Beth Linette Cory

Department of Mathematics and Statistics Sam Houston State University Huntsville, Texas—77341 936-294-1573

Academic Background

<u>University of Virginia</u> *Ph.D.*, Mathematics Education

Florida State University M.S., Applied Mathematics

Liberty University

B.S., Mathematics, Keyboard Performance minor Suma cum Laude Graduate Honors Program Scholar Charlottesville, Virginia August 2005

> Tallahassee, Florida August 1999

Lynchburg, Virginia May 1996

Academic Experience

Higher Education

Sam Houston State University Associate Professor of Mathematics Huntsville, Texas August 2005 - present

- Taught Foundations of Elementary School Mathematics I, II, and III
- Taught the following three courses for middle school mathematics specialists: Functions and Graphs, Introduction to Problem-Solving, Geometry, Proof and Logic.
- Taught Algebra: Structure and Applications to in-service middle school teachers working toward their master's degree in mathematics education.
- Taught Geometry for Teachers to in-service secondary teachers working toward their master's degree in mathematics education. This course was taught using a "flipped classroom" approach.
- Taught Analysis for Teachers for in-service secondary mathematics teachers working toward their master's degree in mathematics education. Taught using a guided reinvention approach.
- Taught Proof and Logic for in-service middle school and secondary mathematics teachers working toward their master's degree in mathematics education.

<u>University of Virginia</u> Graduate Fellow Curry Center for Technology and Teacher Education Charlottesville, Virginia August 2001 – August 2005

- Developed technology-rich lesson plans for use in elementary, middle, and secondary mathematics classrooms. These materials were used to prepare pre-service teachers to effectively integrate technology in middle and secondary mathematics.
- Co-taught Secondary Mathematics Methods course,
- Co-taught Secondary Mathematics Teaching Associateship Seminar,

September 2017

3010 Brook Dr Huntsville, TX 77340 296-435-1416

- Supervised secondary mathematics student teachers,
- Developed and tested Flash-based applets focusing on rational number concepts and linear programming,
- Guest speaker on using technology in the mathematics classroom during various Teaching with Technology courses for prospective elementary and secondary teachers.

University of Virginia Graduate Teaching Assistant Mathematics Department

• Taught an algebra course for elementary education majors.

Liberty University Instructor of Mathematics

> • Taught Fundamentals of Mathematics, Intermediate Algebra, College Algebra, Business Calculus

Central Virginia Community College Adjunct Faculty

• Taught Fundamentals of Mathematics

Florida State University Graduate Teaching Assistant

- Taught Trigonometry, Pre-Calculus, and Business Calculus
- Taught recitation sections of Pre-Calculus Algebra, and College Algebra

K-12 Education

Math Circle Scholars Program Mathematics Instructor

In collaboration with Drs. Rebecca Garcia, Brandy Doleshal, and Taylor Martin at Sam Houston State University, developed and taught mathematics lessons to local fifth-graders.

Summer Enrichment Program Mathematics Instructor

Created and taught two-week mathematics courses to gifted middle school students. Graphing in the Real World explored real world applications of functions and their graphs using TI-83+ graphing calculators and various digital probes. To Infinity and Beyond investigated a variety of mathematics topics involving the concept of infinity.

Venable Elementary After-School Computer Program Mathematics Instructor

Charlottesville, Virginia Spring 2004

Charlottesville, Virginia Summer 2002, Summer 2004

Tallahassee, Florida *Summer* 1996 – *Summer* 1999

Lynchburg, Virginia Fall 1999 – Spring 2001

Lynchburg, Virginia

Huntsville, Texas

Fall 2014

Summer 2001

Charlottesville, Virginia Spring 2005

Planned and implemented elementary school mathematics lessons in an after-school computer program. The lessons utilized *Flash* applets to teach rational number concepts.

