, Asheville

Additional Qualifications

2016, Graduate Certificate, Science Education
Michigan State University

2010, Educator's License - Science and Biology, Teacher Licensure Program
University of North Carolina, Asheville

Professional Experience

2023-present, Associate Professor, STEM Education
University of Tennessee, Knoxville

2018-2023, Assistant Professor, STEM Education
University of Tennessee, Knoxville

2012-2018, Graduate Research and Teaching Assistant
Michigan State University

2010-2012, Science Teacher (Biology and Earth Science)
Shelby High School, Shelby, NC

2009-2010, Science Teacher Intern (Biology and Chemistry)
C.D. Owen High School, Swannanoa, NC

Additional Professional Affiliations

Faculty Fellow, College of Emerging and Collaborative Studies, University of Tennessee, Knoxville

Faculty Fellow, Center for Enhancing Education in Mathematics and Sciences, University of Tennessee, Knoxville

Faculty Fellow, Education Research & Opportunity Center, University of Tennessee, Knoxville

Affiliated Researcher, AmplifyLearn.AI, University of Washington

Selected Grants

PI, Co-PI, and Co-I

2023-2028, PI, *CAREER: Creatively Reimagining Engagements with Data in Biology Learning Environments*, (\$846,612), NSF. NSF Grant No. 2239152.

2022-2025, Co-PI, *Computer Science for Appalachia: Expanding a research-practice partnership to integrate computer science and literacy in rural East Tennessee schools*, (\$999,980; with PI Lynn Hodge). NSF. NSF Grant No. 2219418.

2022-2024, Co-PI, *Broadening participation in introductory computer science: investigating self-assessment practices for increasing student learning and self-efficacy in two institutional contexts* (\$299,836; with PI Alex Lishinski). NSF. NSF Grant No. 2215245

2022-2023, Co-PI, *Launching a Micro-credential in Educational Data Analytics* (\$10,000; with Co-PI Louis Rocconi). University of Tennessee, Knoxville's College of Education, Health, and Human Sciences Strategic Investment Program.

2018-2020, Co-PI, *Exploring how beginning elementary mathematics teachers seek out resources through social media* (\$8,820; PI: Stephen Aguilar). Herman & Rasiej K-5 Mathematics Initiative, University of Southern California.

Senior Personnel

2020-2023, Senior Personnel, *Learning analytics in STEM education research institute* (\$933,150; PI, Shaun Kellogg, North Carolina State University; UTK subcontract: \$62,870. National Science Foundation (NSF), NSF Grant No. 2025090

2019-2022, Senior Personnel, *Medical entomology and geospatial analyses: Bringing innovation to teacher education and surveillance studies* (\$149,611; PI: Rebecca Trout Fryxell). United States Department of Agriculture - Agriculture and Food Research Initiative. (USDA Grant No. 2019-68010-29119) <https://www.megabitess.org/>

Fellowships and Awards

2024, Professional Promise in Research and Creative Achievement award, University of Tennessee, Knoxville

2024, Lura Odland Excellence award, College of Education, Health, and Human Sciences, University of Tennessee, Knoxville

2023-2024, Expanding Horizons Mid-Career Faculty Development Program, University of Tennessee, Knoxville

2023, NSF CAREER awardee

2023, Research Worth Reading Award, Research in Artificial Intelligence in Science Education Research Interest Group, National Association for Research in Science Teaching

2023, Outstanding Graduate Research Mentor Award, Graduate Student Senate, University of Tennessee, Knoxville

2022, Early Career Award, Technology as an Agent of Change in Teaching and Learning (TACTL) Special Interest Group (SIG), American Educational Research Association (AERA)

2021, Best Poster Award, Fourteenth International Conference on Educational Data Mining

2021-2022, Open Educational Resources (OER) Research Fellow, William and Flora Hewlett Foundation

2021, Louie M. & Betty M. Phillips Faculty Support in Education Award, University of Tennessee, Knoxville (UTK)

2021, Mentor, Summer Undergraduate Research Internship Program, Office of Undergraduate Research, UTK

2020, Research Assistant Award, Office of Undergraduate Research, UTK

2020, Southeastern Conference (SEC) Visiting Faculty Travel Grant Program (Host: Annelise Russell, Martin School of Public Policy, University of Kentucky)

