David Plaxco

Curriculum Vitae

University of Georgia
507B Boyd Graduate Studies Center
Athens, GA 30601

Email: david.plaxco@uga.edu
www.math.uga.edu/directory/people/david-plaxco

Education

Ph.D., Mathematics (Research Focus: Undergraduate Math Education), 2015, Virginia Tech

- Dissertation: Relating Understanding of Inverse and Identity to Engagement in Proof in Abstract Algebra
- Advisor: Dr. Megan Wawro
- Comprehensive Exams: Abstract Algebra and Complex Analysis

M.S., Mathematics (Research Focus: Undergraduate Math Education), 2011, Virginia Tech

- Thesis: Relationship Between Students' Proof Schemes and Definitions
- Advisor: Dr. Anderson Norton

B.S., Mathematics Education, 2007, Auburn University

Awards and Honors

- USG Regents Scholarship of Teaching and Learning Award Nominee (2022) – Nominated by my peers to represent Clayton State University for the USG Regents Scholarship of Teaching and Learning Award.
- Best Paper Award (co-authored with Dr. Megan Wawro) – 16th Annual Conference of the Mathematical Association of America's Special Interest Group for Research in Undergraduate Mathematics Education (SIGMAA-RUME)

Positions Held

- Lecturer, University of Georgia, August 2024 – Present
- Associate Professor, Clayton State University, August 2022 – July 2024
- Assistant Professor, Clayton State University, August 2017 – August 2022
- Postdoctoral Researcher, University of Oklahoma, August 2015 – May 2017
- Graduate Student, Virginia Tech, August 2009 – August 2015
- Mathematics Teacher, Muscle Shoals Middle School, August 2007 – May 2009

Teaching Experience

(#) Indicates the Number of Sections Taught

University of Georgia: *Lecturer*, F24 – Present

- MATH 1113: Precalculus (2)
- MATH 2600: Calculus II for STEM Majors (3)
- MATH 3300: Applied Linear Algebra for STEM Majors (6)

Clayton State University: *Assistant Professor*, F17 – Sp22; *Associate Professor*, F22 – Sp24

- MATH 0998: Support for Mathematical Modeling (2)
- MATH 0999: Support for College Algebra (1)
- MATH 1101 and 1111S: Mathematical Modeling (1)
- MATH 1111 and 1111S: College Algebra (4)

- MATH 1112: Trigonometry & Analytic Geometry (4)
- MATH 1501: Calculus I (2)
- MATH 2010: Number Concepts and Relations for Middle Grades Education (4)
- MATH 2140: Introductory Linear Algebra (15)
- MATH 3020: Concepts of Algebra for Middle Grades Education (6)
- MATH 4010: Problem Solving for Middle Grades Education (2)
- MATH 4250: Elementary Number Theory (1)
- EDUC 4712: Middle Grades Internship (5)
- EDUC 4731: Secondary Level Internship (2)
- MATH 4800: Discovery and Play in Discrete Mathematics (1)
- MATH 4987: Directed Undergraduate Research I (4)
- MATH 4988: Directed Undergraduate Research II (5)
- MATH 4989: Senior Capstone Project (7 students)
- MATH 5250: Elementary Number Theory for Master's Students (1)
- MATH 5800: Discovery and Play in Discrete Mathematics for Master's Students (1)
- MAED 6400: Directed Research in Mathematics Education (2)

University of Oklahoma: *Postdoctoral Faculty Member*, F15 – Sp17

- MATH 3333: Linear Algebra (6)
- MATH 2513: Discrete Mathematical Structures (1)

Virginia Tech: *Graduate Teaching Assistant*, F09 – Sp15

- MATH 1206: Integral Calculus for Science and Mathematics Majors (1)
- MATH 1224: Vector Geometry, Instructor of Record (1); Recitation Instructor (2)
- MATH 2015: Calculus II with Trigonometry (1)
- MATH 2644: Math Tutoring for Preservice Teachers (3)
- MATH 3624: Early Teaching Experience for Preservice Teachers (3)

Research Funding

(Successful)

Principal Investigator: Clayton State University President's Research and Creative Endeavors Mini Grants initiative; $3000; 2022. This internal grant was a proposal to fund travel to the Third International Conference on Applications of Mathematics to Nonlinear Sciences in Pokhara, Nepal. Along with funding from the Mathematics Department, this grant supported travel to the conference, where I gave an invited presentation to disseminate the IOLA Determinants Unit's instructor materials.

