**An asterisk (\*) indicates work done in 2023.**

**Erik S Tillema**

School of Education

Indiana University Bloomington

 School of Education

3224 Wright Building

Bloomington IN 47405

Email: etillema@indiana.edu

Phone Number: 812 856 8110

***EDUCATION***

2007 University of Georgia, Athens, Georgia

Degree: Ph.D., Mathematics Education

Dissertation Title: Students’ Algebraic Symbol Systems

Dissertation Advisor: Leslie P. Steffe

2003 University of Georgia, Athens, Georgia

Degree: MEd. Mathematics Education 2003

2001 University of Wisconsin, Madison, Wisconsin

Course work in Mathematics

1999 Earlham College, Richmond, Indiana

Degree: B.A., History,

Minor: Mathematics

1998 University of Aberdeen, Aberdeen, Scotland

Course work in European History

***ACADEMIC APPOINTMENTS***

2018-present Indiana University Bloomington

 Associate Professor Mathematics Education

2015-2018 Chair, Teacher Education Programs Indiana University Purdue University Indianapolis (IUPUI)

2014-2018 Indiana University Purdue University Indianapolis (IUPUI)

 Associate Professor Mathematics Education

2008-2018 Faculty Fellow, Urban Center for the Advancement of Science, Technology, Engineering, and Mathematics Education

2007-2014 Indiana University Purdue University Indianapolis (IUPUI)

Assistant Professor Mathematics Education

***OTHER APPOINTMENTS AND PROFESSIONAL CONSULTANTSHIPS***

***K-12 Mathematics Teaching***

2002-2003 Clarke Middle School. Athens, GA.

2001-2002 Diversity in Mathematics Education (DIME) Program at University of Wisconsin, Madison, WI.

1999-2001 Dane County Transition School. Madison, WI.

2001 University of Wisconsin Summer Enrichment Program, Madison, WI.

1998 University of Wisconsin Summer Enrichment Program, Madison, WI.

***PROFESSIONAL ORGANIZATIONS***

2014-present TODOS: Equity and Excellence in Mathematics Education

 Member

2011-present Hoosier Association of Mathematics Teacher Educators.

 University Representative

2004-present American Educational Research Association.

Member, SIG-Research in Mathematics Education

2004-present Psychology of Mathematics Education North American Chapter (PME-NA).

Member

2003-present National Council of Teachers of Mathematics.

***HONORS AND AWARDS***

***Research***

2002 University-Wide Fellowship, University of Georgia

***Teaching***

\*2023 Nominated for Award: Excellence in Mentoring Doctoral Students

2020 Nominated for Award: Excellence in Mentoring Doctoral Students

2019 Nominated for Award: Excellence in Mentoring Doctoral Students

2014 Outstanding Educator Award, IUPUI

2011 Favorite Professor Award, IUPUI

2009 Favorite Professor Award, IUPUI

2007 Favorite Professor Award, IUPUI

***Service***

2022 Outstanding Reviewer Journal for Research in Mathematics Education

2020 Outstanding Reviewer American Educational Research Association, Special Interest Group for Research in Mathematics Education

***PUBLICATIONS AND MANUSCRIPTS***

***Peer Reviewed Research Publications***

**Tillema, E.S.**, Liu, J., Ataide Pinheiro, W., Antonides, J. & Jeon, M. (in progress). Expanding Steffe’s reorganization hypothesis: Combinatorics problems a constructive resource for volumes of fractional dimension. *Journal of Mathematical Behavior.*

**\*Tillema, E.S.**, Gatza, A.M., & Ataide Pinheiro, W. (in progress).Combinatorial Reasoning to Support High School Students’ Development of Algebraic Structure. *Journal for Research in Mathematics Education.*

**\*Tillema, E.S.**, & Antonides, J. (2024). Units coordination, combinatorial reasoning, and the multiplication principle: The case of Ashley, an advanced stage 2 college student. *Investigations in Mathematical Learning.*

\***Tillema, E.S.**, Gatza, A.M., & Ataide Pinheiro, W. (2024). Quantitative and combinatorial reasoning: Stage 3 high school students’ solutions of 3-D combinatorics problems and their representation with 3-D arrays. *Journal of Mathematical Behavior.*

**Tillema, E.S.** & Burch, L.J. (2022). Using combinatorics problems to support secondary teachers understanding of algebraic structure. *Zentralblatt für Didaktik der Mathematik, 54,* 777-793. (<https://doi.org/10.1007/s11858-022-01359-1>)

Ellis, A.E., Lockwood, E.L., **Tillema, E.S.**, & Moore, K.V. (2022). A framework for students’ generalizing activity. *Cognition and Instruction.* (<https://doi.org/10.1080/07370008.2021.2000989>)

Lockwood, E.L., Wasserman, N., **Tillema, E.S.** (2020). A case for combinatorics: A research commentary. *Journal of Mathematical Behavior, 59,* 1-15*.* (<https://doi.org/10.1016/j.jmathb.2020.100783>)

**Tillema, E.S.** (2020). Students’ solution of arrangement problems and their connection to Cartesian product problems, *Mathematical Thinking and Learning*, *22*, 23-55. (<https://doi.org/10.1080/10986065.2019.1608618>)

**Tillema, E.S.** (2018). An investigation of 6th graders’ solutions of combinatorics problems and representation of these problems using arrays. *Journal of Mathematical Behavior*, 52, 1-20*.*

**Tillema, E.S.** (2016). Investigating teaching from a constructivist stance: A model of communication. *Constructivist Foundations*, 12(*1*), 412-414.

**Tillema, E.S.** &Gatza, A. (2016). A quantitative and combinatorial approach to non-linear meanings of multiplication. *For the Learning of Mathematics,* 36(*2*), 26-33.

**Tillema, E.S. (**2014). Students’ coordination of lower and higher dimensional units in the context of evaluating sums of consecutive whole numbers. *Journal of Mathematical Behavior,* 36, 51-72.

Ulrich, K., **Tillema, E.S.**,Hackenberg, A.J., Norton, A.N. (2014). Units coordination: An example of the utility of radical constructivist thought in education. *Constructivist Foundations,* 9(*3*), 328-339*.*

**Tillema, E.S.**,Hackenberg, A.J., Ulrich, K., Norton, A.N. (2014). Interaction a core hypothesis of radical constructivist epistemology. *Constructivist Foundations*, 9(*3*), 354-357*.*

**Tillema, E.S.**,(2014). A commentary on examining the role of re-presentation in mathematical problem solving: An application of Ernst von Glasersfeld’s conceptual analysis. *Constructivist Foundations*, 9(*3*), 383-385*.*

**Tillema, E.S.** (2013). A power meaning of multiplication: Three eighth graders’ solutions of Cartesian product problems. *Journal of Mathematical Behavior*, 32, 331-352.

**Tillema, E.S.** & Hackenberg, A.J. (2011). Developing systems of notation as a trace of reasoning. *For the Learning of Mathematics*, 31(*3)*, 29-35.

**Tillema, E.S.** (2010). Functions of symbolizing activity: A discussion. *For the Learning of Mathematics*. 30(*1)*, 2-8.

Hackenberg, A.J., & **Tillema, E.S.** (2009). Students’ fraction composition schemes. *Journal of Mathematical Behavior*, 28(*1*), 1-18*.*

Izsak, A., **Tillema, E. S.**, & Tunc-Pekkan, Z. (2008). Teaching and learning fraction addition on number lines. *Journal for Research in Mathematics Education*, 39(*1*), 33-62.

***Invited Peer Reviewed Book Chapters and Reports Related to Research***

\*Hackenberg A.J., **Tillema, E.S.**, Gatza, A.M. (2024). Second order models as acts of equity. In P.C. Dawkins, A.J. Hackenberg, & A. Norton (Eds.), *Piaget’s genetic epistemology in and for ongoing mathematics education research*. Springer.

**\*Tillema, E.S.** & Gatza, A.M. (2024). Schemes and scheme theory: Core explanatory constructs for studying mathematical learning. In P.C. Dawkins, A.J. Hackenberg, & A. Norton (Eds.), *Piaget’s genetic epistemology in and for ongoing mathematics education research*. Springer.

Izsak, A., **Tillema, E.S.**, Tunc-Pekkan, Z. (2016). Partitioning and iterating when teaching and learning fraction addition. *Lessons Learned from Research: Useful Research on Teaching Important Mathematics to All Students*. NCTM, Reston: VA.

**Tillema, E.S.** (2014). Students’ power meanings of multiplication. In L.P. Steffe, K.C. Moore, L.L. Hatfield & S. Belbase (Eds.), *Epistemic algebraic students: Emerging models of students’ algebraic knowing* (pp. 281-302). Laramie: University of Wyoming.