Publications

+ Denotes a collaboration with a mentee who is a graduate student
 ^ Denotes a collaboration with a mentee who is an undergraduate student

Book

Estrellado, R. A., Freer, E. A., Mostipak, J., Rosenberg, J. M., & Velásquez, I. C. (2020). *Data science in education using R*. Routledge. *Note*. All authors contributed equally. <http://www.datascienceineducation.com/>

Selected Articles Published in Refereed Journals

Staudt Willet, K.B., Rosenberg, J.M. (2023). The Design and Effects of Educational Data Science Workshops for Early Career Researchers. *Journal Formative Design in Learning*. <https://doi.org/10.1007/s41686-023-00083-7>

Hodge, E. M., Rosenberg, J. M., & López, F. A. (2023). “We Don’t Teach Critical Race Theory Here”: A Sentiment Analysis of K-12 School and District Social Media Statements. *Peabody Journal of Education*, 1-15. <https://www.tandfonline.com/doi/full/10.1080/0161956X.2023.2261318>

Garner, A. V., & Rosenberg, J. (2023). Utilizing iNaturalist to Support Place-Based Learning and Data Analysis. *Science Scope*, 46(7), 54-60. <https://www.nsta.org/science-scope/science-scope-fall-2023/using-inaturalist-support-place-based-learning-and-data>

Rosenberg, J., ^Borchers, C., Stegenga, S. M., ^Burchfield, M. A., Anderson, D., & Fischer, C. (2022). How educational institutions reveal students’ personally identifiable information on Facebook. *Learning, Media, & Technology*. <https://www.tandfonline.com/doi/full/10.1080/17439884.2022.2140672>

Rosenberg, J. M., ^Borchers, C., ^Burchfield, M. A., Anderson, D., Stegenga, S. M., & Fischer, C. (2022). Posts About Students on Facebook: A Data Ethics Perspective. *Educational Researcher*, 51(8), 547-550.

- Kubsch, M., Krist, C., & Rosenberg, J. M. (2022). Distributing Epistemic Functions and Tasks - A framework for augmenting human analytic power with machine learning in science education research. *Journal of Research in Science Teaching*. <https://onlinelibrary.wiley.com/doi/full/10.1002/tea.21803>. *Note*. All authors contributed equally. This paper received the 2023 Research Worth Reading Award for the Research in Artificial Intelligence in Science Education Research Interest Group, National Association for Research in Science Teaching.
- Rosenberg, J. M., Kubsch, M., Wagenmakers, E.-J., & Dogucu, M. (2022). Making sense of uncertainty in the science classroom: A Bayesian approach. *Science & Education*, 31, 1239–1262. <https://link.springer.com/article/10.1007/s11191-022-00341-3>
- Jones, R. S., & Rosenberg, J. M. (2022). Characterizing whole class discussions about data and statistics with conversation profile analysis. *Journal of Mathematical Behavior*, 67, 1-16. <https://www.sciencedirect.com/science/article/abs/pii/S0732312322000645>
- Rosenberg, J. M., Schultheis, E., Kjervik, M., Reedy, A., & Sultana, O. (2022). Big data, big changes? A survey of K-12 science teachers in the United States on which data sources and tools they use in the classroom. *British Journal of Educational Technology*, 53(5), 1179-1201. <https://bera-journals.onlinelibrary.wiley.com/doi/10.1111/bjet.13245>
- Trout Fryxell, R. T., Camponovo, M., Smith, B., Butefish, K., Rosenberg, J. M., Andsager, J. L., ... & Willis, M. P. (2022). Development of a community-driven mosquito surveillance program for vectors of La Crosse virus to educate, inform, and empower a community. *Insects*, 13(2), 164. <https://www.mdpi.com/2075-4450/13/2/164>
- Rutherford, T., Duck, K., Rosenberg, J. M., & Patt, R. (2022). Leveraging mathematics software data to understand student learning and motivation during the COVID-19 pandemic. *Journal of Research on Technology in Education*, 54(1), 94-131. <https://www.tandfonline.com/doi/full/10.1080/15391523.2021.1920520>
- Aguilar, S. J., Rosenberg, J., Greenhalgh, S., Fütterer, T., Lishinski, A., & Fischer, C. (2021). A different experience in a different moment? Teachers' social media use before and during the COVID-19 pandemic. *AERA Open*, 7, 1-17. <https://journals.sagepub.com/doi/full/10.1177/23328584211063898>
- Schmidt, J. A., Beymer, P. N., Rosenberg, J. M., Naftzger, N. J., & Shumow, L. (2020). Experiences, activities, and personal characteristics as predictors of engagement in STEM-focused summer programs. *Journal of Research in Science Teaching*, 57(8), 1281-1309. <https://onlinelibrary.wiley.com/doi/full/10.1002/tea.21630>
- Greenhalgh, S. P., Rosenberg, J. M., Koehler, M. J., Akcaoglu, M., & Staudt Willet, K. B. (2020). Identifying multiple learning spaces within a single teacher-focused Twitter hashtag. *Computers & Education*, 148(4). <https://doi.org/10.1016/j.compedu.2020.103809>
- Beymer, P. N., Rosenberg, J. M., & Schmidt, J. A. (2020). Does choice matter or is it all about interest? An investigation using an experience sampling approach in high school science classrooms. *Learning and Individual Differences*, 78(2), 1-15. <https://doi.org/10.1016/j.lindif.2019.101812>
- Rosenberg, J. M., +Edwards, A., & Chen, B. (2020). Getting messy with data: Tools and strategies to help students analyze and interpret complex data sources. *The Science Teacher*, 87(5). https://learningcenter.nsta.org/resource/?id=10.2505/4/tst20_087_05_30