Principal Investigator: MAA Tensor-SUMMA - *$(CS)^3$ – The Chelby Slappy Clayton State Cubing Society*; $6000; 2021-2023. The primary goal of this project is to establish The Chelby Slappy Clayton State Cubing Society [$(CS)^3$], provide club members with puzzle starter kits, and establish a permanent twisty puzzle library at Clayton State University. $(CS)^3$ engages undergraduate students at Clayton State University in socially situated, novel, informal problem solving with twisty cube puzzles like the Rubik's cube.

Co-Principal Investigator: National Science Foundation – Improving Undergraduate STEM Education (IUSE), *Collaborative Research: Extending Inquiry-Oriented Linear Algebra Into New*

Topics; M. Zandieh (PI), Megan Wawro (co-PI), Christine Andrews-Larson (co-PI), and **David Plaxco** (co-PI); $599,071; *2019 – 2024*. This research collaboration is a continued effort to expand the IOLA curriculum to include additional mathematical topics and extend the project's reach to more undergraduate instructors.

Co-Principal Investigator: National Science Foundation – Improving Undergraduate STEM Education (IUSE), *Simulation-Based Inquiry-Oriented Linear Algebra*; M. Zandieh (PI), **David Plaxco** (co-PI), and Ashish Amresh (co-PI); $299,999; *2017 – 2023*. Responsibilities: Iteratively design, develop and test a game-based applet to support players' understanding of linear algebra content, including linear independence, span, and basis. Disseminate game to a wider audience and extend the education research community's understanding of the issues involved in combining curricular design with videogame design.

Co-Principal Investigator: Virginia Tech Center for Innovation in Learning, *Innovation in Undergraduate Mathematics Education: Supporting Student-Centered Instruction*; M. Wawro (PI) and **David Plaxco** (co-PI); $10,000; *2013 – 2014*. Responsibilities: Participated in New Media Seminar that helped inform approaches to web design, reflecting an alternative focus from product-oriented websites to more user-oriented portals.

Refereed Publications

- Mauntel, M., Wawro, M., & Plaxco, D. (2024). An Inquiry-Oriented Approach to Determinants. Primus.
- Wawro, M., Andrews-Larson, C., Zandieh, M., & Plaxco, D. (2023). Inquiry-Oriented Linear Algebra: Connecting Design-Based Research and Instructional Change Research in Curriculum Design. In Practice-Oriented Research in Tertiary Mathematics Education (pp. 329-348). Cham: Springer International Publishing.
- Plaxco, D. (2022). Overview of Tertiary Level Data. In Conceptions and Consequences of Mathematical Argumentation, Justification, and Proof (pp. 211-217). Cham: Springer International Publishing.
- Plaxco, D., & Wawro, M. (2022). Argumentation in the Context of Tertiary Mathematics: A Case Study of Classroom Argumentation and the Role of Instructor Moves. In Conceptions and Consequences of Mathematical Argumentation, Justification, and Proof (pp. 219-237). Cham: Springer International Publishing.
- Andrews-Larson, C., Mauntel, M., Plaxco, D., Watford, M. Smith, J. L., & Kim, M. (2021). Introducing closure under linear combinations: the one-way hallways task sequence. IMAGE. 30(67), 3-5. https://ilasic.org/wp- content/uploads/IMAGE/image67.pdf
- Mauntel, M., Levine, B., Plaxco, D., & Zandieh, M. (2021). The characterization and evolution of strategies about vector equations in the game Vector Unknown. Digital Experiences in Mathematics Education, 7, 453-476.
- Stewart, S., Troup, J., and Plaxco, D. (2019). Reflection on teaching linear algebra: Examining one instructor's resources, orientations and goals (ROGs) while moving between the three worlds of mathematical thinking. ZDM Mathematics Education, 1253-1266.