**Tillema, E.S.** (2012). Relating one- and two-dimensional quantities: Students’ multiplicative reasoning in combinatorial and spatial contexts. In Mayes, R. & Hatfield, L. (Eds.), *Quantitative Reasoning and Mathematical Modeling: A Driver for STEM Integrated Education and Teaching in Context* (pp. 113-126). Laramie: University of Wyoming.

**Tillema, E.S.** (2012). Research on relationships between students’ linear and power meanings of multiplication. Brief research report for the Quantitative Reasoning and Mathematical Modeling Conference accessible at <http://coe.georgiasouthern.edu/QR/QR_reports.html>

***Peer Reviewed Research Related Conference Proceedings[[1]](#footnote-1)***

\*Hackenberg A.J., **Tillema, E.S.**, Gatza, A.M. (2023). *Enhancing Our Theoretical Lens: Second-Order Models as Acts of Equity*. Research report at the Forty Fifth Annual Meeting of the International Group for Psychology of Mathematics Education in North America, Reno, NV: University of Nevada-Reno.

Burch, L.J., **Tillema, E.S.**, Cox, J., Sianturi, I., & Yavuz, S.(2021). *Productive mathematical meanings as a guide to analyzing algebra textbooks.* Brief research report at the Forty Third Annual Meeting of the International Group for Psychology of Mathematics Education in North America, Philadelphia, PA: Towson University.

Burch, L.J., & **Tillema, E.S.** (2020). *Generalization as a marker for robust mathematical meanings among in-service algebra teachers.* Paper presentation at the International Congress on Mathematical Education to the Topic Study Group on the Teaching and Learning of Algebra at the Secondary Level in Shanghai, China

**Tillema, E.S.**, & Burch L.J. (2020). *Leveraging combinatorial and quantitative reasoning to support the generalization of advanced algebraic identities.* Invited paper presentation at the International Congress on Mathematical Education to the Topic Study Group on the Teaching and Learning of Discrete Mathematics in Shanghai, China.

Burch, L.J.., Pinheiro, Attaide, W. & **Tillema, E.S.** (2019). *Opportunities for generalizing within pre-service secondary teachers’ symbolization of combinatorial tasks*. Brief research report at the Forty First Annual Meeting of the International Group for Psychology of Mathematics Education in North America, St. Louis, MO: University of Missouri.

**Tillema, E.S.**, Liu, J., Bharaj, P. (2019). *Combinatorics problems: A constructive resource for finding volumes of fractional dimension?* Brief research report at the Forty First Annual Meeting of the International Group for Psychology of Mathematics Education in North America, St. Louis, MO: University of Missouri.

**Tillema, E.S.** & Hackenberg, A.J. (2017). *Three facets of equity in Steffe’s research programs.* Invited discussant of plenary at the Thirty Ninth Annual Meeting of the International Group for Psychology of Mathematics Education in North America, Indianapolis, IN: HAMTE.

Ellis, A.E., **Tillema, E.S.**, Lockwood, E., & Moore, K.V (2017). *Generalization across domains: The relating-forming-extending generalization framework.* Research report at the Thirty Ninth Annual Meeting of the International Group for Psychology of Mathematics Education in North America, Indianapolis, IN: HAMTE.

**Tillema, E.S.** & Gatza, A.M. (2017). *The processes and products of students’ generalizing activity.* Research report at the Thirty Ninth Annual Meeting of the International Group for Psychology of Mathematics Education in North America, Indianapolis, IN: HAMTE.

**Tillema, E.S.** & Gatza, A.M. (2016). *A quantitative approach to establishing cubic identities*. Extended paper presented at the Thirteenth International Congress on Mathematical Education in the Algebra Topic Study Group in Hamburg, Germany.

**Tillema, E.S.** & Gatza, A.M. (2015). *Students’ generalizations in the development of non-linear meanings of multiplication and non-linear growth.* Research report at the Thirty Seventh Annual Meeting of the International Group for Psychology of Mathematics Education in North America, East Lansing, MI: Michigan State University.

**Tillema, E.S.** (2012). What’s the difference between doubling and squaring? A framework for investigating how students develop a meaning for raising quantities to whole number powers. *Proceedings of the Thirty-fourth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education in North America* (pp. 375-378). Kalamazoo: Western Michigan University.

**Tillema, E.S.** (2011). Students’ combinatorial reasoning: The multiplication of binomials. In Wiest, L.R. & Lamberg, T. (Eds.), *Proceedings of the Thirty-third Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education in North America* (pp. 321-328). Reno: University of Nevada.

**Tillema, E.S.** (2010). The development of notational systems: A creative endeavor. In P. Brosnan, Erchick, D.B., & Flevares, L. (Eds.), *Proceedings of the Thirty-second Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education in North America* (vol. 6, pp. 798-806). Columbus: Ohio State University.

Hackenberg, A. J., & **Tillema, E. S.** (2004). Quantitative schemes as a basis for algebraic reasoning and teaching practices. In D. McDougal (Ed.), *Proceedings of the Twenty-sixth Annual Meeting of the International Group for the Psychology of Mathematics Education* (pp. 302-303). Toronto: OISE/UT.

***Peer Reviewed Teaching Publications***

Burch, L.J., **Tillema, E.S.,** Gatza, A.M. (2021). “Counting” on quantitative reasoning for algebra: A combinatorial and quantitative approach to algebraic identities. *Mathematics Teacher: Learning and Teaching PK-12. (*<https://doi.org/10.5951/MTLT.2020.0183>)

Speranzo, L., & **Tillema, E.S.** (2019). Designing for voice, agency, and empowerment in the middle school classroom. *Mathematics Teaching in the Middle School*, 24(*7*), 400-405*.*

**Tillema, E.S.**, & Gatza, A. (2017). A problem based approach to the Cartesian coordinate system. *Indiana Mathematics Teacher*, summer 2017, 8-13.

**Tillema, E.S.**, Gatza, A., Ulrich, C.(2017). What’s in the Cards?: Integers and Integer Addition for Algebra. *Australian Mathematics Teacher*, 73 (*4*), 21-29.

**Tillema, E.S.** (2012). What’s the difference?: Using contextualized problems. *Mathematics Teaching in the Middle School*, 17(*8*), 472-478.

**Tillema, E.S. (**2009). Cultivating an area model: A rich understanding of multiplying binomials can be developed by working on a series of concrete problems. *Mathematics Teaching in the Middle School* 15(*3*), 143-147*.*

**Tillema, E. S.** (2005). Chinese algebra: Using historical problems to think about current curricula. *Mathematics Teacher* 99*(4)*, 238-245.

***Invited Book Chapters Related to Teaching***

**Tillema, E.S.**, McClintock, E., Heid, M.K., & Johnson, H. (2015). Properties of *i* and other complex numbers. In M.K. Heid and P. Wilson (Eds.) *Mathematical understanding for secondary teaching: A framework and classroom based situations* (Ch. 14)*.* Information Age Publishing, Charlotte: NC.

**Tillema, E.S.**, Donaldson, S., Edenfield, K., Wilson, J., Murray, E. & Blume, G. (2015). Exponent rules. In M.K. Heid and P. Wilson (Eds.) *Mathematical understanding for secondary teaching: A framework and classroom based situations* (Ch. 16)*.* Information Age Publishing, Charlotte: NC.

Shimizu, J., Boone, T., Lunt, J., Fratto, C., **Tillema, E.S.,** Kilpatrick, J., Donaldson, S., Fox, R., Johnson, H., Grady, M., Konnova, M. & Heid, M.K. (2015). Multiplying monomials and binomials. In M.K. Heid and P. Wilson (Eds.) *Mathematical understanding for secondary teaching: A framework and classroom based situations* (Ch. 19)*.* Information Age Publishing, Charlotte: NC.

 Hembree, D., **Tillema, E.S.,** McClintock, E., Zbiek, R.M., Johnson, H. Wilson, P., Wilson, J. & Fox, R.(2015). Simultaneous equations. In M.K. Heid and P. Wilson (Eds.) *Mathematical understanding for secondary teaching: A framework and classroom based situations* (Ch. 24)*.* Information Age Publishing, Charlotte: NC.

**Tillema, E.S.**, Johnson, H., O’Kelley, S.K., Jacobson, E., Blume, G., Heid, M.K. (2015). Connecting factoring to the quadratic formula. In M.K. Heid and P. Wilson (Eds.) *Mathematical understanding for secondary teaching: A framework and classroom based situations* (Ch. 28)*.* Information Age Publishing, Charlotte: NC.

**Tillema, E.S.**, Cannon, T., Johnson, K., & Zbiek, R.M. (2015). Area of plane figures. In M.K. Heid and P. Wilson (Eds.) *Mathematical understanding for secondary teaching: A framework and classroom based situations* (Ch. 36)*.* Information Age Publishing, Charlotte: NC.

