

Samuel Luke Tunstall

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EDUCATION

- In Progress Ph.D. in Mathematics Education, Michigan State University
Dissertation: *Numeracy Proxies and Practices: Studies in Approximations of the “Real”*
Committee: Tonya Bartell (Co-chair), Vince Melfi (Co-chair), Lynn Fendler,
and Beth Herbel-Eisenmann
- 2015 M.A. in Mathematics, Appalachian State University
Thesis: *Promoting Numeracy in Online College Algebra through Projects and Discussions*
Advisor: Michael Bossé
- 2013 B.A. in Mathematics, University of North Carolina at Chapel Hill

PUBLICATIONS

Under Review

Matz, B.*, & **Tunstall, S. L.*** (Under Review). Investigating embedded remediation as a pathway for equitable access to Quantitative Literacy and College Algebra. *Numeracy*.

Book

Tunstall, S. L., Karaali, G., & Piercey, V. (Eds.). (In Press). *Shifting Contexts, Stable Core: Advancing Quantitative Literacy in Higher Education*. Washington, D.C.: Mathematical Association of America.

Journal Articles

Tunstall, S. L., Osibodu, O. , and Bartell, T. G. (In Press). On “icky” data, the political classroom, and *Towards Equity and Social Justice in Mathematics Education*: A conversation with Tonya Bartell. *Numeracy*, 12(1).

McCune, D.*, & **Tunstall, S. L.*** (2018). Calculated democracy—Explorations in gerrymandering. *Teaching Statistics*.

Tunstall, S. L. (2018). Investigating college students’ reasoning with messages of risk and causation. *Journal of Statistics Education*, 26(2), 76-86.

Tunstall, S. L. (2018). College Algebra: Past, present, and future. *PRIMUS*, 28(7), 627-640.

Tunstall, S. L., Matz, B., & Craig, J. (2018). Quantitative literacy courses as a space for fusing literacies. *Journal of General Education*, 65(3-4), 178-194.

Note: Author names followed by * indicate that both authors contributed equally to the manuscript.

- Tunstall, S. L.** (2018). Reader Reflection: Bringing the bacon home to math class. *Mathematics Teacher*, 111(5), 326.
- Tunstall, S. L., & Ferkany, M.** (2017). Mathematics education and flourishing. *For the Learning of Mathematics*, 37(1).
- Tunstall, S. L.** (2017). Quantitative literacy for the future flourishing of our students: A guiding aim for mathematics education. *Numeracy*, 10(1).
- Tunstall, S. L.** (2016). Words matter: Discourse and numeracy. *Numeracy*, 9(2).
- Tunstall, S. L., Melfi, V., Craig, J., Edwards, R., Krause, A., Wassink, B., & Piercey, V.** (2016). Quantitative Literacy at Michigan State University, 3: Designing general education mathematics courses. *Numeracy*, 9(2).
- Tunstall, S. L., & Bossé, M. J.** (2016). Promoting quantitative literacy in an online College Algebra Course. *International Journal for Mathematics Teaching and Learning*.
- Tunstall, S. L.** (2016). Historical Perspective—Weaving the lives of Florence Nightingale and Florence Nightingale David into the statistics classroom. *Teaching Statistics*, 38(3).
- Tunstall, S. L.** (2016). Fostering comprehension of risk and causation through media case studies. *Teaching Statistics*, 38(2).
- Tunstall, S. L.** (2015). Lying with statistics: Promoting numeracy with an exciting project. *The Centroid*, 41(2).
- Tunstall, S. L., & Bossé, M. J.** (2015). Promoting numeracy in an online College Algebra course through projects and discussions. *Numeracy*, 8(2).

