Darryl Chamberlain Jr.

Curriculum Vitae

Education

2023 **Certificate, Applied Data Science with Python**, *University of Michigan (Coursera)*
Five-course specialization sequence in Applied Data Science. Credential URL

2012–2017 **Ph.D., Mathematics and Statistics**, *Georgia State University*
Qualifying Exams in Collegiate Mathematics Education, Abstract Algebra, and Matrix Analysis.
Dissertation qualitatively modeled how students develop an understanding of proof by contradiction.

2007–2010 **B.S., Mathematics**, *University of Florida*

Professional Experience

2021–present **Assistant Professor**, Department of Mathematics, Science, and Technology, Embry-Riddle Aeronautical University – Worldwide

2017–2021 **Assistant Instructional Professor**, Department of Mathematics, University of Florida

2013–2017 **Graduate Teaching Assistant**, Department of Mathematics and Statistics, Georgia State University

2011–2012 **Teacher**, Mathematics, William T. Dwyer High School, Palm Beach County, FL

Administrative Experience

Feb 2023–2025 **Associate Chair**, Department of Mathematics, Science, and Technology, Embry-Riddle Aeronautical University – Worldwide

Jan–May 2024 **Acting Chair**, Department of Mathematics, Science, and Technology, Embry-Riddle Aeronautical University – Worldwide

2015–2016 **Emporium Lab Coordinator**, Department of Mathematics and Statistics, Georgia State University

External Research Funding Experience

$71,856 unfunded **Principal Investigator**, *Investigating the Development and Impact of Culturally Relevant, AI-Powered Pedagogies in Postsecondary Mathematics Education*, with Audrey Malagon (co-PI) and Gizem Karaali (co-PI). Spencer Foundation Vision Grant, 2025-2026.

$398,725 unfunded **Principal Investigator**, *Collaborative Research: Adaptive Assessments in Calculus*, with Russell Jeter (Lead-PI) and Kelvin Rozier (co-PI). NSF Improving Undergraduate STEM Education (IUSE), 2025-2029.

$26,962 unfunded **Co-Principal Investigator**, *EXCELing in STEM: The Impact of Empowering Student Engagement with the Public*, with Emily Faulconer (PI), Amy Gruss (supporting researcher), Effie Kartsonaki (supporting researcher), and Dong Jun Kim (supporting researcher). Spencer Foundation Small Grants Program, 2025-2026.

$500 funded **Principal Investigator**, *Asycnchronous Discovery Activity - Learning to Fly with the Wind*, Doenet (DUE-1915294, DUE-1915363, DUE-1915438) Learning Experiment Mini-Grant, 2023-2024.

$399,183 funded **Co-Principal Investigator**, *Undergraduate Research for Fully Online STEM Students: Impact of Expanded Curricular Options on STEM Attitudes, Identity, & Career Ambitions*, with Robert Deters (PI), Emily Faulconer (co-PI), Brent Terwilliger (co-PI). NSF Improving Undergraduate STEM Education (IUSE), 2023-2026.

$237,298 funded **Co-Principal Investigator**, *Community of Inquiry and Cognitive Load in Online STEM: Persistence, Performance, and Perspectives*, with Emily Faulconer (PI) and Beverly Wood (co-PI). NSF Improving Undergraduate STEM Education (IUSE), 2021-2024.

$271,543 unfunded **Principal Investigator**, *Drilling Down into Concepts with Automatic and Diagnostic Item Generation (Auto-DIG)*, with Annie Burns-Childers (co-PI), Catherine Paolucci (co-PI), and Russell Jeter (consult). NSF Improving Undergraduate STEM Education (IUSE), Submitted October 2020.

$202,184 unfunded **Co-Principal Investigator**, *Using Video to Expand Communication of Mathematical Sciences Research*, with Catherine Paolucci (PI). National Science Foundation, Submitted October 2020.

$99,960 unfunded **Principal Investigator**, *NSF ECR Core Research: Analyzing a Novel College Algebra Curriculum and Implementation*, with Russell Jeter (consult). NSF Directorate for STEM Education Core Research (ECR: Core), Submitted October 2019.

$340,764 funded **Graduate Research Assistant (2016–2017); Other Professional (2017–2021)**, *Promoting Reasoning in Undergraduate Mathematics (PRIUM)*, with Draga Vidakovic (PI), Valerie Miller (Co-PI), and Guantao Chen (Co-PI). NSF Improving Undergraduate STEM Education (IUSE), 2016-2022.