McClintock E., Peters, S., Kinol, D., Reed, S. Johnson, H., **Tillema. E.S.**, Zbiek, R.M., Heid, M.K., Donaldson, S., Murray, E. & Blume, G. (2015). Similarity. In M.K. Heid and P. Wilson (Eds.) *Mathematical understanding for secondary teaching: A framework and classroom based situations* (Ch. 38)*.* Information Age Publishing, Charlotte: NC.

**Tillema, E.S.**, Kilpatrick, J., Johnson, H., Grady, M. Konnova, S. & Heid, M.K. (2015). Proof by mathematical induction. In M.K. Heid and P. Wilson (Eds.) *Mathematical understanding for secondary teaching: A framework and classroom based situations* (Ch. 49)*.* Information Age Publishing, Charlotte: NC.

***Non-Peer Reviewed Service Publications***

**Tillema, E.S.** (2017). Will state superintendent of public education stand up for public education in Indiana? *Indianapolis Star*, Opinion Editorial.

**Tillema, E.S.** & Dillon, F. (2013). There are 102 kinds of people. *Mathematics Teaching in the Middle School*, 18(*9*), 584.

Dillon F. & **Tillema, E.S.** (2013). For whom the toll charges. *Mathematics Teaching in the Middle School*, 18(*6*), 392.

**Tillema, E.S.** & Dillon, F. (2012). Ship it! *Mathematics Teaching in the Middle School.* 18(*5*). 320.

**Tillema, E.S.** & Dillon, F. (2012). Canine care. *Mathematics Teaching in the Middle School.* 18(*3*), 192.

**Tillema, E.S.** & Dillon, F. (2012). What drives fuel economy? *Mathematics Teaching in the Middle School*. 17(*9*), 576.

**Tillema, E.S.** & Dillon, F. (2012). The caterer’s dilemma. *Mathematics Teaching in the Middle School,* 17(*8*). 512.

Dillon, F. & **Tillema, E.S.** (2012). The scoop on ice cream. *Mathematics Teaching in the Middle School*. 17(*6*). 384.

Dillon, F. & **Tillema, E.S.** (2011). Choose my plate! *Mathematics Teaching in the Middle School*. 17(*4*), 256.

**Tillema, E.S.** & Dillon, F. (2011). Accurate lab readings. *Mathematics Teaching in the Middle School*. 16(*6*), 384.

Dillon, F. & **Tillema, E.S.** (2010). Which coupon code would you use? *Mathematics Teaching in the Middle School*, 16(*5*), 312.

Dillon, F. & **Tillema, E.S.** (2010). Knitting patterns. *Mathematics Teaching in the Middle School*, 15(*9*), 560.

**Tillema, E.S.** (2010). Woodworking and circular windows. *Mathematics Teaching in the Middle School*, 15(*8*),496.

Dillon, F. & **Tillema, E.S.** (2010). A speck of dust. *Mathematics Teaching in the Middle School,* 15(*6)*, 368.

Dillon, F. & **Tillema, E.S.** (2009). A three-girl family. *Mathematics Teaching in the Middle School*, 15(*5*). 304.

***INVITED AND PEER REVIEWED RESEARCH PRESENTATIONS***

***National or International Peer Reviewed Presentations***

\*Antonides, J. & **Tillema E.S.** (2023). *Explicating students' unit structures in combinatorial contexts*. Poster presentation at the Forty Fifth Annual Meeting of the International Group for Psychology of Mathematics Education in North America, Reno, NV: University of Nevada-Reno.

\*Hackenberg A.J., **Tillema, E.S.**, Gatza, A.M. (2023). *Enhancing Our Theoretical Lens: Second-Order Models as Acts of Equity*. Research report at the Forty Fifth Annual Meeting of the International Group for Psychology of Mathematics Education in North America, Reno, NV: University of Nevada-Reno.

\***Tillema, E.S.** & Antonides, J.(2023). *Complex connections: Reimagining units* *construction and coordination for MKT and combinatorial reasoning.* Working group at the Forty Fifth Annual Meeting of the International Group for Psychology of Mathematics Education in North America, Reno, NV: University of Nevada-Reno.

**\*Tillema, E.S.** (2023). *Combinatorial reasoning and algebraic structure.* Invited talk given at Virginia Tech’s faculty colloquium series, Virginia Tech University.

Burch, L.J., **Tillema, E.S.**, Cox, J., Sianturi, I., & Yavuz, S.(2021). *Productive mathematical meanings as a guide to analyzing algebra textbooks.* Brief research report presentation at the Forty Third Annual Meeting of the International Group for Psychology of Mathematics Education in North America, Philadelphia, PA: Towson University.

**Tillema, E.S.**, & Burch L.J. (2021). *Leveraging combinatorial and quantitative reasoning to support the generalization of advanced algebraic identities.* Invited paper presentation at the International Congress on Mathematical Education to the Topic Study Group in the Teaching and Learning of Discrete Mathematics in Shanghai, China.

Burch, L.J., & **Tillema, E.S.** (2021). *Generalization as a marker for robust mathematical meanings among in-service algebra teachers.* Paper presentation at the International Congress on Mathematical Education to the Topic Study Group in the Teaching and Learning of Secondary Algebra in Shanghai, China.

**Tillema, E.S.**, & Burch L.J. (2020). *Supporting Pre-Service Secondary Teachers’ Mathematical Meanings for Advanced Algebraic Identities*.Paper presentation at the American Educational Research Associations annual conference, San Francisco: CA.

Gatza, A.M., **Tillema, E.S.**, & Burch, L.J., (2020). *Achieving “strategic outcomes” for effective teaching: Using discrete mathematics to develop content knowledge, design curriculum, and address issues of equity.* Research symposium at the Association of Mathematics Teacher Educators annual conference, Phoenix, AZ.

**Tillema, E.S.**, Liu, J., Bharaj, P. (2019). *Combinatorics problems: A constructive resource for finding volumes of fractional dimension?* Brief research report at the Forty First Annual Meeting of the International Group for Psychology of Mathematics Education in North America, St. Louis, MO: University of Missouri.

**Tillema E.S.**, & Ippolito, D. (2019). *Mathematical knowledge for teaching: A combinatorial understanding of algebraic identities*. Poster presentation at the Forty First Annual Meeting of the International Group for Psychology of Mathematics Education in North America, St. Louis, MO: University of Missouri.

Burch, L.J.., Pinheiro, Attaide, W. & **Tillema, E.S.** (2019). *Opportunities for generalizing within pre-service secondary teachers’ symbolization of combinatorial tasks*. Brief research report at the Forty First Annual Meeting of the International Group for Psychology of Mathematics Education in North America, St. Louis, MO: University of Missouri.

**Tillema, E.S.**, Lee, H.Y. & Barrett, J. (2019). *Investigating middle grades and high school students three-dimensional reasoning.* Research symposium at the National Council of Teachers of Mathematics research pre-session in San Diego, CA.

**Tillema, E.S.** (2018). *Students’ generalizing activity.* Invited presentation at Collective Contribution of Constructivist Research Programs Conference. New York: New York.

**Tillema, E.S.** & Hackenberg, A.J. (2017). *Three facets of equity in Steffe’s research programs.* Invited discussant of plenary at the Thirty Ninth Annual Meeting of the International Group for Psychology of Mathematics Education in North America, Indianapolis, IN: HAMTE.

Ellis, A.E., **Tillema, E.S.**, Lockwood, E., & Moore, K.V (2017). *Generalization across domains: The relating-forming-extending generalization framework.* Research report at the Thirty Ninth Annual Meeting of the International Group for Psychology of Mathematics Education in North America, Indianapolis, IN: HAMTE.

**Tillema, E.S.** & Gatza, A.M. (2017). *The processes and products of students’ generalizing activity.* Research report at the Thirty Ninth Annual Meeting of the International Group for Psychology of Mathematics Education in North America, Indianapolis, IN: HAMTE.

**Tillema, E.S.** & Gatza, A. (2016). *A quantitative approach to establishing cubic identities*. Research report at International Congress on Mathematical Education in Hamburg, Germany.

Gatza, A. & **Tillema E.S.** (2016). *Interrupting the dominant discourse: Seeing children’s mathematics and interrogating manifestations of whiteness and colorblindness*. Presentation at TODOS conference in Phoenix, AZ.

 **Tillema, E.S.** & Gatza, A. (2016). *Investigating math learning, racial identity, and mathematical identity: An emergent theoretical framework.* Discussion session at the National Council of Teachers of Mathematics (NCTM) research pre-session in San Francisco, CA.

Ellis, A.E., Lockwood, E., Moore, K.V, & **Tillema, E.S.** (2016). *What is source material for generalizations about cubics*?Research Symposium at the National Council of Teachers of Mathematics (NCTM) research pre-session in San Francisco, CA.