Conference Proceedings

- Marciano, J., Wolf, L., Oviatt, R., **Tunstall, S. L.** & Varrichione, A. (2018). Creating community in online courses: A case study examination of instructor practices. In E. Langran & J. Borup (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 214-218). Washington, D.C., United States: Association for the Advancement of Computing in Education (AACE).
- Tunstall, S. L., Nair, A., Hinko, K., Irving, P., & Sawtelle, V.** (2018). Understanding life science majors' ideas about diffusion. In L. Ding, A. Traxler, and Y. Cao (Eds.), *2017 Proceedings of the Physics Education Research Conference* (pp. 392-395). Cincinnati, OH.
- Tunstall, S. L.** (2017). Mathematics and human flourishing. In Chronaki, A (Ed.), *Proceedings of the 9th Conference on Mathematics Education and Society* (pp. 946-955). Volos, Greece: The University of Thessaloniki.

Craig, J., & Tunstall, S. L. (2016). Crossing the literacy/quantitative literacy border. In M. B. Wood, E. E. Turner, M. Civil, & J. A. Eli (Eds.), *Proceedings of the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1087-1090). Tucson, AZ: The University of Arizona.

Book Reviews

Tunstall, S. L. (In Press). Review of *The Science of Miracles: Making Sense of Rare, Really Rare, and Impossibly Rare Events* by Laslo Mero (2018). *Mathematics Teacher*.

Tunstall, S. L. (2018). Calculus of the impossible: Review of *The Improbability Principle—Why Coincidences, Miracles, and Rare Events Happen Every Day* (2014) by David Hand, and *The Logic of Miracles—Making Sense of Rare, Really Rare, and Impossibly Rare Events* (2018), by Laslo Mero. *Numeracy*, 11(2).

Tunstall, S. L. (2018). Models as weapons: Review of *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy* by Cathy O’Neil (2016). *Numeracy*, 11(1).

Tunstall, S. L., & Beymer, P. (2017). Learning to think slower: Review of *Thinking, Fast and Slow* by Daniel Kahneman (2011). *Numeracy*, 10(2).

Tunstall, S. L. (2017). Connecting numbers with emotion: Review of *Numbers and nerves: Information, emotion, and meaning in a world of data* by Scott Slovic and Paul Slovic (2016). *Numeracy*, 10(1).

Tunstall, S. L. (2016). Review of *Online Statistics: An Interactive Multimedia Course of Study* by David Lane. *Numeracy*, 9(1).

Tunstall, S. L. (2015). Review of *Case Studies for Quantitative Reasoning: A Casebook of Media Articles* by Bernard L. Madison, Stuart Boersma, Caren L. Diefenderfer, and Shannon W. Dingman. *Numeracy*, 8(2).

Digital Work

Invited Blog Post. “Mathematics and gerrymandering: Does my vote count?” Lesson Blueprint for Duke TIP’s Teachers Workshop. June 2018.

<https://blogs.tip.duke.edu/teachersworkshop/mathematics-and-gerrymandering-does-my-vote-count/>

Invited Blog Post. “How do we quantify happiness?” Lesson Blueprint for Duke TIP’s Teachers Workshop. December 2017.

<https://blogs.tip.duke.edu/teachersworkshop/how-do-we-quantify-happiness/>

Invited Blog Post. “Bringing world data into the college classroom using Gapminder.” Inside Teaching MSU Blog. March 2017.

<http://insideteaching.grad.msu.edu/bringing-world-data-into-the-college-classroom-using-gapminder/>

Invited Blog Post. “Authority for graduate teaching assistants: Tension and promise.” Inside Teaching MSU Blog. April 2016.

<http://insideteaching.grad.msu.edu/tension-and-promise/>

AWARDS AND HONORS

- 2018 Graduate Student Disciplinary Leadership Award, Michigan State University
- 2015 Cratis D. Williams Society Inductee, Appalachian State University
- 2014 Outstanding Graduate Student Service Award, Appalachian State University
- 2014 Domer Research Award, Appalachian State University

GRANTS AND FELLOWSHIPS

- 2018-Present Graduate Writing Fellow, Michigan State University
- 2018 Graduate Student Research Enhancement Fellowship, Michigan State University
- 2016-2017 Lyman Briggs College Scholarship of Teaching and Learning Fellowship, Michigan State University
- 2016-2017 Inside Teaching Fellowship, Michigan State University
- 2015-Present University Distinguished Fellowship, Michigan State University
- 2014 Cratis D. Williams Graduate Student Research Grant, Appalachian State University
- 2014 Office of Student Research Travel Grant, Appalachian State University
- 2014 Graduate Student Association Senate Travel Grant, Appalachian State University
- 2013-2015 Chancellor's Fellowship, Appalachian State University

