

Dr. Jessica Gehrtz

Curriculum Vitae

One UTSA Circle
The University of Texas at San Antonio
San Antonio, TX 78249
jessica.gehrtz@utsa.edu

Education

- 2019 **PhD in Mathematics, concentration in education - Colorado State University.**
Thesis: Enacted Responsiveness and Responsiveness as a Disposition: Leveraging and Valuing Student Thinking; Advisor: Dr. Jess Ellis Hagman
- 2016 **M.S. in Mathematics - Colorado State University.**
Topic: Error-Correcting Codes; Advisor: Dr. Rachel Pries
- 2008 **B.A. in Secondary Mathematics Education - Concordia College - Moorhead, MN.**

Professional Appointments

- 2020 -present **Assistant Professor - The University of Texas at San Antonio.**
Department of Mathematics
- 2019 -2020 **Postdoctoral Research Associate - University of Georgia.**
National Science Foundation: Departmental and Leadership Teams for Action (DUE #1626565)
Scientists Engaged in Education Research Center
- 2016 -2019 **Graduate Research Assistant - Colorado State University.**
National Science Foundation: Progress through Calculus (DUE #1430540)
Department of Mathematics
- 2014 -2016 **Graduate Student Instructor - Colorado State University.**
Department of Mathematics
- 2010–2014 & **8th Grade Mathematics Teacher, August 2008–June 2009; August 2010–June 2014.**
2008–2009 Timberview Middle School, Academy School District 20, Colorado Springs, CO
- 2009–2010 **High School Mathematics Teacher, August 2009–June 2010.**
Discovery Canyon Campus, Academy School District 20, Colorado Springs, CO

Research

Externally-Funded Grants

- 2021-2024 **Supporting College Instructors in Improving College Algebra Teaching and Student Outcomes, P. V. Prasad (PI - 50%), J. Gehrtz (Co-PI - 50%),** National Science Foundation Improving Undergraduate STEM Education: Hispanic-Serving Institutions. DUE-2116187, \$486,291.

This is a three-year service and research oriented project that aims to improve student outcomes by supporting instructors in incorporating more evidence-based practices in college algebra at UTSA. The research objectives are to (1) identify factors that support instructors in (or mitigate perceived barriers of) implementing student-centered activities that leverage student thinking, and (2) examine how instructors' thinking and instructional practices change as they develop and implement inquiry-based mathematics materials as part of an incremental lesson improvement strategy informed by lesson study and the Continuous Improvement framework.

Publications

- Journal Articles -

Gehrtz, J., Brantner, M., & Andrews, T.C. (2022). How are undergraduate STEM instructors leveraging student thinking? *International Journal of STEM Education*, 9(18), 1-20.

Gehrtz, J., Vallines Mira, R., Duffer, C.J., & Prasad, P. (2021) Learning at a distance: Can at-home activities measure up?, *International Journal of Mathematical Education in Science and Technology*, 1-9.
<https://doi.org/10.1080/0020739X.2021.1985180>.

Apkarian, N., Kirin, D., **Gehrtz, J.**, & Vroom, K. (2021). Connecting the Stakeholders: Departments, Policy, and Research in Undergraduate Mathematics Education. *PRIMUS*, 31(1), 17-36.

Martinez, A., **Gehrtz, J.**, Rasmussen, C., LaTona-Tequida, T., & Vroom, K. (2021) Course Coordinator Orientations Toward their Work and Opportunities for Professional Development. *Innovative Higher Education*, 1-20.

Pilgrim, M.E. & **Gehrtz, J.**, (2018). Sustaining Change in Calculus I. *PRIMUS*, 28(6), 562-573.

Doe, S., Pilgrim, M. E., & **Gehrtz, J.** (2016). Stories and Explanations in the Introductory Calculus Classroom: A Study of WTL as a Teaching and Learning Intervention. *The WAC Journal*, 27, 97-118.

Pilgrim, M. E. & **Gehrtz, J.** (2016). An Alternative Calculus I Course. *Mathematics and Computer Education*, 50(2), 120-129.