Publications

Peer-Reviewed Publications and Proceedings

- **Cory, B.** & Hubbard, K. (In preparation.) In the final stages of preparing a manuscript to be entitled, "Flipping College Algebra." Possibly to appear in the *Journal of Mathematical Behavior*.
- Martin, J., **Cory, B.,** & Ozturk, A. (In preparation.) In the final stages of preparing a manuscript to be entitled, "Quantitative Reasoning about Absolute Value and Error Bounds During Definition Formation." Possibly to appear in *Educational Studies in Mathematics*.
- Malandro, M. & Cory, B. (December 2012/January 2013.) Optimization on discrete domains using calculus. *The Mathematics Teacher*.
- Martin, J., Cory, B., Oehrtman, M., & Swinyard, C. (2012). Quantitative reasoning about absolute value during guided reinvention of sequence convergence. In Van Zoest, L. R., Lo, J.-J., & Kratky, J. L. (Eds.). Proceedings of the Thirty Fourth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (pp. 230 233), Kalamazoo, MI: University of Western Michigan.
- Cory, B., Martin, J., Oehrtman, M., & Swinyard, C. (2012). The use of dynamic visualizations following reinvention. In S. Brown, S. Larsen, K. Marrongelle, & M. Oehrtman (Eds.), *Proceedings of The Fifteenth Conference on Research in Undergraduate Mathematics Education*, Portland, OR: Portland State University.
- Martin, J., Oehrtman, M., Swinyard, C., & Cory B. (2012). Reinvention six months later: The case of Megan. In S. Brown, S. Larsen, K. Marrongelle, & M. Oehrtman (Eds.), *Proceedings of The Fifteenth Conference on Research in Undergraduate Mathematics Education* (pp. 109-114), Portland, OR: Portland State University.
- **Cory, B.** & Garofalo, J. (January 2011). Using dynamic sketches to enhance preservice secondary mathematics teachers' understanding of limits of sequences. *Journal for Research in Mathematics Education*.
- **Cory, B.** & Smith, K.W. (August 2011.) Delving into limit of sequences. *The Mathematics Teacher*.
- **Cory, B.** (October 2010) Bouncing balls and graphing derivatives. *The Mathematics Teacher* 104(3), 206 213.
- Cory, B. & Smith, K.W. (2010). Guiding students to an understanding of the formal definition of limit. In Brosnan, P., Erchick, D. B., & Flevares, L. (Eds.). In P. Brosnan, D. B. Erchick, & L. Flevares (Eds.), *Proceedings of the 32nd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (p. 155). Columbus, Ohio: The Ohio State University.

- Cory, B., Dawkins, P., Eddy, C., Epperson, J., Fuentes, S. Q., Gawlik, C., Jones, D., Jorgensen, T., Mallam, W., Ward, E., & Wheeler, A. (2010). Developing models for localized cross-institutional mathematics education research groups. In P. Brosnan, D. B. Erchick, & L. Flevares (Eds.), *Proceedings of the 32nd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1598-1604). Columbus, Ohio: The Ohio State University.
- **Cory, B**. & Garofalo, J. (Spring 2010). Enhancing learning of limits of functions with dynamic sketches. *Journal of the National Consortium of Specialized Secondary Schools of Mathematics, Science, & Technology, 15*(2), 21-22. (Solicited and reviewed by editorial board.)
- Swarthout, M., Jones, D., Klespis, M., & Cory, B. (Fall, 2009). Sneaking a peek at students' understanding of functions: Why not concept maps? *The Ohio Journal of School Mathematics*, (60), 24 - 28.
- Cory, B. (2009). Visualizing limits using dynamic sketches. NCTM ON-Math Journal (7), 1.
- **Cory, B.** & Swarthout, M. (October 2008). Problems with pigeons. *The Texas Mathematics Teacher*, 10 13.
- Garofalo, J. & Cory, B. (2007). Enhancing conceptual knowledge of linear programming with a Flash tool. *Journal of the National Consortium of Specialized Secondary Schools of Mathematics, Science, & Technology 11*(2), 24 - 26. (Solicited and reviewed by editorial board.)
- **Cory, B**. & Garofalo, J. (2004). Exploring calculus concepts with technology. *The Virginia Mathematics Teacher 30 (1)*, 41 43.
- **Cory, B.**, Manizade, A., Sharp, B., Steckroth, J., & Garofalo, J. (2004). A new look at Geometer's Sketchpad: Teaching area across grade levels. *School Science and Mathematics*, *104*, 232-235.