**Tillema, E.S.** & Gatza, A.M. (2015). *Students’ generalizations in the development of non-linear meanings of multiplication and non-linear growth.* Research report at the Thirty Seventh Annual Meeting of the International Group for Psychology of Mathematics Education in North America, East Lansing, MI: Michigan State University.

Gatza, A.M. & **Tillema, E.S.** (2015). *Racial identity and mathematics learning and participation with middle grades students.* Poster presentation at the Thirty Seventh Annual Meeting of the International Group for Psychology of Mathematics Education in North America, East Lansing, MI: Michigan State University.

Gatza, A.M. & **Tillema, E.S.** (2015). *Re-Conceptualizing Mathematics Research and Curricula: Equity as More than Six Letters with No Traction***.** Presentation at the Bergamo Conference on Curriculum Theorizing in Dayton, OH.

**Tillema, E.S.** (2015). *Elaborating models of students’ spatial-multiplicative reasoning: An investigation of 6th graders’ solutions of combinatorics problems.* Paper presentation at the American Educational Research Association conference in Chicago, IL.

Gatza, A.M. & **Tillema, E.S.** (2014). *Models of students’ cognition: Re-Thinking mathematics through an equity-based research lens*. Presentation at the Bergamo Conference on Curriculum Theorizing in Dayton, OH.

**Tillema, E.S.** (2013, November). *Quantitative reasoning: The case of quadratic functions*. Presentation for the Quantitative Reasoning and Mathematical Modeling Working Group at the Thirty Fifth Annual Meeting of the International Group for Psychology of Mathematics Education in North America, Chicago, IL: University of Illinois Chicago.

**Tillema, E.S.** (2013, June). *Advancing students’ multiplicative reasoning as a means to foster their algebraic reasoning*. Invited presentation at the Epistemic Algebraic Student Conference in Athens, GA.

Johnson, H., Moore, K. Castillo, C., & **Tillema, E.S.** (2013, April). *Reasoning with discrete and continuous images of quantity: Emerging research*. Discussion session at the National Council of Teachers of Mathematics (NCTM) research pre-session in Denver, CO.

**Tillema, E.S.** (2013, April). *A framework for students’ non-linear multiplicative reasoning.* Paper presentation at American Educational Research Association (AERA) conference in San Francisco, CA.

**Tillema, E.S.** (2012, October). *What’s the difference between doubling and squaring? A framework for investigating how students develop a meaning for raising quantities to whole number powers.* Paper presented for the Thirty-Fourth Annual Meeting of the International Group for Psychology of Mathematics Education in North America, Kalamazoo, Michigan: Western Michigan University.

Smith, J.P., Confrey, J., Devlin, K., Dougherty, B. & **Tillema, E.S.** (2012, April). *Repeated addition has limits: New foundations for understanding multiplication*. Research Symposium at the National Council of Teachers of Mathematics (NCTM) research pre-session in Philadelphia, PA.

**Tillema, E.S.** (2011, October). *Students’ combinatorial reasoning: The multiplication of binomials.* Paper presented for the Thirty-Third Annual Meeting of the International Group for Psychology of Mathematics Education in North America, Reno, Nevada: University of Nevada—Reno.

**Tillema, E.S.** (2011, April). *Expanding models of students’ combinatorial reasoning.* Poster session presented at the National Council of Teachers of Mathematics (NCTM) research pre-session in Indianapolis, IN.

**Tillema, E.S.** (2010, October). *The development of notational Systems: A creative endeavor*. Paper presented for the Thirty-Second Annual Meeting of the International Group for the Psychology of Mathematics Education in North America, Columbus: Ohio State University.

**Tillema, E.S.** (2010, April). *A theoretical framework for eighth graders’ combinatorial reasoning.* Paper presentation at the National Council of Teachers of Mathematics (NCTM) research pre-session in San Diego, CA.

**Tillema, E.S.**, Ellis, A.B., Lobato, J. & Hohensee C. (2009, April). *Eighth graders’ use of quantitative reasoning to generate quadratic functions*. Research symposium at the National Council of Teachers of Mathematics (NCTM) research pre-session in Washington, D.C.

**Tillema, E.S.** (2009, April). *Functions of students’ symbolizing activity*. Paper presentation at American Educational Research Association (AERA) conference in San Diego, CA.

**Tillema, E. S.**, Hackenberg, A. J., & Steffe, L. P. (2007, March). *Students’ construction of a multiplicative algebra*. Research symposium at the National Council of Teachers of Mathematics (NCTM) research pre-session in Atlanta, GA.

Rhodes, G. A., Ricks, T. E., Hembree, D., & **Tillema, E. S.** (2006, April). *Examining mentor teachers’deprivatization in school communities.* Working session at the National Council of Teachers of Mathematics (NCTM) research pre-session in St. Louis, MO.

Hackenberg, A. J., & **Tillema, E.S.** (2005, April). *Constructive resources for algebraic reasoning: Middle school students’ construction of fraction composition schemes*. Paper presented at the AmericanEducational Research Association (AERA) conference in Montreal, QC.

Hackenberg, A. J., & **Tillema, E. S.** (2004, October). *Quantitative schemes as a basis for algebraic reasoning and teaching practices*. Paper presented at the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA) conference in Toronto, ON.

Izsák, A., **Tillema, E. S.**, & Tunç-Pekkan, Z. (2004, April). *Teaching and learning fraction addition on number lines.* Paper presented at the National Council of Teachers of Mathematics (NCTM) research pre-session in Philadelphia, PA.

***Regional***

Gatza, A.M. & **Tillema, E.S.** (2016). *Investigating Mathematical Learning, Race, and Identity with Middle Grade Students: An Emergent Theoretical Framework.* Presentation at the Indiana Mathematics Education Research Symposium, Indianapolis, IN.

**Tillema, E.S.** &Gatza, A.M. (2015). *Students’ generalizations in the development of non-linear meanings of multiplication and growth.* Presentation at the Indiana Mathematics Education Research Symposium, Indianapolis, IN.

Gatza, A.M. & **Tillema, E.S.** (2015). *Exploring the impact of racial identity in interviews on mathematical generalizations.* Presentation at the Indiana Mathematics Education Research Symposium, Indianapolis, IN.

***Local***

**Tillema, E.S.**, (2021). *What makes research research?* Presentation to students in the Office of Diversity, Equity, and Inclusion, Bloomington, IN.

**Tillema, E.S.**, Attaide-Pinheiro, W., Jeon, M., & Burch, L.J. (2020). *Pre-service Teachers Understanding of Fractions in Three Dimensions*. Presentation at the Curriculum & Instruction Research and Creative Activity Symposium, Bloomington: IN.

**Tillema, E.S.**, Jeon, M., Ippolito, D., Bruch, L.J., & Ataide Pinheiro, W. (2019). *Supporting teachers to promote students’ mathematical generalization.* Presentation at IUB’s Proffitt Award Research Poster Session.

**Tillema, E.S.** & Gatza, A.M. (2015). *Exploring racial identity and mathematical learning and participation*. Presentation at IUPUI’s Center for Urban and Multicultural Education.

**Tillema, E.S.** (2012, January). *Developing a power meaning of multiplication with urban students.* Presentation at IUPUI’s Center for Urban and Multicultural Education.

Mockler, S.M. & **Tillema, E.S.** (2011, July). *Middle grade students’ reason about Cartesian product problems.* Presentation at IUPUI’s undergraduate research opportunities program conference.

**Tillema, E.S.** (2011, April). *Integrating urban and cognitive perspectives in mathematics education.* Presentation at IUPUI School of Education’s faculty meeting.

**Tillema, E.S.**,Mockler, S.M., Tan, P. (2011, April). *Urban sixth graders reason about combinatorics problems.* Presentation at IUPUI’s annual research day.

**Tillema, E.S.** & Mockler, S.M.(2010, December). *Mathematical cognition: An introduction*. Presentation for Dr. Kathy Johnson’s IUPUI capstone course for undergraduates in psychology.

**Tillema, E.S.** (2010, February). *Students’ fraction composition schemes*. Presentation for IUPUI’s Urban Center for STEM Education.

***INVITED AND PEER REVIEWED TEACHING PRESENTATIONS***

***Regional***

**\*Tillema, E.S.,** Burch, L.B., Knieriemen, P., Ash, C., & Niehoff, N. (2023) *Supporting students to make generalizations across algebra curriculum.* Presentation at the Indiana Council of Teachers of Mathematics/Hoosier Association of Science Teachers annual conference, Indianapolis, IN.