- Journal Articles in Preparation -

Krishnan, S., **Gehrtz, J.**, Lemons, P., Dolan, E., Brickman, P., & Andrews, T. Guides to Advance Teaching Evaluation (GATEs): A Resource for STEM Departments Planning Robust and Equitable Evaluation Practices. *CBE - Life Sciences Education*. (Revised & Resubmitted)

Vroom, K., **Gehrtz, J.**, Apkarian, N., Alzaga Elizondo, T., Ellis, B., & Hagman, J.E. Students' perceptions of interactive teaching. *International Journal of STEM Education*. (Revising to Resubmit)

Tremaine, R., Hagman, J. E., Voigt, M., Damas, S., & **Gehrtz, J.** You Don't Want to Come Into a Broken System: Critical and Dominant Perspectives for Increasing Diversity in STEM among Undergraduate Mathematics Program Stakeholders. *International Journal of Research in Undergraduate Mathematics Education - Calculus at the intersection of institutions, disciplines and communities* (Accepted with minor revisions).

- Other Publications -

Voigt, M., Hagman, J.E., **Gehrtz, J.**, Ratliff, B., Alexander, N., & Levy, R. (Eds.). *Justice through the lens of calculus: Framing new possibilities for diversity, equity, & inclusion*. MAA Notes Volume.
<https://arxiv.org/pdf/2111.11486.pdf>

Gehrtz, J., Vroom, K., LaTona-Tequida, T., Martinez, A., & Rasmussen, C. (In press). Mathematics departments' efforts to offer professional development. *Addressing Challenges to the Precalculus to Calculus II Sequence through Case Studies*. Mathematical Association of America. Washington, DC.

Voigt, M., **Gehrtz, J.**, Hagman, J.E., & Digregorio, G. (In press). Rethinking Student Support Programs: Attending to student identities and systemic structures in introductory mathematics. *Addressing Challenges to the Precalculus to Calculus II Sequence through Case Studies*. Mathematical Association of America. Washington, DC.

Street, C., Apkarian, N., **Gehrtz, J.**, Tremaine, R., Barron, V., Voigt, M., & Hagman, J. E. (2021). X-PIPS-M Data Summary. <https://arxiv.org/pdf/2111.01795.pdf>

Gehrtz, J. (2019). *Enacted Responsiveness and Responsiveness as a Disposition: Leveraging and Valuing Student Thinking* (Doctoral dissertation, Colorado State University).

Apkarian, N., Smith, W. M., Vroom, K., Voigt, M., **Gehrtz, J.**, PtC Project Team, & SEMINAL Project Team. (2019). *X-PIPS-M Survey Suite*. Mathematical Association of America.
<https://www.maa.org/sites/default/files/XPIPSM%20Summary%20Document.pdf>

Apkarian, N., Kirin, D., **Gehrtz, J.**, & Vroom, K. (2017). Math Department Concerns: Working to Bridge the Gap between Goals and First Steps. *MAA FOCUS*, 37(1), 35-37.

- **Refereed Conference Proceedings** -

Gehrtz, J., Brantner, M., & Andrews, T.C. (2022). Characterizing How Undergraduate STEM Instructors Do and Do Not Leverages Student Thinking. In *Proceedings of the 24th Annual Conference on Research on Undergraduate Mathematics Education*. Boston, MA.

Barron, V. & **Gehrtz, J.** (2022) Understanding Decentering: How Tutors Put Student Thinking at the Front and Center. In *Proceedings of the 24th Annual Conference on Research on Undergraduate Mathematics Education*. Boston, MA.

Martinez, A., **Gehrtz, J.**, Rasmussen, C., LaTona-Tequida, T., & Vroom, K. (2020). Course coordinator orientations toward their work. In T. Hausberger, M. Bosch & F. Chellougui (Eds.), *University of Carthage and INDRUM: Proceedings of the Third Conference of the International Network for Didactic Research in University Mathematics* (pp. 483-492). Bizerte, Tunisia.