Other Works:

Klespis, M., **Cory**, **B**., Jones, D., Swarthout, M., & Zientek, L. (Eds.) (2008). *Proceedings: First conference on mathematics education research in Texas*. Huntsville, TX: Sam Houston State University.

Presentations

National

Cory, B. & Hubbard, K. (March 2017). *Flipping College Algebra*. Session presented at the annual conference of the Research Council for Mathematics Learning (RCML), Fort Worth, TX.

Cory, B. & Ozturk, A. (February 2016). *Guided Reinvention: A Study of Two Students* Session presented at the annual conference of the Research Council for Mathematics Learning (RCML), Orlando, FL.

Cory, B. (February 2015). *Flipping the Classroom: What Do We Really Know?* Session presented at the annual conference of the Research Council for Mathematics Learning (RCML), Las Vegas, NV.

Martin, J., **Cory, B.**, Oehrtman, M., & Swinyard, C. (January, 2012). Quantitative reasoning during definition formation: The case of absolute value. Paper presented at the 2012 Joint Mathematics Meetings, Boston, Massachusetts.

Cory, B & Smith, K.W. (January, 2012). *Using Dynamic Sketches in the Calculus Classroom*. Paper presented at the 2012 Joint Mathematics Meetings, Boston, Massachusetts.

Cory, B. (February, 2011). Using Dynamic Sketches to Enhance Students' Understanding of Limit. Presented at a meeting of the Calculus Research Group, a group of researchers from across the United States who meet weekly via the web to present and discuss their research on calculus learning.

Cory, B. & Smith, K.W. (October, 2010). *Guiding Students to an Understanding of the Formal Definition of Limit.* Poster session presented at the annual meeting of the North American Chapter for the Psychology of Mathematics Education, Columbus, Ohio.

Cory, B., Dawkins, P. Eddy, C., Epperson, J., Gawlik, C., Jones, D.L., Jorgensen, T., Mallam, W., Quebec-Fuentes, S, Ward, E. & Wheeler, A. (October, 2010). *Developing Models for Localized Cross-Institutional Mathematics Education Research Groups*. Session presented at the annual meeting of the North American Chapter for the Psychology of Mathematics Education, Columbus, Ohio.

Cory, B.L. (March, 2010) *Conceptual Change Theories: An Overview*. Session presented at the annual meeting of the Research Council for Mathematics Learning, Conway, Arkansas.

Cory, B.L. (July, 2009). *Bouncing Balls and the Ground Factor*. Session presented to AP Calculus and Physics teachers at the College Board's annual Advance Placement (AP) Conference, San Antonio, Texas.

Cory, B.L. (April, 2009). *Taking Limits to the Limit with Dynamic Sketches in the Calculus Classroom*. Session presented at the annual meeting of the National Council for Teachers of Mathematics, Washington, D.C.

Cory, B.L., Jones, D.L., Swarthout, M. (February, 2009). *Strengthening Probability Understanding with Cylindrical Dice*. Session presented at the annual meeting of the Association of Mathematics Teacher Educators, Orlando, Florida.

Cory, B.L. (March, 2008). *Hitting the Bull's Eye: Connecting Geometry and Probability*. Session presented at the annual meeting of the National Council of Teachers of Mathematics, Salt Lake City, Utah.

Cory, B.L. (January, 2008). A Follow-Up Study: Can Dynamic Visualization of Limits Facilitate Enduring Conceptual Change? Session presented at the annual meeting of the Association for Mathematics Teacher Educators, Tulsa, OK.

Cory, B.L. (March, 2007). *Taking Limits to the Limit: Understanding Limits of Sequences and Functions*. Session presented at the annual meeting of the National Council of Teachers of Mathematics, Atlanta, GA.

Cory, B.L. (March, 2007). *Conceptualizing Limits of Sequences*. Session presented at the annual meeting of the Research Council on Mathematics Learning, Cleveland, OH.