Burch, L.B. **Tillema, E.S.**, & Gatza, A.M.(2022). *“Counting” on quantitative reasoning for algebra: A combinatorial and quantitative approach to algebraic identities.* Presentation at the National Council of Teachers of Mathematics Regional Conference, Indianapolis, IN.

Gatza, A.M., & **Tillema E.S.** (2021). *Elementary mathematics methods courses: A conversation on design.* Presentation at the Indiana Council of Teachers of Mathematics, Indianapolis, IN.

**Tillema, E.S.**, Liu, J., Gatza, A.M. (2019). *Effectively selecting and sequencing student work: Example from spatial reasoning*. Presentation at the Indiana Council of Teachers of Mathematics, Indianapolis, IN.

Burch, L.J., Ippolito, D., **Tillema, E.S.**, & Miller, J. (2019). *Transforming thinking through number talks: From thinking quantitatively to thinking algebraically.* Presentation at the Indiana Council of Teachers of Mathematics, Indianapolis, IN.

Gatza, A., & **Tillema, E.S.** (2015, November). *Integers and Integer Operations: Playing your cards right for algebra.* Presentation at the National Council of Teachers of Mathematics (NCTM) regional conference in Minneapolis, MN.

**Tillema, E.S.,** Gatza, A., Chandler, B.(2014, November). *Preparing Teachers for Common Core Using Video of Student Reasoning*. Presentation at the National Council of Teachers of Mathematics (NCTM) regional conference in Indianapolis, IN.

**Tillema, E.S.** (2013, November). *Differentiating instruction for fraction division*. Invited presentation at the National Council of Teachers of Mathematics (NCTM) regional conference in Louisville, KY.

**Tillema, E.S.** (2012, April). *Transition from graduate school to a faculty position: Developing as a researcher*. Invited presentation at the Indiana Mathematics Education Symposium.

***Local***

Tan, P., Mockler, S.M., **Tillema, E.S.** (2011, February). *The intentional use of video and interactions as teaching tools*. Presentation at EC Moore Symposium on Excellence in Teaching.

**Tillema, E.S.** (2008, June). *Reasoning with Oriented Quantities*. Invited workshop presented to the IU Mathematics Education summer training program for Korean teachers. A grant received through the South Korea's Seoul Metropolitan Office of Education.

***RESEARCH GRANTS***

***Active***

\*2019-2023 *Generalization Across Multiple Mathematical Areas: Studies of Classrooms and Teachers* (*GAMMA-CAT*). National Science Foundation EHR-CORE. PI, Amy Ellis. Co-PIs, Elise Lockwood, Kevin Moore, Erik Tillema. $1,500,000 (**funded**)

***Completed***

2018-2019 *Supporting Teachers to Promote Students’ Mathematical Generalization*. IU’s Proffitt Grant. PI, Erik Tillema. Percent Contribution: 100%. $19,000. (**funded**).

2014-2017 *Generalization Across Multiple Mathematical Areas*. National Science Foundation REAL. PI, Amy Ellis. Co-PIs, Elise Lockwood, Kevin Moore, Erik Tillema. $1,500,000. (**funded)**.

2012-2014 *Investigating the Connection between Students’ Spatial-Multiplicative Reasoning and their Algebraic Reasoning Using a Collaborative Model for Research with Urban Schools*. IU’s Research Proposal Incentive Fund. PI, Erik Tillema. Percent Contribution: 100%. $5,000. (**funded**).

2010-2011 *Investigating 6th Grade Students’ Understanding of Multi-Digit Multiplication Using Combinatorics Problems*. IUPUI’s Research Support Funds Grant.PI, Erik Tillema. Percent Contribution: 100%. $30,000. (**funded)**.

2010-2011 *Integrating Cognitive and Urban Perspectives in Mathematics Education*. IUPUI’s School of Education Internal Grant Competition. PI, Erik Tillema. Percent Contribution: 100%. $5000. (**funded**).

2008 *Investigating a Quantitative Approach to the Construction of Algebraic Symbol Systems*. Proffitt Summer Faculty Fellowship. PI, Erik Tillema. Percent Contribution: 100%. $10,000. (**funded**).

***Submitted but not Funded***

\*2023 *Accessibility and Combinatorics to Create Equity for Students and Schools for Mathematics (ACCESS-MATH)*. National Science Foundation EHR-CORE. PI, Erik Tillema. PIs, Nick Wasserman, Nate Alexander. $1,500,000 **(revision submitted, not funded)**

2022 *Accessibility and Combinatorics to Create Equity for Students and Schools for Mathematics (ACCESS-MATH)*. National Science Foundation EHR-CORE. PI, Erik Tillema. PIs, Nick Wasserman, Orit Zaslavsky. $1,500,000 **(declined)**

2019 *Generalization Across Multiple Mathematical Areas: Studies of Classrooms and Teachers*. National Science Foundation DRK-12. PI, Amy Ellis. Co-PIs, Elise Lockwood, Kevin Moore, Erik Tillema. $3,000,000 (**declined**)

2013 National Science Foundation. *Anchoring Curriculum and Teaching on Children’s Knowledge*. PI, Anderson Norton. Co-PIs, Heather Johnson, Amy Hackenberg, Erik Tillema, Ron Tzur, Jay Wilkins. $2,000,000. (**declined)**.

2012 National Science Foundation. *Anchoring Curriculum and Teaching on Children’s Knowledge*. PI, Anderson Norton. Co-PIs, Heather Johnson, Amy Hackenberg, Erik Tillema, Ron Tzur, Jay Wilkins. Percent Contribution: 15%. $2,000,000. (**declined)**.

2012 National Science Foundation. *Anchoring Curriculum and Teaching on Children’s Fraction Knowledge*. PI, Anderson Norton. Co-PIs, Amy Hackenberg, Jay Wilkins, Erik Tillema, Ron Tzur, Heather Godino. Percent contribution: 15% $2,000,000. (**declined)**.

2009 IUPUI’s Research Support Funds Grant. *Investigating 6th Grade Students’ Understanding of Multi-Digit Multiplication Using Combinatorics Problems*. PI, Erik Tillema. Percent contribution: 100%. $27,000. (**declined, resubmitted and funded**).

2009 National Science Foundation. *Investigating Students’ and Prospective Elementary Teachers’ First and Second Order Knowledge*. PI, Erik Tillema. Co-PIs, Amy Hackenberg, Signe Kastberg, Dionne Cross. Percent contribution: 32.5%. $450,000. (**declined**).

***SERVICE GRANTS***

2009 IU’s Office of Alumni Relations. *Symposium on Urban Education*. PI, Erik Tillema. Percent Contribution: 100%. $400. (**funded**).

2009 IUPUI’s Office of Diversity, Equity, and Inclusion. *Symposium on Urban Education*. PI Natasha Flowers Co-PI Erik Tillema. Percent Contribution: 50%. $800. (**funded**).

2009 IUPUI’s Academic Affair’s Conference Fund, *Symposium on Urban Education.* PI, Erik Tillema. Percent Contribution: 100%. $1,500. (**funded**).

2009 IUPUI’s Fortieth Fund, *Symposium on Urban Education*. PI, Erik Tillema. Percent Contribution: 100%. $2,000. (**funded**).

***UNIVERSITY COURSES TAUGHT OR ASSISTED***

***Graduate Courses***

*\*Seminar in Mathematics Education: Exploring and Designing Research Based Curriculum in Mathematics Education* (N731), this course is a course for Ed.D. students in mathematics education. It is a version of my curriculum course for Ph.D., which is described below. It differs in three ways: *the first is that it is entirely online and needed to be designed for both synchronous and asynchronous students. To meet the needs of online students I designed 13 online modules for the course in fall 2023, and within each module I wrote a weekly narrative (2-4 pages) to meet the needs of asynchronous students who were not attending the class.* The second is that the final project entailed solving a problem of practice for the Ed.D. students whereby they were asked to take up a curriculum issue that was relevant to their context (e.g., school or district curriculum adoption, examining the curriculum of another country because of the high percentage of immigrant students from that country in their district, etc.). The third was that we focused more intensively on current curricula, in particular, the transition to online platforms that are now used in many districts.

*Seminar in Mathematics Education: History and Curriculum in Mathematics Education* (N716), 3-credits, Over the past 100 years, the USA and many other countries worldwide have experienced repeated attempts to reform the school mathematics curriculum. The focus of our reading and discussions this semester will be the changing school mathematics curriculum and the issues and forces that have influenced these changes. The first half of the course will be devoted to the history of mathematics curriculum development in the United States. We will compare and contrast different curricula from 1900-1990 and examine some primary source documents about the history of education in this country. The second half of the course will be devoted to contemporary curriculum development projects (1990s and newer). Throughout we will examine the history of curriculum development using a critical perspective asking questions like: Who does a particular curriculum development project serve?; How do particular curriculum development projects influence outcomes in schools?; and What power relations are preserved or not as a result of decisions embedded in particular curriculum development projects?