Gehrtz, J. (2020). STEM Instructors' Noticing and Responding to Student Thinking. In A.I. Sacristán, J.C. Cortés-Zavala & P.M. Ruiz-Arias (Eds.). *Mexico: Mathematics Education Across Cultures: Proceedings of the 42nd Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 2072-2076), Mazatlan, Mexico.

Gehrtz, J. (2020). What is Encompassed by Responsiveness to Student Thinking? In Karunakaran, S. S., Reed, Z., & Higgins, A. (Eds.). *Proceedings of the 23rd Annual Conference on Research on Undergraduate Mathematics Education*, (pp. 777-786). Boston, MA.

Martinez, A., **Gehrtz, J.**, Rasmussen, C., LaTona-Tequida, T., & Vroom, K. (2020). Promoting Instructor Growth and Providing Resources: Course Coordinator Orientations Toward their Work. In Karunakaran, S. S., Reed, Z., & Higgins, A. (Eds.). *Proceedings of the 23rd Annual Conference on Research on Undergraduate Mathematics Education*, (pp. 390-397). Boston, MA.

Tremaine, R., Hagman, J. E., Voigt, M., & **Gehrtz, J.** (2020). You Don't Want to Come Into a Broken System: Critical and Dominant Perspectives for Increasing Diversity in STEM among Undergraduate Mathematics Program Stakeholders. In Karunakaran, S. S., Reed, Z., & Higgins, A. (Eds.). *Proceedings of the 23rd Annual Conference on Research on Undergraduate Mathematics Education* (pp. 580-587). Boston, MA.

Gehrtz, J., & Hagman, J. E. (2019) Responsiveness as a disposition and its impact on instruction. In Weinberg, A., Moore-Russo, D., Soto, H., & Wawro, M. (Eds.). *Proceedings of the 22nd Annual Conference on Research in Undergraduate Mathematics Education* (pp. 239-246). Oklahoma City, Oklahoma.

Vroom, K., **Gehrtz, J.**, Alzaga Elizondo, T., Ellis, B., Apkarian, N., & Hagman, J. E. (2019). First-year mathematics students' view of helpful teaching practices. In Weinberg, A., Moore-Russo, D., Soto, H., & Wawro, M. (Eds.). *Proceedings of the 22nd Annual Conference on Research in Undergraduate Mathematics Education* (pp. 1055-1060). Oklahoma City, Oklahoma.

Gehrtz, J. (2018). Investigating College Calculus Instructors' Knowledge, Disposition, and Responsiveness to Student Thinking. 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. 1102-1105). Greenville, SC: University of South Carolina & Clemson University.

Gehrtz, J., Speer, N., & Hagman, J.E. (2018). Gauging College Mathematics Instructors' Knowledge of Student Thinking About Limits. 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* (pp. 1387-1393). San Diego, California.

Gehrtz, J., Sampera, R. & Ellis, J. (2017). Equity issues that (may) arise in active learning classrooms. In (Eds.) A. Weinberg, C. Rasmussen, J. Rabin, M. Wawro, and S. Brown, *Proceedings of the 20th Annual Conference on Research in Undergraduate Mathematics Education*, (pp. 1583-1584). San Diego, CA.

Bragdon, D., Ellis, J., & **Gehrtz, J. (2017).** Interaction, activities, & feedback: A taxonomy of GTA professional development. In (Eds.) A. Weinberg, C. Rasmussen, J. Rabin, M. Wawro, and S. Brown, *Proceedings of the 20th Annual Conference on Research in Undergraduate Mathematics Education*, (pp. 502-510). San Diego, CA.