Cory, B.L. (January, 2006). *Using Dynamic Sketches to Enhance Preservice Teachers' Understanding of Limit.* Session presented at the annual meeting of the Association of Mathematics Teacher Educators, Tampa, FL.

Timmerman, M.A. & **Cory, B.L.** (April, 2004). *Preparing Elementary School Teachers: Making Sense of Number Concepts*. Session presented at the annual meeting of the National Council of Teachers of Mathematics, Philadelphia, PA.

Sharp, B., **Cory, B.**, & Sharp, D.L. (January, 2004). *Implementing Digital Cameras into Mathematics Education Courses and the K-12 Classroom*. Session presented at the annual meeting of the Association of Mathematics Teacher Educators, San Diego, CA.

Garofalo, J., **Cory, B**., Manizade, A., Sharp, B., & Timmerman, M. (January, 2003). *Mathematics and Handheld Devices*. Session presented at the annual meeting of the Association of Mathematics Teacher Educators, Atlanta, GA.

Garofalo, J., **Cory, B.,** Manizade, A., & Sharp, B. (January, 2003). *Using Flash-based Applications to Promote Rational Number Concepts*. Session presented at the annual meeting of the Association of Mathematics Teacher Educators, Atlanta, GA.

Regional

Cory, B. & Swim, E. (November 2014). *It Just Takes Six Questions*. Session presented at the annual regional meeting of the National Council for Teachers of Mathematics (NCTM), Houston, TX.

Cory, B. (July, 2013). The Flipped Classroom. Poster session presented at the annual AMTE-TX strand of the Conference for the Advancement of Mathematics Teaching (CAMT), San Antonio, TX.

Cory, B. (October, 2008). *Conceptualizing Limits of Functions*. Session presented at the annual regional meeting of the National Council of Teachers of Mathematics, Oklahoma City, Oklahoma.

Cory, B. (November, 2007). *Overcoming Misconception about Limits of Sequences and Functions*. Session presented at the annual regional meeting of the National Council of Teachers of Mathematics, Houston, TX.

Cory, B. (February, 2006). *Understanding the Formal Definitions of Limit*. Session presented at the annual meeting of the Southwest Educational Research Association, Austin, TX.

State

Hubbard, K. & **Cory, B.** & Hubbard, K. (March 2017). *College Algebra Flipped: Comparative Results from 1000 Students.* Session presented at the annual conference of the Texas Section of the Mathematics Association of America (MAA), Commerce, TX. **Cory, B.** & Swim, E. (June 2016). *It Just Takes Six Questions*. Session presented at the annual Conference for the Advancement of Mathematics Teaching (CAMT), San Antonio, TX.

Cory, B., Garcia, R., Doleshal, B., Martin, T. (June 2015). *Inspiring Love for Mathematics with Math Circles*. Session presented at the annual Conference for the Advancement of Mathematics Teaching (CAMT), Houston, TX.

Cory, B. (July 2014). *Flipping the Classroom: What Do We Really Know?* Session presented at the annual Conference for the Advancement of Mathematics Teaching (CAMT), Fort Worth, TX.

Cory, B. & Swarthout, M. (July, 2010). *Percentages, Pie Graphs, and Painted Cubes*. Sessions presented at the annual Conference for the Advancement of Mathematics Teaching (CAMT), San Antonio, Texas.

Swarthout, M., & **Cory**, **B.** (2009). *The Pigeon Problems: Preparing Future Teachers through Problem Writing*. Session presented at the annual Conference for the Advancement of Mathematics Teaching (CAMT), Houston, Texas.

Cory, B. (February, 2007). *Using Motion Detectors to Explore Derivatives*. Session presented at the Conference on the Teaching of Mathematics 6 – 12, Huntsville, TX.

Cory, B. (February, 2006). *Taking Limits to the Limit: Deepening Understanding of Limits of Sequences and Limits of Functions*. Session presented at the Conference on the Teaching of Mathematics 6 - 12, Huntsville, TX.