- Plaxco, D., Zandieh, M., & Wawro, M. (2018). Stretch Directions and Stretch Factors: A Sequence Intended to Support Guided Reinvention of Eigenvector and Eigenvalue. In Challenges and Strategies in Teaching Linear Algebra, 175-192. Springer, Cham.
- El Turkey, H., Tang, G., Savic, M., Karakok, G., Cilli-Turner, E., & Plaxco, D. (2018). The Creativity-in-Progress Rubric on Proving: Two Teaching Implementations and Students' Reported Usage. Primus, 28 (1), 57-79.
- Tang, G., El Turkey, H., Cilli-Turner, E., Savic, M., Karakok, G., & Plaxco, D. (2017). Inquiry as an entry point to equity in the classroom. International Journal of Mathematical Education in Science and Technology, 48 (sup1), S4-S15.
- Plaxco, D., & Wawro, M. (2015). Analyzing student understanding in linear algebra through mathematical activity. The Journal of Mathematical Behavior, 38, 87-100.

Invited Talks/Contributions

- **Plaxco, D.** (2025, November) Exploring Knot Theory with n×n×n Rubik's Cubes. *Presentation to University of Georgia Math Club*.
- **Plaxco, D.** (2025, October) New Materials from the Inquiry-Oriented Linear Algebra Project. *Online Seminar of Undergraduate Mathematics Education*.
- **Plaxco, D.** (2025). Reviews. *The American Mathematical Monthly*, *132*(9), 941–944. https://doi.org/10.1080/00029890.2025.2541560
- **Plaxco, D.** (2023, November) The Mathematics and Art of Rubik's Cubes. *Emory Oxford College*, *Math Club Guest Speaker*. Oxford, GA.
- **Plaxco, D.**, Wawro, M., & Mauntel, M. (2023, May) An Inquiry-Oriented Task Sequence for Teaching Determinants. *Third International Conference on Applications of Mathematics to Nonlinear Sciences (AMNS-2023)*. Pokhara, Nepal.
- **Plaxco, D.** (2022, November) The Mathematics and Art of Rubik's Cubes. *University of Oklahoma*, *Math Day Guest Speaker*. Norman, OK
- **Plaxco, D.** (2022, November) A Case for Explicitly Supporting Playful Dispositions in Upper-Level Mathematics. *University of Oklahoma*, *Math Department Colloquium*. Norman, OK.
- **Plaxco, D.** (2022, March) More than Algorithms – Rubik's Cubes and the Art & Humanity of Mathematics. *University of Nebraska -Omaha, Pi Mu Epsilon Induction Ceremony*. Omaha, NE.
- **Plaxco, D.** (2021, June) Argumentation in the Tertiary Classroom. Conceptions and Consequences of What We Call Argumentation, Justification, and Proof. Research colloquium at PME-NA organized by Cirillo, M. and Bieda, K. Held online due to pandemic.
- **Plaxco, D.** (2019, February) The Cubes Underscore Art project: Anatomy of a Rubik's Cube Algorithm. *Presentation for the Interdisciplinary Research Series at Arkansas Tech University.* Russellville, AR
- **Plaxco, D.** (2015, November) Relating Proof and Conceptual Understanding of Identity and Inverse. *Presentation for the Oklahoma State University Mathematics Education Research Seminar.* Stillwater, OK

- **Plaxco, D.** (2015, September) Relating Understanding of Inverse and Identity to Engagement in Proof in Abstract Algebra. *Presentation at the Oklahoma Research in Undergraduate Mathematics Education Conference*. Norman, OK
- Wawro, M., & **Plaxco, D.**, (2014, January) Utilizing types of mathematical activities to facilitate characterizing student understanding of span and linear independence. *Joint Mathematics Meetings of the Mathematical Association of America and American Mathematical Society*, Baltimore, MD.
- **Plaxco, D.** (2013, September) Exploring Students' Understanding of Linear Independence of Functions with the Process/Object Pairs Framework*. Virginia Tech Student Chapter of the Society of Industrial and Applied Mathematics*. Blacksburg, VA.