Invited Talks & Presentations

Jan 2020 **Joint Mathematics Meetings, Denver, CO.**

Gehrtz, J., Session on Research in Undergraduate Mathematics Education: Highlights from the Annual SIGMAA on RUME Conference, *Responsiveness as a Disposition and Its Impact on Instruction*

Dec 2018 **San Francisco State University Mathematics Colloquium, San Francisco, CA.**

Gehrtz, J., *Responsiveness: An underlying and enacted disposition*

Oct 2018 **American Mathematical Society, Western Sectional, San Francisco State University, San Francisco, CA.**

Gehrtz, J., Session on Social Change in Mathematics and Education, *College Calculus as a Vehicle for Social Change*

April 2018 **University of Northern Colorado School of Mathematical Sciences Research Seminar, Greeley, CO.**

Gehrtz, J., *Investigating College Calculus Instructors' Knowledge, Disposition, and Responsiveness to Student Thinking*

April 2017 **WY Mathematics Institute and Mathematics Articulation, Casper, WY.**

Workshop: Gehrtz, J., Pilgrim M. & Ellis, J. *Increasing student engagement in Calculus*

Invitations Related to Research Expertise

Nov 2019 **The Boulder Summit on Discipline-Based Professional Development.**

University of Colorado, Boulder, Boulder, CO

Description: Invited participant; actively engaged in discussions about best practices for discipline-based professional development in STEM higher education

Feb 2019 **Breaking Down Silos Conference.**

San Diego State University, San Diego, CA

Description: Invited participant; actively engaged in discussion and working groups focusing on organizing and synthesizing theories relevant to change in STEM higher education

Oct 2018 **Calculus Program Consulting.**

San Francisco State University, San Francisco, CA

Description: Invited to meet with Math Department committee about potential revisions to their calculus program

Aug 2018 **Young European Society for Research in Mathematics Education Summer School 9.**

Université Montpellier, Montpellier, France

Description: Application to participate was accepted as only United States representative; Actively participated in a working group by presenting my own research and providing feedback to others

June 2016 **MAA Precalculus to Calculus: Insights & Recommendations Conference.**

University of St. Thomas, Saint Paul, MN

Responsibilities: Facilitated small group discussions surrounding conference topics: focus on curriculum, instructor, students, and pedagogy

Conference Presentations & Posters

- Sept 2021 **Association of Mathematics Teacher Educators - Texas, Virtual.**
Prasad, P. V., Gehrtz, J., Vallinas Mira, R., & Duffer, C. *Learning at a Distance: Can At-home Activities Measure Up?*
- July 2021 **Society for the Advancement of Biology Education Research, Virtual.**
Gehrtz, J., Brantner, M., & Andrews, T. *Taking active learning to the next level: Student-thinking centered instruction*
- May 2021 **North American Chapter of the International Group for the Psychology of Mathematics Education Conference, Mazatlan, Mexico.**
Gehrtz, J. *STEM Instructors' Noticing and Responding to Student Thinking*
- Feb 2020 **Research in Undergraduate Mathematics Education Conference, Boston, MA.**
Gehrtz, J. *What is Encompassed by Responsiveness to Student Thinking?*
- Feb 2020 **Research in Undergraduate Mathematics Education Conference, Boston, MA.**
Martinez, A., Gehrtz, J., Rasmussen, C., LaTona-Tequida, T., & Vroom, K. *Promoting Instructor Growth and Providing Resources: Course Coordinator Orientations Toward their Work*
- Feb 2020 **Research in Undergraduate Mathematics Education Conference, Boston, MA.**
Tremaine, R., Hagman, J. E., Voigt, M., & Gehrtz, J. *You Don't Want to Come Into a Broken System: Critical and Dominant Perspectives for Increasing Diversity in STEM among Undergraduate Mathematics Program Stakeholders*
- Feb 2019 **Research in Undergraduate Mathematics Education Conference, Oklahoma City, OK.**
Gehrtz, J. & Hagman, J.E. *Responsiveness as a Disposition and Its Impact on Instruction*
- Feb 2019 **Research in Undergraduate Mathematics Education Conference, Oklahoma City, OK.**
Vroom, K., Gehrtz, J., Alzaga Elizondo, T., Ellis, B., Apkarian, N., & Hagman, J.E. *First-year Mathematics Students' View of Helpful Teaching Practices*
- Jan 2019 **Joint Mathematics Meetings, Baltimore, MD.**
Gehrtz, J., *Responsiveness: An underlying and enacted disposition*
- Jan 2019 **Joint Mathematics Meetings, Baltimore, MD.**
Voigt, M., Gehrtz, J., & Hagman, J.E., *Programs to support underrepresented students in STEM and the role of mathematics departments*
- Jan 2019 **Joint Mathematics Meetings, Baltimore, MD.**
Vroom, K., Apkarian, N., Gehrtz, J., Hagman, J. E., Voigt, M., & Martinez, A., *Students' reports of precalculus and calculus course experiences*
- Nov 2018 **North American Chapter of the International Group for the Psychology of Mathematics Education Conference, Greenville, SC.**
Gehrtz, J. *Investigating College Calculus Instructors' Knowledge, Disposition, and Responsiveness to Student Thinking*
- Aug 2018 **Ninth European Society for Research in Mathematics Education (YERME) Summer School, Montpellier, France.**
Working Group Presentation: *Investigating College Calculus Instructors' Responsiveness to Student Thinking*
- April 2018 **MAA Section Meeting, Greeley, CO.**
Gehrtz, J. *Investigating College Calculus Instructors' Knowledge, Disposition, and Responsiveness to Student Thinking*
- Feb 2018 **Research in Undergraduate Mathematics Education Conference, San Diego, CA.**
National conference poster: Hagman, J.E., Voigt, M., Kress, N.E., & Gehrtz, J. *Exploring Students' Reports of Exclusion in Calculus II*
- Feb 2018 **Research in Undergraduate Mathematics Education Conference, San Diego, CA.**
Gehrtz, J., Speer, N., & Hagman, J.E. *Gauging College Mathematics Instructors' Knowledge of Student Thinking About Limits*
- Jan 2018 **Joint Mathematics Meetings, San Diego, CA.**
Gehrtz, J., Hagman, J.E. & Speer, N. *Investigating Calculus Instructors' Responsiveness to and Interpretation of Student Thinking*