Internal Research Funding Experience

$26,000 funded **Co-Principal Investigator**, *Developing AI-Assisted Writing Technologies to Enhance College Writers' Processes*, with Emily Dux Speltz (PI). ERAU Faculty Innovative Research in Science and Technology (FIRST) Grant, 2025-2026.

$2,000 funded **Co-Principal Investigator**, *Generative AI Feedback Across the Disciplines: A College of Arts and Sciences Pilot Study*, with Alex Rister (PI), Anastasia Angelopoulou (co-PI), Cihan Aydiner (co-PI), Iuliia Hoben (co-PI), Logan Gerber-Chavez (co-PI), Zackery Reed (co-PI), and Meghan Velez (co-PI). ERAU-WW COAS Start-Up Funding, 2024.

$6,000 funded **Principal Investigator**, *Collective Knowledge Progression and Proliferation in Asynchronous Calculus Discussion Boards*, with Zackery Reed (co-PI) and Karen Keene (co-PI). ERAU-WW Faculty Seed Grant, 2023.

$4,069 funded **Principal Investigator**, *Developing Autonomous, Targeted Feedback in Precalculus*, ERAU-WW Faculty Seed Grant, 2021-2022.

$29,923 funded **Co-Principal Investigator**, *Examining and addressing the content knowledge development needs of Florida's aspiring and newly-qualified mathematics teachers*, with Catherine Paolucci (PI) and Christopher Redding (Co-PI). UF Internal Grant, 2020-2021.

Manuscripts Under Review

[1] **Chamberlain Jr., D.**[1], Jeter, R.[1], & Rozier, K. (under review August 2025). *Towards an Integrated Methodology for Assessing Item Discrimination in Mathematics Assessments*. Research & Practice in Assessment.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Project Administration, Software, Visualization, Writing - Original Draft.

Peer-Reviewed Book Chapters

[2] Velez, M., Reed, Z., **Chamberlain Jr., D.**, & Aydiner, C. (2025). *Black Boxes Revisited: Understanding GenAI Responses to Students' Written Work*. Thresholds in Education.
CRediT Roles: Data Curation, Formal Analysis, Methodology, Writing - Original Draft.

[1] Reed, Z., **Chamberlain Jr., D.**, & Ramirez, L. (2025). *A Framework for Analyzing Asynchronous Discussion Activities.* Teaching and Learning Mathematics Online 2e, CRC Press, FL.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Funding Acquisition, Investigation, Methodology, Project Administration, Software, Visualization, Writing - Original Draft, Writing - Review & Editing.

Peer-Reviewed Journal Articles

[7] **Chamberlain Jr., D.** & Faulconer, E. (accepted Feb 2025). *Structural Framework for Interactions Between Community of Inquiry Presences, Cognitive Load, Demographics, and Grades*. Active Learning in Higher Education.
CRediT Roles: Data Curation, Formal Analysis, Methodology, Visualization, Writing - Original Draft, Writing - Review & Editing.

[6] **Chamberlain Jr., D.** (2023). *How one instructor can teach a large-scale, mastery-based College Algebra course online.* Problems, Resources, and Issues in Mathematics Undergraduate Studies. DOI: 10.1080/10511970.2023.2190183.

[1] Co-first authors.

[5] Faulconer, E., **Chamberlain Jr., D.**, & Wood, B. (2022). *A Case Study of Community of Inquiry Presences and Cognitive Load in Asynchronous Online STEM Courses*. Online Learning Journal. DOI: http://dx.doi.org/10.24059/olj.v26i3.3386.
CRediT Roles: Data Curation, Formal Analysis, Methodology, Software, Visualization, Writing - Original Draft, Writing - Review & Editing.

[4] **Chamberlain Jr., D.** & Vidakovic, D. (2021). *Cognitive trajectory of proof by contradiction for Transition-to-Proof students*. Journal of Mathematical Behavior. DOI: 10.1016/j.jmathb.2021.100849.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Project Administration, Writing - Original Draft, Writing - Review & Editing.

