

# Jessica R. Gehrtz

## Curriculum Vitae

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University of Georgia  
Athens, GA 30602  
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### 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 Research Positions

- Summer 2019 **Postdoctoral Research Associate - University of Georgia.**  
-present National Science Foundation: Departmental and Leadership Teams for Action Scientists Engaged in Education Research Center
- Summer 2019 **Senior Personnel - University of Georgia.**  
-present National Science Foundation: Progress through Calculus
- Summer 2016 **Graduate Research Assistant - Colorado State University.**  
-2019 National Science Foundation: Progress through Calculus  
Department of Mathematics  
Responsibilities: Prepare for data collection including developing protocols for interviews, surveys, and class observations collect data including interviews, surveys, and class observations at 4 institutions, and analyze large amounts of quantitative and qualitative data across the data collected from 12 institutions

### Professional Teaching Positions

- Summer 2016 **Linear Algebra (Math 369) - Instructor of Record.**  
Department of Mathematics, Colorado State University, Fort Collins, CO
- Fall 2016 **Calculus in the Biological Sciences I (Math 155) - Instructor of Record.**  
Department of Mathematics, Colorado State University, Fort Collins, CO
- Spring 2015 **Calculus for Scientists and Engineers I (Math 160) - Instructor of Record.**  
Department of Mathematics, Colorado State University, Fort Collins, CO
- 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

### Publications

- Vroom, K., **Gehrtz, J.**, Apkarian, N., Alzaga Elizondo, T., Ellis, B., & Hagman, J. E. (under review). First-year mathematics students' perceptions of ambitious teaching. Submitted to *International Journal of Mathematical Education in Science and Technology*.
- Apkarian, N., Kirin, D., **Gehrtz, J.**, & Vroom, K., (2019). Connecting the Stakeholders: Departments, Policy,

and Research in Undergraduate Mathematics Education. *PRIMUS*, 1-22.

Apkarian, N., Smith, W. M., Vroom, K., Voigt, M., **Gehrtz, J.**, PtC Project Team, & SEMINAL Project Team. (2019). X-PIPS-M Survey Suite.

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

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), 35-43.

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.

## ■ Refereed Conference Proceedings

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. 11055-1060). 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. *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. *Proceedings of the 20th Annual Conference on Research in Undergraduate Mathematics Education*, (pp. 502-510). San Diego, CA.

## Conference Proceedings Submitted for Peer Review

Gehrtz, J. (Accepted). What is Encompassed by Responsiveness to Student Thinking? *Research on Undergraduate Mathematics Education Conference*, Boston, MA.

Martinez, A., Gehrtz, J., Rasmussen, C., LaTona-Tequida, T., & Vroom, K. (Accepted). Promoting Instructor Growth and Providing Resources: Course Coordinator Orientations Toward their Work. *Research on Undergraduate Mathematics Education Conference*, Boston, MA.

Tremaine, R., Hagman, J. E., Voigt, M., & Gehrtz, J. (Accepted). You Don't Want to Come Into a Broken System: Critical and Dominant Perspectives for Increasing Diversity in STEM among Undergraduate Mathematics Program Stakeholders. *Research on Undergraduate Mathematics Education Conference*, Boston, MA.

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## 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*

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## Invitations Related to Research Expertise

- Nov 2019 **The Boulder Summit on Discipline-Based Professional Development.**  
University of Colorado, Boulder, Boulder, CO  
Description: Invited to participate in active 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 with 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

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## Conference Presentations & Posters

- 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*

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## Grants & Fellowships

Nov 2018 **American Mathematical Society Graduate Student Travel Grant.**

Description: Travel funds to present and attend the Joint Mathematics Meetings Conference, January 2019, Baltimore, MD

Dec 2017 **Graduate Student Council Travel Award.**

Description: Travel funds to present and attend the Research in Undergraduate Mathematics Education Conference, February 2018, San Diego, CA

Summer 2017 **Colorado State University Mathematics Department Summer Research Fellowship.**

Description: Research funding for the summer to continue work on research design and pilot data analysis for my dissertation work

Nov 2015 **Associated Students of Colorado State University (ASCSU) Travel Grant.**

Description: Travel funds to present and attend National Council of Teachers of Mathematics Annual Conference, April 2016, San Francisco, CA

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## Memberships

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

# Teaching & Mentoring

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## Graduate Teaching Assignments

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

University of Costa Rica, San Jose, Costa Rica

Responsibilities: Developed and co-taught a course that focused on research in undergraduate mathematics education surrounding calculus, highlighting and attending to the incorporation of student thinking

Spring 2016 **Calculus in the Biological Sciences I (Math 155) - Special Assignment.**

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

Responsibilities: Helped lead Math 155 undergraduate learning assistant training, developed and implemented GTA training activities, led pedagogical discussions with GTAs, regularly met with course coordinator, helped develop active learning activities, facilitated activities in Math 160 classrooms and held Math 160 office hours

Fall 2015 **Calculus for Scientists and Engineers I (Math 160) - Special Assignment.**