- Jan 2018 **Joint Mathematics Meetings, San Diego, CA.**
Hagman, J.E., Voigt, M., Kress, N., & Gehrtz, J. *Exploring the inequitable experiences of students in Calculus II*
- Jan 2018 **Joint Mathematics Meetings, San Diego, CA.**
Kress, N., Voigt, M., Hagman, J.E., & Gehrtz, J. *Learning Assistants and Undergraduate Tutors in Active Learning Precalculus and Calculus Courses: Cultivating a Sense of Belonging Among Students from Marginalized Groups*
- Feb 2017 **Research in Undergraduate Mathematics Education Conference, San Diego, CA.**
National conference poster: Gehrtz, J., Sampera, R., & Ellis, J. *Equity issues that (may) arise in active learning classrooms*
- Feb 2017 **Research in Undergraduate Mathematics Education Conference, San Diego, CA.**
Bragdon, D., Ellis, J., & Gehrtz, J. *Interaction, activities, & feedback: a taxonomy of GTA professional development*
- Jan 2017 **Joint Mathematics Meetings, Atlanta, GA.**
Gehrtz, J., & Pilgrim, M.E., *Optimization: Understanding Student Struggles*
- Jan 2017 **Joint Mathematics Meetings, Atlanta, GA.**
Ellis, J., Gehrtz, J. & Bragdon, D., *Mathematics GTA PD: Where we are and where we are going.*
- April 2016 **National Council for Teachers of Mathematics Annual Conference, San Francisco, CA.**
National Conference Workshop: Pilgrim, M.E., & Gehrtz, J. *Increasing Student Engagement Calculus Through PBL, Oral Assessments, and Writing*
- Jan 2016 **Joint Mathematics Meetings, Seattle, WA.**
Pilgrim, M.E. & Gehrtz, J., *Training GTAs to Use Evidence-Based Practices*
- Jan 2016 **Joint Mathematics Meetings, Seattle, WA.**
Gehrtz, J., & Pilgrim, M.E., *Increasing Student Engagement in Learning Calculus Through PBL, Oral Assessments, and Writing*
- Aug 2015 **Mathematical Association of America, MathFest, Washington, D.C..**
Pilgrim, M.E. & Gehrtz, J., *RAMScholars: Increasing Student Engagement in Learning Calculus Through PBL, Oral Assessments, and Writing*