Refereed Conference Proceedings

- **Plaxco, D.** Le, L., Wawro, M., & Mauntel, M. (2025). Students' Generalizing Activity While Using Determinant Applets. In Proceedings of the Annual Conference on Research in Undergraduate Mathematics Education.
- **Plaxco, D.**, Warren, A., & Davis, A. Counting a Class of Photogenic Knots on 9× 9× 9 Rubik's Cubes. Proceedings of Bridges 2024: Mathematics, Art, Music, Architecture, Culture. Richmond, VA.
- Mauntel, M., Zandieh, M., & **Plaxco, D.** (2024). Pirates, wobbly jelly, and bunnies… analyzing applets and video games from the perspective of RME. In Proceedings of the Annual Conference on Research in Undergraduate Mathematics Education.
- Wawro, M., Mauntel, M., **& Plaxco, D.** (2023). "The Shape Will Have No Volume": Relationships Students Observed about Determinants in a Dynamic Geometric Applet. In Proceedings of the Annual Conference on Research in Undergraduate Mathematics Education.
- **Plaxco, D.**, Mauntel, M., & Zandieh, M. (2023). Student Strategies Playing Vector Unknown Echelon Seas, a 3D IOLA Videogame. In Proceedings of the Annual Conference on Research in Undergraduate Mathematics Education.
- Simpson, A., Williams-Pierce, C., Shokeen, E., Katirci, N., Soto, H., Baker, J., DeLiema, D., Kapur, M., Ellis, A., Lockwood, E., & **Plaxco, D.** (2022). The Nature (s) of Embodied Mathematical Failure. In Proceedings of the 16th International Conference of the Learning Sciences-ICLS 2022, pp. 1787-1793. International Society of the Learning Sciences.
- **Plaxco, D.** (2022) Photogenic Knot Projections on n×n×n Rubik's Cubes. Proceedings of Bridges 2022: Mathematics, Art, Music, Architecture, Culture (pp. 331–334). Helsinki, Finland.
- Andrews-Larson, C., Mauntel, M., **Plaxco, D.**, Watford, M., Smith, J., & Kim, M. (2022). Contextual and Mathematical Conceptual Resources for Reasoning about Null Spaces. In Proceedings of the Annual Conference on Research in Undergraduate Mathematics Education.
- **Plaxco, D.**, Andrews-Larson, C., Smith, J., Kim, M., Mauntel, M., & Watford, M. (2021). Introducing An RME-Based Task Sequence to Support the Guided Reinvention of Vector Spaces. *Proceedings of the 24rd Annual Conference on Research in Undergraduate Mathematics Education*. [Conference held online due to COVID pandemic].

- Mauntel, M., Levine, B., **Plaxco, D.**, & Zandieh, M. (2020). Get that basket! Deciphering student strategies in the linear algebra game *Vector Unknown*. *Proceedings of the 23rd Annual Conference on Research in Undergraduate Mathematics Education*. Boston, MA.
- Mauntel, M., Sipes, J., Zandieh, M., **Plaxco, D.**, & Levine, B. (2019, January). "Let's see" – Students play *Vector Unknown*, an inquiry-oriented linear algebra digital game. *Proceedings of the 22nd Annual Conference on Research in Undergraduate Mathematics Education* (pp. 959-965). Oklahoma City, OK.
- Zandieh, M., Williams-Pierce, C., **Plaxco, D.**, & Amresh, A. (2018). Using Three Fields of Education Research to Frame the Development of Digital Games. *42nd Annual Conference of the International Group for the Psychology of Mathematics Education* (vol. 4, pp. 459-466). Umeå, Sweden.
- Zandieh, M., **Plaxco, D.**, Williams-Pierce, C., & Amresh, A. (2018). Drawing on Three Fields of Education Research to Frame the Development of Digital Games for Inquiry-Oriented Linear Algebra. *Proceedings of the Twentieth Annual Conference on Research in Undergraduate Mathematics Education* (pp. 1270-1279). San Diego, CA.
- Stewart, S., Troup, J., & **Plaxco, D**. (2018) Teaching Linear Algebra: Modeling One Instructor's Decisions to Move between the Worlds of Mathematical Thinking. *To be included in the Proceedings of the Twentieth Annual Conference on Research in Undergraduate Mathematics Education* (pp. 1014-1022). San Diego, CA.
- Wawro, M., Zandieh, M., & **Plaxco, D.** (2017). An Inquiry-Oriented Approach to a Guided Reinvention of Eigentheory. *Eleventh Southern Hemisphere Conference on the Teaching and Learning of Undergraduate Mathematics*. Gramado, Brazil.
- Savic, M., **Plaxco, D.**, & Wenger, M., Cilli-Turner, E., Tang, G., El Turkey, H., & Karakok, G. (2017). CxN: Investigating the creative proving process using neuroscience methods. *Proceedings of the Twentieth Annual Conference on Research in Undergraduate Mathematics Education* (pp. 879-885). San Diego, CA.
- Savic, M., El Turkey, H., Tang, G., Karakok, G., Cilli-Turner, E., **Plaxco, D.,** & Omar, M. (2017). Pedagogical practices for fostering mathematical creativity in proof-based courses: Three case studies. *Proceedings of the Twentieth Annual Conference on Research in Undergraduate Mathematics Education* (pp. 1418-1424). San Diego, CA.
- Tang, G., El Turkey, H., Cilli-Turner, E., Savic, M., **Plaxco, D.**, & Karakok, G. (2017). Inquiry as an access point to equity in the classroom. *Proceedings of the Twentieth Annual Conference on Research in Undergraduate Mathematics Education* (pp. 1098-1106). San Diego, CA.
- **Plaxco, D.** (2016). Re-claiming: One way in which conceptual understanding informs proving activity. *Proceedings of the Nineteenth Annual Conference on Research in Undergraduate Mathematics Education*, (pp. 383-396). Pittsburgh, PA.
- **Plaxco, D.** (2015). John's lemma: How one student's proof activity informed his understanding of inverse. *Proceedings of the Eighteenth Annual Conference on Research in Undergraduate Mathematics Education,* (pp. 889-895). Pittsburgh, PA.
- Zandieh, M., **Plaxco, D.**, Wawro, M., Rasmussen, C., Milbourne, H., & Czeranko, K. (2015). Extending multiple choice format to document student thinking. *To be included in the*