*Seminar in Mathematics Education: Research on Learning* (N716), 3-credits, The focus of this course is to help doctoral candidates develop an understanding of research in mathematics education through a focused reading of research on students’ multiplicative reasoning. The reason for this choice of topic is: (1) it has been an important area of research in mathematics education that cuts across many content domains and age ranges; and (2) it is closely connected to issues of curriculum and learning. The course is organized so that we will begin by reading about multiplicative reasoning with whole numbers, then move to more advanced topics like the multiplicative reasoning involved in fraction reasoning, ratio reasoning, proportional reasoning, and reasoning with linear functions. We will close the course with readings on non-linear multiplicative reasoning (e.g., raising numbers to a whole number power, and exponential reasoning).

*Research in Mathematics Education* (E590), The focus of this course is to support masters or PhD. students to do a research project in mathematics education. The research projects that I have facilitated have included: (1) an investigation of whether elementary grade students with autisms increased their communicative acts when using assistive technology to engage with mathematics problems. This work resulted in a graduate student submitting a manuscript that he is currently revising to *Autism and Other Developmental Disabilities*; (2) an investigation of a kindergartner’s early number concepts; and (3) an examination of the impacts of team teaching and technology use for special education elementary students’ understanding of mathematics.

*Master Project Practicum* (J538), This is the final course masters students take before completing their degree, and it entails them in writing a masters project or thesis.

***Undergraduate Courses***

**\****Early Field Experience in Mathematics and Science* (M301), 2 credits, I took on the role of coordinating the mathematics and science field experience for the elementary education program. *Over the course of the year, I work to develop and maintain relationships with between 40-50 teacher at 6-8 elementary schools.* This work includes setting up placement sites for IU students, receiving feedback from teachers about the field experience, and adjusting the field experience to improve it based on feedback. Based on teacher feedback, I have adjusted the field so that only 3 IU students are in each classroom (as opposed to 4-6 IU students), allowed teachers to select the time of day that IU students come to their classrooms, and made adjustments and improvements to the system of accountability for IU students while in the field. I have also developed and maintained a Canvas copy site to support graduate students to teach this course. The copy site includes resources for AIs to use in their teaching of the course. *This year, with the support of a graduate student, I have updated the site to include weekly reflections that we ask undergraduate teacher candidates to do while in the field.*

**\****Mathematics Methods for Elementary Teachers* (E343), 3 credits, I continued coordinating the math methods course for elementary teachers, which included weekly meetings with AIs, coupled with resolving issues as they arose between undergraduate students and their instructors. I have developed a copiable Canvas site with different copiable components depending on the semester (content switches from fall and spring) and the population of student (early childhood versus elementary). The Canvas site has helped to ensure consistency and sufficient support for instructors teaching the course. *This year, with the support of a graduate student, I updated the Canvas site so that the materials are “phone” friendly, allowing undergraduates to access information easily on their phones, and transitioned all assignments into Canvas with Canvas rubrics.*

*\*Algebra Across the Curriculum* (M302), 1 credit, I adjusted this course from last year’s version. These adjustments included creating two new problem sets and making more minor adjustments to other assignments.

*Calculus Across the Curriculum* (M302), 1 credit, I read texts and selected one to use for this course. I also developed problem sets for the course and major assignments, including rubrics for all assignments. I created a Canvas site for this course as well, including a linked homepage.

*Teach and Learn Elementary Mathematics I* (N102), 3 credits, This course uses elementary grades students’ quantitative reasoning with whole numbers as a basis for helping pre-service elementary grades teachers reflect on, and develop their own quantitative reasoning with whole numbers. I have developed a curriculum that uses the Cognitively Guided Instruction videos, Math Solutions videos, and videos from my own research to show pre-service teachers elementary grades students’ strategies for reasoning about whole numbers. Then they use these strategies to work on problem sets that I have developed, which involve problems in base five and base twelve. The course is structured around helping the pre-service teachers understand how students’ progress over time in their whole number reasoning.

*Teach and Learn Elementary Mathematics II* (N103), 3 credits, This course uses elementary grades students’ quantitative reasoning with fractions, decimals, and percents as a basis for helping pre-service elementary grades teachers reflect on, and develop their own quantitative reasoning with fractions, decimals, and percents. I have developed a curriculum that uses videos from my own research to show pre-service teachers students’ strategies for reasoning about fractions, decimals, and percents. Then they use these strategies, along with the computer micro-world JavaBars, to work on problem sets that I have developed. The course is structured around helping the pre-service teachers understand how students progress in their reasoning with fractions, decimals, and percents.

*Mathematics in the Elementary School* (N343), This course is a 6-credit course that combines the contents of N-102 and N-103.

*Mathematics Methods for Elementary Teachers: Grades K-2* (E345), 3.5 credits, This course has a field component—students interact one on one with a kindergarten student three times and one on one with a first grade student three times—and a non-field component—students attend regular course meetings for fifteen-weeks. The course has three main strands: using different aspects of how students develop an early understanding of number, developing teacher identity that includes an understanding of teachers and schools as racialized people/spaces, and identifying discourse moves in order to connect them to the creation of equitable classrooms. Throughout the course, I used video to prepare students for field experiences, and then use their field experiences to connect to our discussions and readings in class.

***Course Enrollments for IUPUI and IUB courses***

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Semester** | **Course Number & Credit Hours** | **Enrollment** |
| 2007-2008 | Fall | E343, 3 credits | 27 |
| Fall | E343, 3 credits | 26 |
| Spring | E343, 3 credits | 26 |
| 2008-2009 | Fall | N102, 3 credits | 27 |
| Fall | N103, 3 credits | 27 |
| 2009-2010 | Fall | N102, 3 credits | 30 |
| Fall | N103, 3 credits | 30 |
| Fall | E590, 3 credits | 1 |
| Spring | N343, 6 credits | 25 |
| 2010-2011 | Fall | N343, 6 credits | 28 |
| Spring | N102, 3 credits | 23 |
| Spring | N590, 5 credits | 1 |
| Summer | J538, 6 credits | 1 |
| Summer | E590, 3 credits | 1 |
| 2011-2012 | Fall | N102, 3 credits | 24 |
| Fall | N102, 3 credits | 20 |
| Spring | N102, 3 credits | 27 |
| Spring | N102, 3 credits | 28 |
| Spring | N102, 3 credits | 1 |
| 2012-2013 | Fall | N102, 3 credits | 24 |
| Fall | N102, 3 credits | 20 |
| Spring | N102, 3 credits | 28 |
| Spring | N102, 3 credits | 27 |
| 2013-2014 | Fall | N102, 3 credits | 24 |
| Fall | N716, 3 credits | 6 |
| Fall | N590, 3 credits | 1 |
| Spring | N102, 3 credits | 24 |
| Spring  | N102, 3 credits | 26 |
| 2014-2015 | Fall | N102 | 25 |
| Fall | N102 | 24 |
| Spring | E345 | 27 |
| Spring | Course Buyout | NSF Grant |
| 2015-2016 | Fall | N716 | 9 |
| Fall  | N610 | 2 |
| Fall | N590 | 1 |
| Fall | Course Release | Chair Teacher Ed. |
| Spring | Sabbatical |  |
| 2016-2017 | Fall | Course Release  | Chair Teacher Ed. |
| Fall | Course Buyout | Grant |
| Spring | Course Release  | Chair Teacher Ed. |
| Spring | Course Buyout | Grant |
| 2017-2018 | Fall | Course Release | Chair Teacher Ed. |
| Fall | N102 | 24 |
| Spring  | Course Release | Chair Teacher Ed.  |
| Spring | E543 | 10 |
| 2018-2019 | Fall | N716 | 9 |
| Fall | Negotiated Course Release | Transfer to IUB |
| Spring | E343 | 76/20 |
| Spring | M201 | 20 |
| 2019-2020 | Fall | E343 | 51/17 |
| Fall | E343 | 51/18 |
| \*Spring  | E343 | 40/21 |
| \*Spring | Course Buyout | NSF grant |
| 2020-2021 | \*Fall | E343 | 24 |
| \*Fall | M201 |  |
| \*Spring  | E343 | 20 |
| \*Spring | M201 |  |
| 2021-2022 | Fall | M201 | 16 teachers &2 graduate students |
| Fall | Course Buyout |  |
| Fall | M302: Algebra | 7 |
| Spring | M302: Calculus | 7 |
| Spring | M301 | 25 teachers & 5 graduate students |
| Spring | E343 | Coordinated 4 sections |
| Spring | N716 | 8 |
| 2022-2023 | Fall | M302: Algebra | 6 |
| Fall | M301 | 16 teachers &2 Ph.D. students |
| Fall | E343 | Coordinated 2 sections |
| Fall | Course Buyout |  |
| \*Spring | Sabbatical |  |
| 2023-2024 | \*Fall | M302: Algebra | 5 |
| \*Fall | M301 | 11 teachers& 2 Ph.D. students |
| \*Fall | N731 | 16 Ed.D. students |
| Spring | E343 | 24  |
| Spring | M301 | 43 teachers & 6 Ph.D. students |
| Spring  | M302 | 14 |