CONFERENCE ACTIVITY

Organization

2018. Lead Conference Organizer. National Numeracy Network Conference, October 12-14.
2018. Session Co-organizer. "Quantitative literacy swap session." MathFest, August 1-4.
2016. Panel Organizer. "Future directions for research in quantitative literacy at the post-secondary level." MathFest, August 3-6.
2016. Contributed Themed Paper Session Organizer. "Graduate students teach too: Ideas and best practices." Joint Mathematics Meetings, January 6-9.

Facilitated Workshops

2017. "Course design with active learning." Joint Mathematics Meetings, January 4-7.

2016. "Gapminder for the college math classroom." Joint Mathematics Meetings, January 6-9.

Paper Presentations

2019. "Measuring the effectiveness of quantitative literacy curricula---The importance of construct validity in assessment." Joint Mathematics Meetings, January 16-19.

2018. "Quantitative and scientific literacies: Collaborations driving general education curricular reform." National Numeracy Network Conference, October 12-14.

2018. "Numeracy proxies and practices: Studies in approximations of the 'real.'" National Numeracy Network Conference, October 12-14.

2018. "Meeting students where they are: Supplemental instruction in large-scale quantitative literacy courses." MathFest, August 1-4.

2018. "Possibilities for symbolic power in mathematics: Necessitating a critical awareness of dehumanizing quantification." American Educational Research Association Conference, April 13-17.

2018. "Investigating college students' reasoning with messages of risk and causation." Joint Mathematics Meetings, January 10-13.

2017. "Assessing student learning in newly-developed quantitative literacy courses at Michigan State University." National Numeracy Network Conference, November 17-19.

2017. "Athletes, education, and welfare: Problems that promote quantitative literacy and social justice." Joint Mathematics Meetings, January 4-7.

2017. "Mathematics and human flourishing." Mathematics Education and Society Conference 9. April 7-12.

2016. "Quantitative literacy at MSU: Present and future work." MathFest, August 3-6.

2016. "Lies, popcorn, Barbie, and the spelling bee: Bringing life into the statistics classroom." Joint Mathematics Meetings, January 6-9.

2016. "Tests or projects? The impact of summative assessment in promoting quantitative literacy." Joint Mathematics Meetings, January 6-9.

2015. "Pie Charts, Pearson, and the Russian Army: Celebrating Florence Nightingale and Florence Nightingale David." MathFest, August 4-7.

2015. "Ready-to-use projects and topics for quantitative literacy." Conference of the North Carolina Mathematics Association of Two-Year Colleges, March 12-13.

2015. "Infusing quantitative literacy in an online College Algebra course." Joint Mathematics Meetings, January 10-13.
2015. "Alternative assessment in online environments." Joint Mathematics Meetings, January 10-13.
2014. "Pads and polls: Engaging students through the use of technology." Conference of the North Carolina Mathematics Association of Two-Year Colleges, March 6-7.

Poster Presentations

2018. "Creating community in online courses: A case study examination of instructor practices." Information Technology & Teacher Education Conference, March 26-30.
2017. "Understanding life science majors' ideas about diffusion." Physics Education Research Conference, July 26-27.
2015. "Promoting numeracy in an online College Algebra course through projects and discussions." Conference on Research in Undergraduate Mathematics Education, February 19-21.