Cory, B. (July, 2006). *Bouncing Balls and Graphing Derivatives*. Session presented at the Conference for the Advancement of Mathematics Teaching (CAMT), Houston, TX.

Cory, B. (March, 2005). *Exploring Limits and Derivatives Using Geometer's Sketchpad*. Session presented at the annual meeting of the Virginia Council of Teachers of Mathematics, Williamsburg, VA.

Cory, B. (March, 2003). *Teaching Calculus Using Various Technologies*. Session presented at the Virginia Council of Teachers of Mathematics, Richmond, VA.

Manizade, A. & **Cory, B.** (March, 2002). *Fathom.* Session presented at the Virginia Council of Teachers of Mathematics, Richmond, VA.

Invited Presentations and Workshops

Hubbard, K. & **Cory, B.** (August 2017). *Examining Scalability for Flipped Classrooms: Implementing and Studying Flipped College Algebra across 32 Sections*. Session presented at the annual SHSU Conference for the Advancement of Teaching and Learning, Huntsville, TX.

Cory, B. & Ozturk, A. (February 2016). *Guided Reinvention: A Comparison of 3 Pairs of Students*. Session presented at the Mathematics Departments Colloquium at Texas State University, San Marcos, TX.

Cory, B. (April 2015). *Flipping the Classroom: Tips for Teachers*. Session presented to College Algebra lecturers at Stephen F. Austin, Nacogdoches, TX.

Swim, J., **Cory, B**. & Martin J. (August 2014). *CLEAR Calculus for High School Students*. A half-day workshop for area high school calculus teachers, Huntsville, TX.

Cory, B. (October, 2010, 2012, 2014, 2016) *The PRIME Leadership Framework: Equity Leadership.* A one-hour workshop as part of the Texas Regional Collaborative for Excellence in Mathematics Teaching for Region VI.

Cory, B. (September, 2008). *Understanding Limits*. Invited talk. Texas A & M University, Bryan-College Station, TX.

Cory, B. (October, 2009, 2011, 2013, 2015). *Research on NCTM Principles and Standards: Making Mathematics Reasonable in the Classroom.* A one-hour workshop as part of the Texas Regional Collaborative for Excellence in Mathematics Teaching for Region VI.

Swarthout, M. & **Cory**, B. (2008). *Examining the TEKS: The Measurement Strand*. A workshop for teachers at Hardy Elementary School in Willis, TX as a part of the ESC VI Texas Regional Collaborative for Excellence in Mathematics Teaching.

Swarthout, M. & Cory, B. (2006). *Teaching Measurement Concepts in Elementary Classrooms*. A workshop for teachers at Sam Houston Elementary.

Garofalo, J., **Cory, B.** & Sharp, B. (2002-2003). *Integrating Technology in Middle and Secondary School Mathematics*. A continuing professional development project with teachers as part of the XL Education Initiative, Hamilton Bermuda.

Timmerman, M.A. & **Cory, B.** (2003). *Using the Internet in the Mathematics Classroom*. A workshop for prospective elementary teachers at the Roanoke Center of Higher Education.

SHSU Departmental Colloquia and Talks

Cory, B. (October, 2010). A New Perspective on Using Interactive Sketches to Enhance Students' Understanding of Limits. Colloquium.

Cory, B. (October, 2009). A Summary of Conceptual Change Theories. Session presented during the MERGe group seminar, a weekly seminar in mathematics education research with other mathematics educators at Sam Houston State University.

Cory, B. (July, 2008). *Bouncing Balls and Graphing Derivatives*. A three-hour workshop for undergraduates as part of the summer activities for the LURE grant.

Cory, B. (November, 2006). Using Geometer's Sketchpad to Develop Preservice Teachers' Understanding of Limits. Colloquium.

Grant Activity

Co-Director. Project Calculus: Active Learning. Director: Dr. Taylor Martin. Award: \$15,000 from the SHSU Faculty Enhancement Grant Program. (Summer 2017 – Summer 2018).