[3] **Chamberlain Jr., D.**[1] & Jeter, R.[1] (2020). *Creating diagnostic assessments: Automated distractor generation with integrity*. Journal of Assessment in Higher Education. DOI: 10.32473/jahe.v1i1.116892.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Funding Acquisition, Investigation, Methodology, Project Administration, Software, Visualization, Writing - Original Draft, Writing - Review & Editing.

[2] **Chamberlain Jr., D.**, Grady, A., Keeran, S., Knudson, K., Manly, I., Shabazz, M., Stone, C., & York, A. (2020). *Transitioning to an active learning environment for calculus at the University of Florida*. Problems, Resources, and Issues in Mathematics Undergraduate Studies. DOI: 10.1080/10511970.2020.1769235.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Methodology, Writing - Original Draft, Writing - Review & Editing.

[1] Stalvey, H., Burns, A., **Chamberlain Jr., D.**, Kemp, A., Meadows, L., & Vidakovic, D. (2019). *Students' understanding of the concepts involved in hypothesis testing for one population*. Journal of Mathematical Behavior. DOI: 10.1016/j.jmathb.2018.03.011.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Writing - Original Draft, Writing - Review & Editing.

Peer-Reviewed Conference Proceedings [asterisk denotes presenter]

[16] Terwilliger, B.*, Deters. R., & **Chamberlain Jr., D.** (2025, Jul 30). *Exploring the Efficacy of Virtual Research Mentorship for Online Undergraduate Projects*. Distance Learning Administration (DLA) 2025 Annual Conference and Exposition, Jekyll Island, GA.
CRediT Roles: Data Curation, Formal Analysis, Investigation, Methodology, Visualization, Writing - Original Draft, Writing - Review & Editing.

[15] Deters. R.*, Terwilliger, B., Faulconer, E., George, K., & **Chamberlain Jr., D.** (2025, Jun 22-25). *Impact of the COVID-19 Pandemic on Online Student Interest and Engagement in Undergraduate Research*. American Society for Engineering Education (ASEE) 2025 Annual Conference and Exposition, Montreal, Canada.
CRediT Roles: Formal Analysis, Visualization, Writing - Original Draft, Writing - Review & Editing.

[14] **Chamberlain Jr., D.** (2025, Feb 27). *Choices You Make Should Matter: Asynchronous Discovery Activities*. Poster at the 27th Annual Conference on Research in Undergraduate Mathematics Education: SIGMAA on RUME, Alexandria, VA.

[13] **Chamberlain Jr., D.**[1], Jeter, R.*[1], & Rozier, K. (2025, Feb 27). *Distractor-Based Distractors: Adventures in Assessment Item Analysis*. Poster at the 27th Annual Conference on Research in Undergraduate Mathematics Education: SIGMAA on RUME, Alexandria, VA.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Project Administration, Software, Visualization, Writing - Original Draft, Writing - Review & Editing.

[12] **Chamberlain Jr., D.***, McGuinness, P., Faulconer, E., & Wood, B. (2024, Feb 22-24). *Using Trees to See a Forest: Leveraging Machine Learning to Classify Student Thinking*. Poster at 26th Annual Conference on Research in Undergraduate Mathematics Education: SIGMAA on RUME, Omaha, NE.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Writing - Original Draft, Writing - Review & Editing.

[1] Co-first authors.

[11] **Chamberlain Jr., D.***, Reed, Z.*, & Keene, K. (2023, Feb 23-25). *Adapting the Argumentative Knowledge Construction Framework to Asynchronous Mathematical Discussions*. 25th Annual Conference on Research in Undergraduate Mathematics Education: SIGMAA on RUME, Omaha, NE.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Funding Acquisition, Investigation, Methodology, Project Administration, Software, Visualization, Writing - Original Draft, Writing - Review & Editing.

[10] Bailey, T.*, **Chamberlain Jr., D.***, & Christodoulopoulou, K. (2022, Feb 24-26). *Undergraduate's covariational reasoning across function representations*. 24th Annual Conference on Research in Undergraduate Mathematics Education: SIGMAA on RUME, Boston, MA.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Funding Acquisition, Investigation, Methodology, Project Administration, Writing - Original Draft, Writing - Review & Editing.

[9] Reed, Z.*, **Chamberlain Jr., D.***, & Keene, K. (2022, Feb 24-26). *Argumentative knowledge construction in asynchronous calculus discussion boards*. Poster at 24th Annual Conference on Research in Undergraduate Mathematics Education: SIGMAA on RUME, Boston, MA.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Funding Acquisition, Investigation, Methodology, Visualization, Writing - Original Draft.