UNIVERSITY TEACHING APPOINTMENTS

Michigan State University [Curriculum Research and Development]

- 2017-Present Developed course materials for pilot courses in quantitative literacy
- 2016-Present Worked with MSU's HUB for Teaching and Learning on long-term assessment and monitoring practices in QL

Michigan State University [Instructor of Record]

- 2018 Math 102: Quantitative Literacy, II
- 2018 Math 201: Elementary Mathematics for Teachers, I
- 2018 Teacher Education 857: Teaching and Learning Mathematical Problem Solving (Graduate-level, Online)
- 2017 Teacher Education 855: Teaching School Mathematics (Graduate-level, Online)
- 2016 Math 202: Elementary Mathematics for Teachers, II

Michigan State University [Teaching Assistant]

- 2017 Math 101: Quantitative Literacy, I (Lead Teaching Assistant)
- 2016 Math 102: Quantitative Literacy, II (Lead Teaching Assistant))

Appalachian State University [Instructor of Record]

- 2015 Statistics 2820: Reasoning with Statistics

2014 Math 1020: College Algebra (Online and face-to-face)

Wilkes Community College, Wilkesboro, NC [Instructor of Record]

2014 Math 115: Mathematical Modeling

2014 Developmental Mathematics 040-050: Expressions, Equations, Graphs, and Lines

K-12 TEACHING EXPERIENCES

2015-Present Course Developer and Instructor, Duke University's Talent Identification Program
Designed and taught "Mathematical Problem-Solving" and "Advanced Mathematical Problem-Solving," online courses for eStudies each summer in 2016, 2017, and 2018
Designed and taught a 4-week, immersive full-time course entitled "Statistically Speaking" for gifted 7-8th graders at Wake Forest University (in June, 2015) and Trinity University in San Antonio, TX (in July, 2015)

Curriculum developer for a permanent online eInvestigator courses for 4-5th graders

2016-2017 Statistics Camp Instructor, Michigan State University
Designed and taught two one-week statistics day-camps for 6-7th grade students and 4-5th grade students in Summer 2016 and Summer 2017

2014 Upward Bound Instructor, Appalachian State University
Taught precalculus with 24 rising 10th and 11th-graders as part of a month-long summer program

MENTORING EXPERIENCES

2017-Present Observer for the Center for Instructional Mentoring, Michigan State University

2017-Present Ph.D. practicum committee member for David Bowers, Mathematics Education.

2017-Present Ph.D. practicum committee member for Bill Humes, Mathematics Education

2017-Present Lead Teaching Assistant for Quantitative Literacy I and II, Michigan State University

SERVICE AND OUTREACH

Service to the Profession

2018-Present Vice President-Elect, National Numeracy Network

2017-Present Board Member, National Numeracy Network

2017-Present Chair-Elect, Special Interest Group of the Mathematical Association of America in Quantitative Literacy

Institutional Service

2017-2018 Committee Member, Mathematics Education Colloquium Series

2016-2018 Student Organization President, Program in Mathematics Education

2015-2016 Committee Member, University Council for Undergraduate Curriculum

2015-2016 Committee Member, University Ad-hoc Committee on Grading

2015-2016 Committee Member, Curriculum for Program in Mathematics Education

2015-2016 Committee Member, Recruitment for Program in Mathematics Education

Manuscript Reviewer

2018-Present *Numeracy* themed collection on social justice, guest editor

2016-Present *Numeracy*

2015-Present *Teaching Statistics*

2015-Present *Mathematics Teacher*

2015-Present *Teaching Children Mathematics*

Selected Outreach

2015-Present MathCounts Coach, MacDonald Middle School, East Lansing, MI
Served as the coach of ten students in 6-8th grade for the Michigan MathCounts Regional and State Tournaments in the 2015-2019 school years

2013-2015 GRE Math Review Leader, Appalachian State University
Began an initiative in partnership with the Learning Center to provide free review sessions for the GRE, with more than 200 individuals attending the sessions over the course of two years (with two sessions per year)

2014-2015 MathCounts Coach, Hardin Park School, Boone, NC
Served as the coach of ten students in 6-8th grade for the North Carolina MathCounts Regional and State Tournaments in the 2014-2015 school year
Served as the coach of eight students in 4-6th grade for the High Country Math Tournament At Appalachian State in 2014 and 2015

REFERENCES

Tonya Bartell
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Associate Professor, Teacher Education
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