***Mean Teaching Evaluation Scores for all IUPUI Courses on 6 Common Survey Items (1- 5pt. scale)***

|  |  |
| --- | --- |
| **Survey Item** | **Average** |
| Overall I would rate the quality of this course as outstanding. | 4.32 |
| Overall I would rate the quality of this instructor as outstanding | 4.36 |
| My instructor is knowledgeable about course topics. | 4.74 |
| The instructor promotes an atmosphere that is conducive to learning. | 4.62 |
| I learned a lot in this course/I developed the ability to solve problems in the field. | 4.60 |
| My instructor organized the course well. | 4.52 |

***ACADEMIC MENTORING AND ADVISING***

***Faculty Mentor***

2016-2019 Teresa Sosa, faculty mentor

2016-2018 Jeremy Price, temporary faculty mentor

***Student Awards of Mentored Students***

\*2023 Desiree Ippolito, school of education AI teaching award for outstanding teaching

2022 Weverton Ataide Pinheiro, school of education AI teaching award for outstanding teaching

2021 Lori Burch, school of education nominee for Wells Fellowship

2019 Lori Burch, school of education AI teaching award for outstanding teaching

2018-2019 Andrew Gatza, Wells Fellowship, $42,000, for strong commitment to civic engagement and advocacy.

***Doctoral Program Dissertations, Program Committees, and Independent Studies***

\*2023-present Selim Yauz, member dissertation committee

\*2023-present Mariela Duarte, member dissertation committee

\*2023-present Iwan Sianturi, chair dissertation committee, proposal in progress

\*2023-present Mathew Hardee, director early inquiry project, project in progress

\*2022-present Desiree Ippolito, chair dissertation committee, dissertation proposal in progress

\*2022-2023 Iwan Sianturi, director early inquiry project, completed

\*2022-2023 Mariela Duarte, director early inquiry project, completed

\*2022-present Courtney Flessner, member dissertation committee

\*2023 Iwan Sianturi, mentor internship in E343, M301

2022 Hyunjeong Lee, mentor internship in E343

2022 Mariela Duarte, mentor internship in E343

2022 Lori Burch, mentor internship in M302

2022 Albertha Sabree, mentor internship in M302

2022 Jonathan Rojas Valero, mentor internship in M302

2022 Selim Yauz, mentor internship in E343

2022 Mathew Hardee, mentor internship in E343 & M201

\*2021-2023 Lori Burch, chair dissertation committee, dissertation completed

\*2021-2023 Abdul Alhayan, chair dissertation committee, dissertation completed

\*2021-2023 Mariela Duarte, member program of studies committee, exams completed

2021-2022 Jenny Cox, member dissertation committee, completed

2021 Mihyun Jeon, mentor for internship in M201

2021 Tullana Ariyaratne, mentor for internship in M201

2021 Kemol Lloyd, mentor for internship in E343

2021 Mariela Duarte, mentor for internship in M302

2021 Lori Bruch, mentor internship in M302

2021 Mariela Duarte, mentor internship in M302

**\***2020-2023 Iwan Sianturi, chair of program of studies committee, exams completed

2020-2022 Joe Antonides, member dissertation committee, completed

2020-2022 Weverton Ataide Pinheiro, chair dissertation committee, completed

2020-2022 Desiree Ippolito, director early inquiry, completed

2020-2022 Desiree Ippolito, chair program of studies committee, completed exams

2020-2021 Courtney Flessner, member program of studies committee

2020 Mihyun Jeon, mentor internship in E343

2019-2020 Joe Antonides, member program of studies committee

2019-2020 Weverton Ataide Pinherio, early inquiry completed

2019-2020 Lori Burch, early inquiry completed

2020 Patti Walsh, mentor internship in E343

2019-2020 Skip Potts, mentor internship in E343 and M201

2019 Weverton Ataide Pinheiro, mentor internship in E343

2019 Weverton Ataide Pinheiro, independent study on queer theory

2018-2021 Andrew Gatza, PhD. student, chair dissertation committee

2018-2021 Jinqing Liu, PhD. student, member dissertation committee

2018-2020 Abdul Aalayhan, member program of studies committee

2018 Andrew Gatza, PhD. student, director early inquiry project

2018 Tio Savich, PhD. student, reader qualifying exams

2018 Pai Suksak, PhD. student, reader qualifying exams

2017-2020 Rebecca Borrowski, PhD. student, member dissertation committee, defense summer 2020

2017-2020 Weverton Ataide Pinheiro, PhD. student, chair program committee

2016-2019 Catherine Kaduk, PhD. student, external member dissertation committee, anticipated graduation December, 2019.

2016 Ayfer Adeniz, PhD. student, Reader qualifying exams

2016 Mike Daiga, PhD. student, Reader qualifying exams

2016 Rich Kogen, PhD. student, Supervisor research experience

2016 Musa Sadek, PhD. student, Supervisor research experience

2015 Robin Jones, PhD. student, Independent study: Internship in mathematics education

2015 Courtney Flessner, PhD. student, Independent study: Internship in mathematics education

2015 (FA) Andrew Gatza, PhD. student, Independent study: Research in mathematics education

2015 (SP) Andrew Gatza, PhD. student, Independent study: Research in mathematics education

2014-present Abdul Alhayyan, PhD. student, member program committee, anticipated graduation May, 2019

2014-present Ryan Timmons, PhD. student, chair program committee, anticipated graduation unknown

2013-2018 Andrew Gatza, PhD. student, chair program committee, anticipated graduation August, 2020

2010-2012 Paul Tan, PhD. student, member program committee

2011 Paul Tan, PhD. student, research project

2009 Sue Ellen Richardson, PhD. student, research project

***Adjunct Mentorship***

2017 Kim Johnson, adjunct instructor E343

2017-present Karmen Franklin, adjunct instructor N-102

2017 John Palmer, adjunct instructor N-102

2016-present Betty Wood, adjunct instructor N-102

2016 Eric Nunally, adjunct instructor E345

2016 Robin Jones, adjunct instructor N-102

2015 Denice Lewis, adjunct instructor N-102

2014-2015 Paul Tan, adjunct instructor N-102

2013-2014 Sandra Baker, adjunct instructor N-102

2013-2014 Jennifer Jensen, adjunct instructor N-102

***Masters Degree Advisor***

2012 Marguerite Bopp, graduated, Advisor

2011 Jordan Perry, graduated, Advisor

2011 Lauren Grossel, graduated, Advisor

2011 Caitlin Hussey, graduated, Advisor

2010 Martha Honor, graduated, Advisor

2010 Brooke Morgan, graduated, Advisor

2010 Jennifer Windle, graduated, Advisor

2010 Hanako Kawamoto, transferred to social work, Advisor

2009-2011 Jennifer Mirkovich, degree awarded, Masters Project Director and Advisor

***Undergraduate Advising, Research, and Mentorship***

2015-2017 Kasha Hayden, independent study for N-102

2014-2015 Brendan Chandler, Mentor for presentation at NCTM regional conference

2013 Lukas Riley, Mentor Undergraduate Research

2013 Jillian Evrard, Mentor for Benchmark II indicators

2013 William Strong, Mentor

2013 Laura Brown, Directed honors project for honors course credit

2012-2013 Brendan Chandler, Mentor for manuscript submission to Mathematics Teaching in the Middle School

2012 Michelle Muldoon, Directed honors project for honors course credit

2012 Brittany Grimm, Mentor for Benchmark II indicators

2011 Scott Horan, Mentor for Benchmark II indicators

2010-2011 Samantha Mockler, Mentor Undergraduate Research Opportunities Program

2010-2011 Jayme Taylor, Mentor Undergraduate Research

2010 Donald Holly, Mentor

2010 Taylor Hall, Mentor for Benchmark II indicators

2010 Sylvia Lane, Mentor for Benchmark II indicators

2010 Miranda Erdman, Mentor for Benchmark II indicators

2010 Erica Von Dielingen, Mentor for Benchmark II indicators

2010 John Higgins, Mentor for Benchmark II indicators

2010 Heather Nadzam, Mentor for Benchmark II indicators

2010 Erin Jackson, Mentor for Benchmark II indicators

2010 Deborah Herzner, Mentor for Benchmark II indicators

2010 Alyssa Miller, Mentor for Benchmark II indicators

2010 Abigail Fritcha, Mentor for Benchmark II indicators

2010 Clay Calvert, Mentor for Benchmark II indicators

2010 Kristine Morrison, Mentor for Benchmark II indicators

2010 Dan Jenkins, Mentor for Benchmark II indicators

2010 Courtney Henson, Mentor to become a Teaching Assistant

2009 Marcella Burrow, Mentor for Benchmark II indicators

2009 Mary Beth Hadler, Mentor for Benchmark II indicators

2009 Erik Felts, Mentor for Benchmark II indicators

2009 Marissa Wilson, Mentor for Benchmark II indicators

2009-2010 Emily Bingham, Mentor for manuscript submission to Teaching Children Mathematics

