Julia Victoria Truman
(623) 670-8326
jtruman@vt.edu

Research Interests:

I am interested mostly in mathematics education at the undergraduate level, particularly in the process of mathematical problem-solving. I use interviews with novel problems from a range of mathematical fields to elicit responses that highlight different aspects of student thinking. I work from a Vygotskian perspective that takes particular note of inclusion for students with disabilities.

Education:

Simon Fraser University, Burnaby, BC, Canada
PhD in Mathematics Education, August 2017.
Dissertation: Mathematical Reasoning Among Adults on the Autism Spectrum: Case Studies with Mathematically Experienced Participants
Advisor: Rina Zazkis

University of California – San Diego, La Jolla, CA, USA
Master of Arts in Mathematics, December 2012.

University of Arizona, Tucson, AZ, USA
Bachelor of Science in Mathematics, Summa Cum Laude and Honors, May 2010.
Overall GPA: 3.948 Major GPA: 3.93

Glendale Community College, Glendale, AZ, USA
Associate of Science, May 2008.
Graduated with GPA of 4.00, from honors program and with highest distinction.

Employment:

Instructor, Virginia Tech, August 2017-May 2021
Teaching two courses in linear algebra and two courses in discrete mathematics.
Acting as sole instructor for those courses, with some in a coordinated framework.
Working with other instructors for writing a coordinated exam for all sections.
Taught courses in differential and integral calculus and linear algebra in a similar framework.

Research Assistant, Simon Fraser University, September 2013-August 2017
Investigated research avenues in tertiary mathematics education and mathematics education with individuals on the autism spectrum.
Conducted audio interviews with participants and analysis of those interviews in a mathematics education context.
Assisted in editing of academic articles and book chapters.

Teaching Assistant, Simon Fraser University, September 2013-August 2017
Tutored single- and multi-variable calculus and linear algebra in a workshop setting.
Graded and proctored quizzes and exams for the same courses.
Assisted SFU students one-on-one with math problems.
Explained necessary concepts and skills while going through a single problem.
Guided students toward solving problems.

Adjunct Professor, Glendale Community College (Arizona), January 2013-May 2013
Taught courses in college algebra and college mathematics (a course for liberal arts majors including set

theory, probability, statistics, and financial mathematics).
Acted as sole instructor and instructor of record for those courses, with all responsibilities.

Teaching Assistant, University of California – San Diego, September 2010-December 2012
Ran discussion sections for introductory calculus and probability/statistics courses and held office hours.
Tutored various lower-division mathematics courses and upper-division probability.
Graded homework, exams, and computer assignments for the same courses.
Administered website for linear algebra summer course.
Assisted UCSD students one-on-one with math problems.
Demonstrated the process of solving a single problem.
Explained necessary concepts and skills while going through a single problem.

Undergraduate Teaching Assistant, The University of Arizona, January 2010-May 2010
Tutored the assigned course, an upper-division course in linear algebra, and other courses in mathematics.
Graded homework for upper-division linear algebra.
Administered tests and review sessions for upper-division linear algebra.

Participant, DIMACS REU Program, June 2009-July 2009
Gained experience in applied mathematical research.
Acquired knowledge of game theory for application to research.
Gave talks describing my research to fellow program participants.
Gained skill in basic MATLAB use and webpage design for project work.

Undergraduate Teaching Assistant, The University of Arizona, January 2009-May 2009
Tutored both basic college mathematics courses and the assigned course, an introduction to mathematical methods of proof.

Tutor (mathematics), Glendale Community College (Arizona), January 2007-August 2008
Tutored from arithmetic to multivariable calculus, linear algebra, and differential equations.

Publications:

Serbin, K.S., Sanchez-Robayo, B., Truman, J., Watson, K., & Wawro, M. (2020). Characterizing quantum physics students' conceptual and procedural knowledge of the characteristic equation. *Journal of Mathematical Behavior.*

Truman, J. (2019). "Mathematical reasoning among adults on the autism spectrum: case studies with mathematically experienced participants." In *Proceedings of the Canadian Mathematics Education Study Group*. Quest University: CMESG.