[8] Kemp, A.*, **Chamberlain Jr., D.**, Cooley, L., Miller, V., & Vidakovic, D. (2020, Feb 27-29). *Student self- and simulated peer-evaluation of proof comprehension: Tina*. 23rd Annual Conference on Research in Undergraduate Mathematics Education: SIGMAA on RUME, Boston, MA.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Writing - Original Draft, Writing - Review & Editing.

[7] **Chamberlain Jr., D.*** & Jeter, R. (2019, Feb 28-Mar 2). *Leveraging cognitive theory to create large-scale learning tools*. 22nd Annual Conference on Research in Undergraduate Mathematics Education: SIGMAA on RUME, Oklahoma City, OK.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Funding Acquisition, Investigation, Methodology, Project Administration, Software, Writing - Original Draft, Writing - Review & Editing.

[6] **Chamberlain Jr., D.*** & Vidakovic, D. (2018, Feb 22-24). *Developing proof comprehension and proof by contradiction through logical outlines*. 21st Annual Conference on Research in Undergraduate Mathematics Education: SIGMAA on RUME, San Diego, CA.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Project Administration, Writing - Original Draft, Writing - Review & Editing.

[5] Burns, A.*, **Chamberlain Jr., D.**, Kemp, A.*, Meadows, L., Stalvey, H., & Vidakovic, D. (2018, Feb 22-24). *Reasoning about one population hypothesis testing: The case of Steve*. 21st Annual Conference on Research in Undergraduate Mathematics Education: SIGMAA on RUME, San Diego, CA.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Writing - Original Draft, Writing - Review & Editing.

[4] **Chamberlain Jr., D.*** & Vidakovic, D. (2017, Feb 23-25). *Developing student understanding: The case of proof by contradiction*. 20th Annual Conference on Research in Undergraduate Mathematics Education: SIGMAA on RUME, San Diego, CA.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Project Administration, Writing - Original Draft, Writing - Review & Editing.

[3] Burns, A.*, **Chamberlain Jr., D.**, Kemp, A.*, Meadows, L., Stalvey, H., & Vidakovic, D. (2017, Feb 23-25). *Students' understanding of test statistics in hypothesis testing*. 20th Annual Conference on Research in Undergraduate Mathematics Education: SIGMAA on RUME, San Diego, CA.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Writing - Original Draft, Writing - Review & Editing.

[2] Abel, T.*, Brazas, J.*, **Chamberlain Jr., D.**, & Kemp, A. (2017, Feb 23-25). *Characterizing mathematical digital literacy: A preliminary investigation*. 20th Annual Conference on Research in Undergraduate Mathematics Education: SIGMAA on RUME, San Diego, CA.
CRediT Roles: Data Curation, Formal Analysis, Investigation, Writing - Original Draft, Writing - Review & Editing.

[1] **Chamberlain Jr., D.*** & Vidakovic, D. (2016, Feb 25). *Use of strategic knowledge in a transition-to-proof course: Differences between an undergraduate and graduate student*. 19th Annual Conference on Research in Undergraduate Mathematics Education: SIGMAA on RUME, Pittsburgh, PA.
CRediT Roles: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Project Administration, Writing - Original Draft, Writing - Review & Editing.

National/International Conference Presentations [asterisk denotes presenter]

[13] Jeter, R.*, **Chamberlain Jr., D.***, & Rozier, K. (2025, Aug 8). *Integrated Methodology for Assessing Items in Mathematics Assessments*. Mathematical Association of America MathFest, Sacramento, CA.

[12] **Chamberlain Jr., D.*** & Nowell, J. (2025, Feb 19). *Longitudinal Impacts Analysis of Course Designs on Future Course Success*. Intersections: Online Learning and Innovation in Higher Education, Orlando, FL.

[11] **Chamberlain Jr., D.***, Faulconer, E., Terwilliger, B., & Deters. R. (2024, Nov 7). *Cultivating Cyber Scholars: Research Support for Online STEM Students*. American Association of Colleges and Universities (AAC&U) 2024 Transforming STEM Higher Education Conference, Arlington, VA.

[10] Faulconer, E., Terwilliger, B.*, Deters. R., & **Chamberlain Jr., D.** (2024, Jul 30). *Supporting Undergraduate Research for Fully Online Students*. Distance Learning Administration Conference, Jekyll Island, GA.