Proceedings of the Eighteenth Annual Conference on Research in Undergraduate Mathematics Education, (pp. 1079-1085). Pittsburgh, PA.

- **Plaxco, D.**, Wawro, M., & Zeitsman, L. (2014). Student understanding of linear independence of functions. *To be included in the Proceedings of the Seventeenth Annual Conference on Research in Undergraduate Mathematics Education* (pp. 992-998). Denver, CO.
- Larson, C., Wawro, M., Zandieh, M., Rasmussen, C., **Plaxco, D.**, & Katherine Czeranko. (2014). Implementing inquiry-oriented instructional materials in undergraduate mathematics. *To be included in the Proceedings of the Seventeenth Annual Conference on Research in Undergraduate Mathematics Education* (pp. 797-802). Denver, CO.
- Wawro, M. & **Plaxco, D.** (2013). Utilizing Types of Mathematical Activities to Facilitate Characterizing Student Understanding of Span And Linear Independence. In S. Brown, G. Karakok, K. H. Roh, and M. Oehrtman (Eds.), *Proceedings of the Sixteenth Annual Conference on Research in Undergraduate Mathematics Education* (pp. 1-15). Denver, CO.
- **Plaxco, D.** (2012). Relationships between mathematical proof and definition. In L. R. Van Zoest, J. J. Lo, & J. L. Kratky (Eds.), *Proceedings of the 33rd annual meeting of the North American Chapter of the International Group for Psychology in Mathematics Education* (pp. 167-173). Kalamazoo, MI.
- **Plaxco, D.** (2011). The temporal conception: student difficulties defining probabilistic independence. In L. R. Wiest & T. Lamberg, (Eds.) *Proceedings of the 32nd annual meeting of the North American Chapter of the International Group for Psychology in Mathematics Education* (pp. 276-283). Reno, NV.