Consultant. ESC VI Texas Regional Collaborative for Excellence in Mathematics Teaching. Director: Susan Bohan. Awards: \$169,000 (2007-2008) and \$140,000 (2008-2009) and continuing annual awards from 2010 – 2015 from The University of Texas at Austin, the Texas Education Agency, and the U.S. Department of Education. (Fall 2007-present.)

Co-Director. Teaching Algebra the TEKS Way. Director: Dr. Max Coleman. Award: \$84,964 from the Texas Teacher Quality Grants Program. (Summer 2008 – Summer 2009).

Co-Director. Teaching Algebra the TEKS Way. Director: Dr. Max Coleman. Award: \$84,964 from the Texas Teacher Quality Grants Program. (Summer 2006 – Summer 2007).

Material Development

- A part of a team which developed materials to help pre-service and in-service teachers effectively integrate technology into the elementary, middle, and secondary mathematics curriculum. The materials utilize technology tools such as *The Geometer's Sketchpad*, *Microsoft Excel, Fathom, ExploreMath.com*, Global Positioning Systems, interactive websites, graphing calculators and probes, as well as interactive *Flash* applets developed by the Center for Technology and Teacher Education at the University of Virginia. Materials have been disseminated for use in mathematics methods courses at other colleges and universities (2000 2006).
- Acted as a consultant for Explorelearning, a company based in Charlottesville, VA, as they designed applets illustrating mathematical concepts (2005 2006).
- Developed and recorded over 35 online lectures for use in a graduate Transformational Geometry course utilizing a flipped classroom approach.

Service

Departmental and University Service

Undergraduate Advisor, 4 - 8 Mathematics or 4 - 8 Mathematics/Science Certification Programs, Fall 2010 - present

Active Member, Mathematics Education Research Group, 2007 - 2010

Committees:

Mathematics Education Committee, 2005 – present Curriculum Committee, 2006 Mathematics Education Hiring Committee, 2007, 2011, 2016 Hospitality Committee, 2007 – present Merit Committee, 2009, 2016 Professional Concerns Committee, 2016 - present Mathematics Department Honors Committee, 2016 College Honors & Awards Committee, 2016 - present

Other Professional Service Activities

MERiT Conference Planning. Played a role planning and implementing the Mathematics Education Research in Texas (MERiT) conference. This event was a gathering of faculty of similar institutions around the state, focused on developing collaboration and mentoring opportunities. January 2008, November 2008, November 2009, November 2010, November 2013.

Guest Speaker. Taught mathematics to advanced placement calculus classes at Huntsville High School, Huntsville, Texas, May 2006, May 2007, May 2009.

Proposal Reviewer. Reviewed presentation proposals for the following conferences:

- 2011 Annual Conference of the Association of Mathematics Teacher Educators/Texas Affiliate
- 2010 Annual Conference of the Association of Mathematics Teacher Educators/Texas Affiliate
- 2007 Annual Meeting of the Southwest Education Research Association
- 2006 Annual Meeting of the Southwest Education Research Association

Manuscript Reviewer. Reviewed manuscripts for the following journals:

- Journal for Research in Mathematics Education
- The Mathematics Teacher
- Contemporary Issues in Technology and Teacher Education—Math

Board Member at Large. Texas Affiliate of the Association of Mathematics Teacher Educators, 2009 – 2011.

Conference Program Chair. Texas Affiliate of the Association of Mathematics Teacher Educators, 2011 - 2012.

Conference Program Chair. Texas Affiliate of the Association of Mathematics Teacher Educators, 2012 - 2013.

Registration. Conference on the Teaching of Mathematics 6- 12, Sam Houston State University, 2006 – 2012.

Faculty Sponsor, Sigma Phi Lambda (2010, 2011)

Honors, Awards, and Recognition

Dwight B. Goodner Fellowship Award for Excellence in Teaching, Florida State University, 1998

Professional Organization Memberships

Association for Mathematics Teacher Educators Association for Mathematics Teacher Educators—Texas Affiliate National Council of Teachers of Mathematics Texas Council of Teachers of Mathematics Research Council for Mathematics Learning