Professional Development Activities

- Summer 2021 **National Center for Faculty Development & Diversity.**
Faculty Success Program
Description: 12-week online program designed to teach tenure-track (and tenured) faculty the skills to increase research and writing productivity while maintaining a healthy work-life balance

Memberships in Professional Societies

- o Mathematical Association of America (MAA)
- o Mathematical Association of America Special Interest Group for Research on Undergraduate Mathematics Education (SIGMAA on RUME)

Teaching & Mentoring

Courses Taught at the University of Texas at San Antonio

- Spring 2021 - **Essential Elements of Math II (MAT 1163).**
present Mathematics content course for future elementary teachers
- Fall 2021 **Introduction to Mathematics (MAT 1043).**
Mathematics content course designed primarily for liberal arts majors

Courses Taught as Graduate Student Instructor at Colorado State University

July 2017 **Didactics of Differential and Integral Calculus - Co-Instructor.**

Two week seminar that focused on research in undergraduate mathematics education related to calculus and student thinking.

University of Costa Rica, San Jose, Costa Rica

Fall 2016 **Calculus in the Biological Sciences I (Math 155) - Instructor of Record.**

Summer 2016 **Linear Algebra (Math 369) - Instructor of Record.**

Spring 2016 **Calculus in the Biological Sciences I (Math 155) - Instructional Coach.**

Fall 2015 **Calculus for Scientists and Engineers I (Math 160) - Instructional Coach.**

Spring 2015 **Calculus for Scientists and Engineers I (Math 160) - Instructor of Record.**

Fall 2014 **Calculus for Scientists and Engineers I (Math 160) - Special Assignment: RAMScholars.**

Advising

July 2021 - **Master's Thesis Committee Chair**, Advised: Victoria Barron.

present University of Texas at San Antonio, San Antonio, TX

August 2021 - **Mentoring Graduate Student in Research**, Mentored: Stephen Lee.

present University of Texas at San Antonio, San Antonio, TX

November **Master's Thesis Committee Member**, Advised: Alyssa Luna.

2021 University of Texas at San Antonio, San Antonio, TX

November **Master's Thesis Committee Member**, Advised: Rochelle Garcia.

2021 University of Texas at San Antonio, San Antonio, TX

July 2021 **Comprehensive Exam Committee Member**, Advised: Saray Rojas, Samuel Burnside, Jose Barrera, Cindy Cattey.

University of Texas at San Antonio, San Antonio, TX

Fall 2019 **Mentoring Undergraduate Student in Research**, Mentored: Molly Brantner.

University of Georgia, Athens, GA

Service & Outreach

Department Committees - University of Texas at San Antonio

Fall 2020- **Mathematics Education Graduate Committee.**

present UTSA - Department of Mathematics

Fall 2020 - **Website Committee.**

Spring 2021 UTSA - Department of Mathematics

Grant Proposal Review

- o National Science Foundation Improving Undergraduate STEM Education panel (*October 2020*)

Journal and Conference Review

- o International Journal of Mathematical Education in Science and Technology (*Spring 2021 - present*)
- o Journal of Mathematics Teacher Education (*Fall 2019 - present*)
- o Problems, Resources, and Issues in Mathematics Undergraduate Studies (PRIMUS) (*Fall 2018 - Fall 2019*)
- o Special Interest Group for Research in Undergraduate Math Education Conference (SIGMAA for RUME) (*Fall 2018 - present*)
- o North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA) (*Fall 2018-present*)

Outreach

Jan 2017 **GEMS: Girls in Engineering and Math Volunteer.**
Boys and Girls Club, Fort Collins, CO

Sept 2016 **Science Saturday: Carrots and Cryptography Presenter.**
Fort Collins Old Town Farmer's Market, Fort Collins, CO

June 2016 **Math Day Camp Coordinator.**

June 2015 Department of Mathematics, Colorado State University, Fort Collins, CO

Oct 2015 **Math-Science-Tech Day Volunteer.**
El Centro, Colorado State University, Fort Collins, CO