Research Presentations

- Plaxco, D. (2022, August). Knot Theory on the n*n*n Rubik's Cube. Moves Conference, New York, NY.
- Plaxco, D., Reimer, P.N., Williams-Pierce, C., Ellis, A.B., Molitoris-Miller, S., Simpson, A., Zandieh, M., Mauntel, M., & Dogan, M.F. (2021, October). Mathematical play: Across ages, context, and content. Proceedings of the 43rd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Philadelphia, PA.
- Mauntel, M., Levine, B., Plaxco, D., & Zandieh, M. (2020). Chase that Rabbit! Designing Vector Unknown: A Linear Algebra Game. Presented at the 23rd Annual Conference on Research in Undergraduate Mathematics Education. Boston, MA.
- Williams-Pierce, C., Plaxco, D., Reimer, P.N., Simpson, A., Orrill, C.H., Burke, J.P., Sinclair, N., Guyevskey, V., Ellis, A.B., & Dogan, M.F. (2019, November). Mathematical play: Across ages, context, and content. Proceedings of the 41st annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. St. Louis, MO.
- Plaxco, D. (2019, August) Cubes Underscore Art: Alternative Solutions on the nxnxn Rubik's Cube. Moves Conference, New York, NY.
- Plaxco, D. and Zandieh, M. (2019, January) Simulation-Based Inquiry-Oriented Linear Algebra. Presented at Joint Mathematics Meetings of the Mathematical Association of America and American Mathematical Society, Baltimore, MD.

- Plaxco, D. (2019, January) The Cubes Underscore Art project: Producing patterns on nxnxn versions of twisty puzzles like the Rubik's cube. Presented at Joint Mathematics Meetings of the Mathematical Association of America and American Mathematical Society, Baltimore, MD.
- Williams-Pierce, C., Plaxco, D., Reimer, P.N., Ellis, A.B., & Dogan, M.F. (2018, November). Mathematical play: Across age, context, and content. In T. E. Hodges, G. J. Roy, & A. M. Tyminski, (Eds.), Proceedings of the 40th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (pp. 1507-1514). Greenville, SC.
- Plaxco, D. (2018, March) A Primer on Research in Undergraduate Mathematics Education with Examples from the 2018 RUME Conference. Clayton State University Brown Bag Lunch Lecture Series.
- Plaxco, D. (2016, February). Re-claiming during proof production. Presented at the Nineteenth Annual Conference on Research in Undergraduate Mathematics Education.
- Plaxco, D. and Savic, M. (2016, February) Communicative Artifacts of Proof: Transitions from Ascertaining to Persuading. Poster to be presented at the Nineteenth Annual Conference on Research in Undergraduate Mathematics Education.
- Plaxco, D. (2015, January). John's lemma: How one student's proof activity informed his understanding of inverse. Presented at Joint Mathematics Meetings of the Mathematical Association of America and American Mathematical Society, San Antonio, TX.
- Plaxco, D. (2015, January). Reverse Cayley graphs: Imposing group structure on the platonic solids. Presented at Joint Mathematics Meetings of the Mathematical Association of America and American Mathematical Society, San Antonio, TX.
- Wawro, M., Zandieh, M., & Plaxco, D. (2015, January). An instructional sequence for change of basis and Eigentheory. Presented at Joint Mathematics Meetings of the Mathematical Association of America and American Mathematical Society, San Antonio, TX.
- Zandieh, M., Wawro, M., & Plaxco, D. (2015, January). Inquiry-Oriented Linear Algebra (IOLA): An RME-based instructional sequence for change of basis and Eigentheory. Presented at Joint Mathematics Meetings of the Mathematical Association of America and American Mathematical Society, San Antonio, TX.
- Wawro, M., Zandieh, M., Rasmussen, C., Larson, C., Plaxco, D., & Katherine Czeranko. (2014, February). Developing Inquiry Oriented Instructional Materials For Linear Algebra (DIOIMLA): Overview Of The Research Project. Poster presented at the Seventeenth Conference on Research in Undergraduate Mathematics Education (SIGMAA-RUME), Denver, CO.
- Wawro, M., Zandieh, M., Rasmussen, C., Larson, C., Plaxco, D., & Katherine Czeranko. (2014, January). Developing Inquiry Oriented Instructional Materials For Linear Algebra (DIOIMLA): Overview Of The Research Project. Poster presented at Joint Mathematics Meetings of the Mathematical Association of America and American Mathematical Society, Baltimore, MD.
- Plaxco, D., Wawro, M. (2013, November). Characterizing Student Conceptions of Span and Linear Independence Through Mathematical Activity: The Case of Joe. Poster presented at the

34th annual meeting North American Chapter of the International Group for Psychology in Mathematics Education. Chicago, IL.