Teaching

Courses Taught

Instructor at the University of Tennessee, Knoxville:

Foundations of Educational Data Science I (TPTE 680, M.A. and Ph.D. class)

Foundations of Educational Data Science II (STEM 685, M.A. and Ph.D. class) *Visualizing Data Using R*

(STEM 691, M.A. and Ph.D. class)
Capstone in Educational Data Science (STEM 695, M.A. and Ph.D. class)
STEM Education Seminar (STEM 612, Ph.D. class).

Service

Editorial Service

Associate Editor, *Journal of Statistics and Data Science Education*, 2023 - Present

Editorial Review Board Member, *Review of Educational Research*, 2022 - Present

Editorial Review Board Member, *Journal of Research on Technology in Education*, 2016 - Present

Editorial Review Board Member, *Contemporary Issues in Technology and Teacher Education (Science Education Section)*, 2019 - 2022

Service to the Profession

Reviewer, Best Paper Award, Technology as an Agent of Change in Teaching and Learning SIG, American Educational Research Association, 2023

Ad-Hoc Reviewer, Discovery Research K-12 (three proposals), *n.d.*

Ad-Hoc Reviewer, Advancing Informal STEM Learning, National Science Foundation (one proposal), *n.d.*

Panelist, Innovative Technology Experiences for Students and Teachers (ITEST), National Science Foundation, *n.d.* (two panels)

Co-chair, TPACK SIG, Society for Information Technology and Teacher Education, 2015-2017

Panelist, Building Capacity in STEM Education Research (BCSER), National Science Foundation, *n.d.*

Panelist, Discovery Research PreK-12 (DRK-12), National Science Foundation, *n.d.*

Service to the Community

Mentor, TN Promise (2022-2023; mentor to college-going students)

Mentor, Diversity in Learning Analytics and Leadership program, <https://www.diversityindataandleadershipprogram.com/>

Reviewer, Proposals from Knox County Schools students for the NASA Student Spaceflight Experiment program

College-related Service

2023-2024, Search Co-Chair, Assistant/Associate Professor of Educational Data Science, *Department of Theory and Practice in Teacher Education*, UTK,

2021-2022, Search Committee Member, Two Tenure Track positions in Learning Design and Technology and Instructional Technology, *Department of Educational Psychology and Counseling*, UTK

2020, Facilitator, Quality Research and Scholarship working group, UTK

2019, Member, Online Academic Programs Investment and Growth Plan ad-hoc committee, UTK

2018-2019, Organizer, Quantitative Methods Research Group, UTK