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

Responsibilities: Worked on literature review about discourse in the classroom, facilitated activities in Math 160 classrooms, developed GTA training activities, analyzed data collected from spring 2015 Math 160 section, met regularly with course coordinator, held office hours, led review session before exams

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

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

Responsibilities: Developed problem-based learning activities, facilitated discussions around Math 160 content, moderated oral assessments, held office hours

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## Related Teaching & Mentoring Experience

Fall 2019 **Mentoring and Advising Research Assistant in STEM Education Research.**

University of Georgia, Athens, GA

Fall 2018 **Supervising Research Assistants.**

Colorado State University, Fort Collins, CO

Description: Supervised and mentored research assistants (2 graduate students and 1 undergraduate student) whose primary responsibility was transcribing interview data

- Spring 2017, 2016, 2015 **Methods and Materials in Teaching Mathematics (EDUC 464).**  
 Guest Lecturer: Gehrtz, J. & Oien, J., *Calculus in High School*  
 Guest Lecturer: Gehrtz, J. & Gentry, A., *Calculus in High School*  
 Guest Lecturer: Gehrtz, J., *Probability and Statistics in Middle School*
- Fall 2016 **Colorado State University Graduate Teaching Assistants Training.**  
 Colorado State University, Fort Collins, CO  
Responsibilities: Facilitated discussions with new graduate teaching assistants (GTAs) from a variety of departments during the university wide GTA training
- Fall 2015 **Calculus I Learning Assistant Training.**  
 Colorado State University, Fort Collins, CO  
Responsibilities: Helped develop and facilitate discussions and training for learning assistants working with Calculus 1 classes
- Spring 2015 **RAMScholars - General Chemistry II Workshop.**  
 Colorado State University, Fort Collins, CO  
Responsibilities: Facilitated and prompted discussion on mathematics in chemistry

## Service

### Service & Outreach

- Fall 2018 **(Co-organizer) Mathematics Education Reading Group.**  
 Department of Mathematics, Colorado State University, Fort Collins, CO  
Responsibilities: Facilitate discussion on both classic and current mathematics education literature
- June 2017 **Math Circles Presenter.**  
 Department of Mathematics, Colorado State University, Fort Collins, CO  
Responsibilities: Developed and presented interactive lesson on topology to 8th and 9th grade students
- Jan 2017 **GEMS: Girls in Engineering and Math Volunteer.**  
 Boys and Girls Club, Fort Collins, CO  
Responsibilities: Taught students in K-8 about cryptography and error-correcting codes using materials that I developed
- Sept 2016 **Science Saturday: Carrots and Cryptography Presenter.**  
 Fort Collins Old Town Farmer's Market, Fort Collins, CO  
Responsibilities: Taught local children about cryptography and error-correcting codes using materials that I developed
- Nov 2017 **Math Day Volunteer.**  
 Nov 2016 Department of Mathematics, Colorado State University, Fort Collins, CO  
 Nov 2015 Responsibilities: Set up for rooms for high school Math Day activities
- June 2016 **Math Circles Co-Coordinator.**  
 June 2015 Department of Mathematics, Colorado State University, Fort Collins, CO  
Responsibilities: Organized volunteers, contacted local schools to recruit participants, coordinated logistics, organized Math "Scavenger Hunt" activity, planned and facilitated daily opening and closing activities for 8th and 9th grade participants
- Oct 2015 **Math-Science-Tech Day Volunteer.**  
 El Centro, Colorado State University, Fort Collins, CO  
Responsibilities: Helped facilitate *Fun with Fibonacci* activity for local 4th graders

### Journal and Conference Review

- Journal of Mathematics Teacher Education (*Fall 2019 - present*)
- Problems, Resources, and Issues in Mathematics Undergraduate Studies (PRIMUS) (*Fall 2018 - present*)
- Special Interest Group for Research in Undergraduate Math Education Conference (SIGMAA for RUME) (*Fall 2018 - present*)

# References

- Tessa Andrews, [tandrews@uga.edu](mailto:tandrews@uga.edu): Associate Professor, Department of Genetics, University of Georgia.
- Jess Ellis Hagman, [Jess.Ellis@colostate.edu](mailto:Jess.Ellis@colostate.edu): Assistant Professor, Department of Mathematics, Colorado State University.
- Chris Rasmussen, [crasmussen@mail.sdsu.edu](mailto:crasmussen@mail.sdsu.edu): Professor, Department of Mathematics & Statistics, Center for Research in Mathematics & Science Education, San Diego State University.
- Mary E. Pilgrim, [mpilgrim@sdsu.edu](mailto:mpilgrim@sdsu.edu): Associate Director of the Mathematics Learning Center, Assistant Professor, Department of Mathematics, San Diego State University.
- Natasha Speer, [Natasha.Speer@maine.edu](mailto:Natasha.Speer@maine.edu): Associate Professor, Department of Mathematics & Statistics, Maine Research in STEM Education Center, The University of Maine.