- Plaxco, D. (2012, June). Design research: paper folding to elicit mathematical necessity. Poster presented at the Second Conference on Transforming Research in Undergraduate STEM Education (TRUSE), St. Paul, MN.
- Norton, A., Arvold, B., & Plaxco, D. (2012, May). Virginia Teach to Virginia Teacher. Poster presented at Seventh Annual National Science Foundation Robert Noyce Teacher Scholarship Program Conference, Washington, DC.
- Plaxco, D. (2012, March). Special Case Paper Folding: How Do I Construct a Similar Rectangle? Presented at the Virginia Council of Teachers of Mathematics Annual Conference, Roanoke, VA.

Other Research Experience

- **Collaborator**: Mathematical Play Group. Collaborators: C. Williams-Pierce, P. Reimer, A. Ellis, F. M. Dogan, A. Simpson, C. Orrill, J. Burke, N. Sinclair, and V. Guyevskey. Unfunded at time of collaboration, Spring 2018 – 2021.
- **Collaborator**: Cubes Underscore Art and other Intersections with the Rubik's Cube. Collaborators: T. Khodorovkiy, A. Davis, A. Warren, A. Milewski, and S. Weaver. Unfunded at time of collaboration, Spring 2019 – Present.
- **Collaborator**: Instructional Decisions of the Working Mathematician. Collaborators: S. Stewart and J. Troup. Unfunded at time of collaboration, Fall 2015 – 2020.
- **Collaborator**: Creativity Research Group. Collaborators: G. Karakök, E. Cilli-Turner, H. El Turkey, M. Omar, M. Savic, G. Tang, and E. Hancock. Unfunded at time of collaboration, Fall 2015 – Spring 2017.
- **Research Assistant:** National Science Foundation Transforming Undergraduate Education in STEM, *Collaborative Research: Developing Inquiry-Oriented Instructional Materials for Linear Algebra* (DUE-1245673, 1245796, and 1246083), M. Wawro (PI), M. Zandieh and C. Rasmussen (co-PIs), $179,949, *Summer*, *Fall 2013*; *Summer 2014*. Responsibilities: Worked with team members to: develop Inquiry-Oriented Linear Algebra (IOLA) curriculum materials, develop and implement Linear Algebra assessment tool, collect classroom and instructor interview data, and develop IOLA web portal (iola.math.vt.edu)
- **Research Assistant:** Megan Wawro, Virginia Tech (Fall 2012; Spring 2013) Responsibilities: Collected, organized, and analyzed data with undergraduate Linear Algebra students
- **Research Assistant:** National Science Foundation Robert Noyce Teacher Scholarship Program, *Virginia Tech: Serving Mathematics Students in Need* (DUE-0832992) A. Norton (PI), J. Wilkins, B. Kreye, C. Ulrich, and M. Wawro (co-PIs), $890,307, *Spring*, *Fall 2010*; *Spring*, *Fall 2011; Spring 2012*. Responsibilities: Mentored undergraduate and master's scholars, organized and administrated Virginia Tech mathematics education website, and organized research and student meetings

Mentoring Experience

- Livana Lekas, Spring 2026. Directed Research Project. Permutation Knots on the n×n×n Rubik's Cube.
- Christopher Todorov, Spring 2025. Directed Research Project. Rubik's Cube Art.
- Wesley Wilson, Fall 2023 – Fall 2024. Independent Study in Mathematics Research, *Game Theoretic Analysis of the Deck-Building Card Game Flesh and Blood.*
- Alia Davis, Summer 2023 – Spring 2024. Independent Study in Mathematics Research, Classifying Knots Generated by Distinct 12-Crossing Thread Patterns on the 9×9×9 Rubik's Cube
- Adaija Warren, Fall 2022 – Fall 2023. Independent Study in Mathematics Research, Counting a Class of Distinct 12-Crossing Thread Patterns on the 9×9×9 Rubik's Cube
- Nancy Delgado, Fall 2021 – Spring 2022. Independent Study in Mathematics Research, *God's Number on the Dot Pyraminx Twisty Puzzle*
- Chelby Slappy, Fall 2020 – Fall 2021. Independent Study in Mathematics Research, *God's Number on the Bandaged Rubik's Cube*
- Landon Allen, Fall 2019 – Spring 2020. Independent Study in Mathematics Education Research, *A Flipped Classroom: Landon Allen's Teaching Experiment*
- Matthew Mauntel, Fall 2018 – present. IOLA-G and IOLA-X Research – data collection, analysis, and presentation
- Benjamin Levine, Fall 2018 – Spring 2020. IOLA-G Research – data collection, analysis, and presentation
- Rayvon Melendez, Fall 2018 – Spring 2019. Independent Study in Mathematics Research, *Generating Pythagorean Triples via Addition and Multiplication Tables*
- Rachel Reid, Fall 2018 – present. M.A. in Liberal Studies Research project, *Using Base Prime as a Non-Standard Number System with Pre-Service Teachers*
- Grace Buckman, Fall 2016 – Spring 2017 Independent Study in Statistics Research, *A Study of the Historical Development of Modern Model Selection*