Truman, J. (2018). "Geometric and algebraic reasoning in adults on the autism spectrum: excerpts from case studies." In (Eds.) A. Weinberg, C. Rasmussen, J. Rabin, M. Wawro, and S. Brown, *Proceedings of the 21st Annual Conference on Research in Undergraduate Mathematics Education*, San Diego, California.

Truman, J. (2015). "Mathematics learning among undergraduates on the autism spectrum." In T. Bartell, K. Bieda, R. Putnam, K. Bradfield, and H. Dominguez (Eds.), *Proceedings of the 37th Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* pp. 574-577), East Lansing, MI: Michigan State University.

Zazkis, R. & Truman, J. (2015). From trigonometry to number theory and back: Extending LCM to rational numbers. *Digital Experiences in Mathematics Education, 1,* 79-86.

Conference Presentations:

Truman, J. (2020, January). *Affect toward unusual mathematical tasks in mathematically experienced adults on the autism spectrum.* Talk presented at the Joint Mathematics Meetings of the Mathematical Association of America and the American Mathematical Society [MAA Contributed Paper Session on Research in Undergraduate Mathematics Education (RUME), II], Denver, CO, United States.

Truman, J. (2019, February). *Intuition and mathematical thinking in a mathematically experienced adult on the autism spectrum.* Paper presented at the Twenty-second Conference on Research in Undergraduate Mathematics Education, Oklahoma City, OK, United States.

Serbin, K. S., Sanchez-Robayo, B., Watson, K., Truman, J., Jiang, S., and Wawro, M. (2019, February). *Characterizing conceptual and procedural knowledge of the characteristic equation.* Paper presented at the Twenty-second Conference on Research in Undergraduate Mathematics Education, Oklahoma City, OK, United States.

Truman, J. (2018, June). *Mathematical reasoning among adults on the autism spectrum: case studies with mathematically experienced participants*. Presented at the Forty-second Annual Meeting of the Canadian Mathematics Education Study Group, Squamish, BC, Canada.

Truman, J. (2018, February). *Geometric reasoning in an undergraduate on the autism spectrum: a magic carpet case*. Poster presented at the Twenty-first Conference on Research in Undergraduate Mathematics Education, San Diego, CA, United States.

Truman, J. (2016, November). *Mathematical problem-solving in university-educated adults on the autism spectrum.* Poster presented at the Thirty-eighth Annual Conference of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Tucson, AZ, United States.

Truman, J. (2016, February). *College-educated adults on the autism spectrum and mathematical thinking.* Poster presented at the Nineteenth Conference on Research in Undergraduate Mathematics Education, Pittsburgh, PA, United States.

Truman, J. (2015, November). *Mathematics learning among undergraduates on the autism spectrum.* Paper presented at the Thirty-seventh Annual Conference of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA), East Lansing, MI, United States.

Truman, J. (2014, November). *Mathematics learning among undergraduates on the autism spectrum.* Paper presented at the Mathematics Education Doctoral Students' Conference, Simon Fraser University; Burnaby, BC, Canada.

Honors:

Graduate of the Honors College at The University of Arizona
Dean's List, Spring 2010, The University of Arizona
Dean’s List with Distinction, Fall 2009 and Spring 2009, The University of Arizona
Member of Phi Theta Kappa (two-year college honor society)
President's Honor List, Spring 2008, Fall 2007, and Spring 2007, GCC

Activities:

Diversity Committee member, Virginia Tech Department of Mathematics, August 2019-present
Virginia Tech Regional Mathematics Contest committee member, August 2018-present
Reviewer for Journal of Mathematical Behavior, 2019-2020

Reviewer for Research in Undergraduate Mathematics Education conference, 2019
MEDS-C (internal SFU conference) technical coordinator, December 2016
Center for Teaching Development, The College Classroom (CIRTL teaching-development course), September 2012-December 2012
Mathematical Sciences Research Institute, Summer Graduate Workshop in Geometric Measure Theory, July 11-22, 2011
Member of AWM (Association for Women in Mathematics), September 2010-June 2011
Park City Math Institute, Undergraduate Summer School in Image Processing, June 27 to July 17, 2010
William Lowell Putnam Mathematics Competition, December 2008, score 21
ACM IC Programming Contest Rocky Mountain Regional, October 2009, second place team