2008 Carol Austin, Mentor for Benchmark II indicators

2008 Suzanne Arnold, Mentor for Benchmark II indicators

2008 Megan Grubaugh, Mentor for Benchmark II indicators

2008 Jennifer Koch, Mentor for Benchmark II indicators

***UNIVERSITY SERVICE***

***School/Department/Program***

2022 Reviewer, FRSP internal grant proposal

\*2022-present Member, Committee on Undergraduate and Teacher Education

2021-2022 Alternate member, Policy Council

\*2021-2023 Leader, EdD online degree creation in mathematics education

2020-2021 Member, Teacher Education Early Field Experience committee

2019-2021 Member, Teacher Education Convening committee

2019 Member, C&I DMAI Committee

2019 Member, C&I Curriculum Committee

2018-2021 Co-Chair, Diversity Committee IUB

2018-2019 Member, Education Council IUB

2018 Member, Selection committee for new chair of department of curriculum and instruction IUB

2018 Presenter, Paula Magee case for promotion and tenure

2017 Presenter, Craig Willey case for promotion and tenure

2017 Reviewer, Urban Education doctoral applications

2015-present Chair, Teacher education programs IUPUI

2015-present Coordinator, Mathematics and Science concentration for elementary pre-service teachers

2015 Member, Policy council graduate studies committee

2015 Member, search committee for visiting faculty member in mathematics education

2015 Member, search committee for web developer

2015 Chair, selection committee for chair of teacher education

2015 Member, EAD selection committee

2015 Chair, Third year review committee Craig Willey

2014-2016 Co-Chair, IUPUI SOE Faculty Meeting Agenda Committee

2014-2016 Co-Chair, Faculty Co-Chair for IUPUI faculty meetings

2014 Author, program option for PhD. students in mathematics education to reside on IUPUI’s campus

2014 Author, Mathematics and science concentration for elementary pre-service teachers

2014 Guest, IUPUI SOE Faculty Affairs and Budgetary Affairs

2014 Member, Policy Council Elections Committee

2013 Co-author, Appeal to the University Curriculum Advisory Committee about general core

2012-2013 Chair, IUPUI School of Education Issues in Urban STEM Speakers Series Committee

2012-2017 Co-Chair, IUPUI School of Education Scholarship Committee

2012-2013 Member, IUPUI School of Education Reform Committee

2012-2013 Member, IUPUI School of Education Structure and Governance Working Group

2010 Author, Appeal to the University Curriculum Advisory Committee about N-102

2010-present Member, IUPUI School of Education Council on Teacher Education

2010-2011 Member, IUPUI Search Committee tenure track mathematics education faculty

2010-2011 Member, IUPUI School of Education Technology Committee

2008-2012 Member, IUPUI School of Education Scholarship Committee

2008-2009 Member, IUPUI Agenda Committee for Faculty Meetings

**\***2007-present Program Member, IUB mathematics education program

***Campus***

2017 Reviewer, CEG grants

2017 Reviewer, RSFG grants

2014-2015 Member, IUPUI Faculty Council

2014-2015 Member, Research subcommittee of IUPUI Faculty council

2013 Member, IUPUI’s Program Review of the Mathematics Department

2012-present Member, IUPUI Strategic Scholarship Coordinating Committee

2011 Reviewer, IUPUI Multidisciplinary Undergraduate Research Institute proposals

2011 Mentor, IUPUI Undergraduate Research Opportunities Program

2010-2012 Member, IUB/IUPUI School of Education Policy Council

2010-2011 Chair, IUB/IUPUI School of Education Lectures and Seminars Committee

2008-2010 Member, IUB/IUPUI School of Education Lectures and Seminars Committee

***PROFESSIONAL SERVICE***

***Regional***

2016-2018 Faculty Advisor, Indiana Mathematics Education Research Symposium

2015-2016 Co-Organizer, Indiana Mathematics Education Research Symposium

2014-2015 Co-Organizer, Indiana Mathematics Education Research Symposium

2013-2014 Chair, Indiana Mathematics Education Research Symposium

2012-2013 Co-Organizer, Indiana Mathematics Education Research Symposium

2012-2014 Member, Subgroup of Hoosier Association of Mathematics Teacher Educators investigating the possibility of establishing a Elementary Mathematics Specialist Licensure in the State of Indiana

2011-2012 Co-Organizer, Indiana Mathematics Education Research Symposium

2011-present Member & University Representative, Hoosier Association of Mathematics Teacher Educators

***National***

\*2023-present Reviewer, *Investigations in Mathematical Learning*

2022 External Reviewer, Promotion and Tenure Cases

2021 Reviewer, National Science Foundation DRK-12 Grant Proposals

\*2020-present Reviewer, *Mathematics Teacher: Teaching and Learning PK-12*

2019 Letter of support, Peter Wiles

2018-2019 Letters of Recommendation, Teresa Sosa

2019 External Reviewer, Promotion and Tenure, Cheryl Eames

\*2018-present Reviewer, Association of Mathematics Teacher Educators

2018-2019 Department Editor, *Mathematics Teacher: Learning and Teaching PreK-12*

2017-2019 Member Editorial Panel, *Mathematics Teaching in the Middle School*

2016 Letter of Recommendation, Job application for Elise Lockwood to UGA

2015 External Reviewer, Promotion and Tenure Case Heather Johnson

2014-present Reviewer, *Indiana Mathematics Teacher*

2014 Reviewer, *Qualitative Studies in Education*

2014-2015 Member, Subcommittee to organize the Psychology in Mathematics Education Conference North American Conference in 2016

2014-2015 Member Program Committee, National Council of Teachers of Mathematics regional conference in Minneapolis, MN.

2014 External Reviewer, Promotion and Tenure Case Holly Anthony

2014 Facilitator, National Council of Teachers of Mathematics Common Core Standards Professional Development Institute for Middle Grades Teachers

2013-2015 Member, Steering Committee for the Psychology in Mathematics Education Conference North America

2013 Co-Organizer, Quantitative Reasoning and Mathematical Modeling working group at the Psychology in Mathematics Education Conference North America

2013 Facilitator, National Council of Teachers of Mathematics Common Core Standards Professional Development Institute for Middle Grades Teachers

2013 Co-Editor, Math for Real section of *Mathematics Teaching in the Middle School*

2009-2012 Editor, Math for Real section of *Mathematics Teaching in the Middle School*

2009 Lead Organizer, IUPUI’s Symposium on Urban Education.

2008-present Reviewer, American Educational Research Association’s Annual Conference

2008-present Reviewer, National Council of Teacher’s of Mathematics Annual Research Pre-session Proposals

**\***2008-present Reviewer, *Journal of Research in Mathematics Education*

**\***2008-present Reviewer, *Journal of Mathematical Behavior*

2007-present Reviewer, *Mathematics Teaching in the Middle School*

**\***2007-present Reviewer, Psychology in Mathematics Education North American Conference proposal reviewer

2003-2006 Associate Editor, *The Mathematics Educator*

2003-2004 Vice President, Mathematics Education Student Association at University of Georgia

2002-present Reviewer, *The Mathematics Educator*

***International***

2020 Reviewer, Social Science and Humanities Research Council of Canada grant proposal

2019 Reviewer, International Congress on Mathematical Education proposal reviewer

2015 Reviewer, International Congress on Mathematical Education proposal reviewer

2011 Reviewer, Social Science and Humanities Research Council of Canada grant proposal

2014-present Reviewer, Psychology in Mathematics Education Conference proposal reviewer

2011-present Reviewer, *Mathematical Thinking and Learning*

2009-present Reviewer, *International Journal of Science and Mathematics Education*

1. Dr. Denise Mewborn, dean of the school of education at the University of Georgia and full professor in mathematics education, has advised that the general convention for paper presentations at the Psychology of Mathematics Education North American Chapter Conference is that they appear twice on a person’s curriculum vita—once as a peer reviewed conference proceeding and once as a presentation of the paper. This convention is because a paper is required for acceptance to the conference, and is published as a result of the conference. The same applies to papers written for the International Congress on Mathematical Education. [↑](#footnote-ref-1)