Service Activities

Service to Department and University

- Clayton State University Grant Bid Review, Fall 2023
- Clayton State University Faculty Senate (Mathematics Representative), Fall 2022 – present
- Clayton State University Smith Teaching Award Selection Committee, Fall 2021 – present
- Clayton State University Give for Dreams Organizing Committee, Fall 2019 – Spring 2022
- Clayton State University College of Information and Mathematical Sciences Student Awards Committee – Chair, Fall 2019 – Spring 2020
- Clayton State University Undergraduate Curriculum Committee - Mathematics Department Representative, Fall 2018 – Fall 2019
- Clayton State University College of Information and Mathematical Sciences Student Awards Committee – Chair Elect, Fall 2018 – Spring 2019
- Clayton State University Gateways to Completion Project – Member, Summer 2018 – present

- Clayton State Give for Dreams – Fundraiser faculty presenter, Spring 2018
- Clayton State University Professional Education Program Committee, Fall 2017 - present
- Virginia Tech Mathematics Department/School of Education Joint Mathematics Education Seminar – Organizer, Spring 2013
- Virginia Tech Graduate-Undergraduate Mentoring Program (GUMP) – Mentor, Spring 2013

Service to the Field

- Bridges Conference Program Committee, Fall 2022 – present
- External Advisor – Mathematical Puzzles Programs (MaPP), Spring 2022 – present
- National Science Foundation, DUE – Grant Proposal Reviewer, Fall 2019
- Journal for Humanistic Mathematics – Reviewer, Fall 2019 – present
- ZDM Mathematics Education, Issue on Linear Algebra – Reviewer, Spring 2018 – Fall 2019
- Journal of Research in Mathematics Education – Reviewer, 2015 – present
- Research in Undergraduate Mathematics Education Conference (SIGMAA-RUME) – Reviewer, 2012 – present
- North American Chapter of the International Group for Psychology in Mathematics Education (PME-NA) – Reviewer, 2011 – present

Service to the Public

- Mathapalooza: A mathematics-focused free public exhibition in the Atlanta Science Festival – Co-Presenter of Rubik's cube exploration activities and mosaic creation table, Spring 2023
- Mathapalooza and Mathapalooza-After-Dark: A mathematics-focused public exhibition in the Atlanta Science Festival – Event Co-Organizer, Spring 2020
- Mathapalooza: A mathematics-focused free public exhibition in the Atlanta Science Festival – Co-Presenter of Rubik's cube exploration activities and mosaic creation table, Spring 2019
- Clayton County Schools GACE Preparation Professional Training – Consultant, Spring 2019

Invited Meeting Attendance

- Third International Conference on Applications of Mathematics to Nonlinear Sciences (AMNS). 2023. Pokhara, Nepal.
- Pedagogical Initiatives in Linear Algebra. October, 2018. Norman, OK.

Professional Memberships

- Special Interest Group of the Mathematical Association of America – Recreational Mathematics (SIGMAA–REC) (2023 – present)
- Special Interest Group of the Mathematical Association of America – Mathematical Art (SIGMAA–ARTS) (2023 – present)
- Special Interest Group of the Mathematical Association of America – Research in Undergraduate Mathematics Education (SIGMAA on RUME) (2013 – present)
- North American Chapter of the International Group for the Psychology of Mathematics Education (PME- NA) (2011 – present)
- Virginia Council of Teachers of Mathematics (2010 – 2015)
- American Mathematical Society (2009 – 2017)
- National Council of Teachers of Mathematics (2005 – 2018)