[9] Velez, M.*, **Chamberlain Jr., D.**, & Hoben, I. (2024, Jul 22-24). *Beyond Text Generation: Incorporating GenAI Feedback in Asynchronous Online Courses*. 2nd Annual Teaching and Learning with AI Conference, Orlando, FL.

[8] **Chamberlain Jr., D.*** & Quinlan, J. (2023, Aug 2). *Technology Use in Undergraduate Mathematics Classrooms*. 2023 Mathematical Association of America MathFest, Tampa, FL.

[7] Faulconer, E.*, **Chamberlain Jr., D.***, & Wood, B. (2022, April 13). *Instructional Efficiency in Asynchronous Online Discussions*. Online Learning Consortium Innovate Conference, Dallas, TX.

[6] Paolucci, C.*, **Chamberlain Jr., D.**, & Vancini, S.* (2022, Apr 7). *Investigating Alternatively-certified Teachers' Mathematical Knowledge for Teaching Calculus*. Joint Mathematics Meeting, Seattle, WA.

[5] **Chamberlain Jr., D.*** & Jeter, R. (2021, Jan 7). *Automated AF: Leveraging Augmented Intelligence to Provide Automated, Actionable Feedback.* Joint Mathematics Meeting, Washington, D.C. (virtual).

[4] **Chamberlain Jr., D.*** (2020, Jul 30). *Drilling Down into Content with Auto-DIG: Automatic Diagnostic Item Generation.* MAA MathFest, Philadelphia, PA. *Session canceled due to COVID-19 pandemic.*

[3] **Chamberlain Jr., D.*** (2020, Jan 18). *Mastery-based Assessment in a Large-enrollment Online College Algebra Course*. Joint Mathematics Meeting, Denver, CO.

[2] **Chamberlain Jr., D.**, Knudson, K., Grady, A.*, Keeran, S., Manly, I., Shabazz, M., Stone, C., & York, A. (2020, Jan 18). *Active Calculus at the University of Florida.* Joint Mathematics Meeting, Denver, CO.

[1] **Chamberlain Jr., D.*** & Vidakovic, D. (2017, Jan 5). *A First Lesson on Proof by Contradiction: Developing Proof Comprehension in a Transition-to-proof Course*. Joint Mathematics Meeting, Atlanta, GA.

Regional Conference Presentations [asterisk denotes presenter]

[6] **Chamberlain Jr., D.***, Reed, Z., & Keene, K. (2021, Nov 20). *Investigating Social Construction of Knowledge During Asynchronous Discussions*. 5th Northeastern Conference on Research in Undergraduate Mathematics Education. New Brunswick, NJ (virtual).

[5] Babiceanu, L.* & **Chamberlain Jr., D.** (2021, Feb 20). *Analyzing Student Achievement with Residential and Online Students in College Algebra*. Florida Section of the Mathematical Association of America and Florida Two-Year College Mathematics Association 2021 Joint Meeting, Gainesville, FL (virtual).

[4] **Chamberlain Jr., D.*** & Vidakovic, D. (2020, Oct 3). *Potential Cognitive Obstacles to Understanding Proof by Contradiction.* 4th Northeastern Conference on Research in Undergraduate Mathematics Education. Philadelphia, PA (virtual).

[3] Jeter, R.* & **Chamberlain Jr., D.** (2018, Mar 24). *A Novel Method for Creating Assessment and Diagnostic Tools in the Classroom*. MAA Southeastern Spring Sectional Meeting, Clemson, SC.

[2] **Chamberlain Jr., D.*** & Vidakovic, D. (2017, Mar 11). *Active Learning in Transition-to-Proof Courses: An Example Lesson of Proof by Contradiction*. AMS Southeastern Spring Sectional Meeting, Charleston, SC.

[1] **Chamberlain Jr., D.***, Kemp, A.*, Meadows, L.*, Stalvey, H., Vidakovic, D., & Burns, A. (2016, Mar 5). *The Emporium Model for Elementary Statistics: A Preliminary Report*. AMS Southeastern Spring Sectional Meeting, Athens, GA.

Local Conference Presentations [asterisk denotes presenter]

[9] **Chamberlain Jr., D.***, Jeter, R., & Rozier, K. (2025, Apr 16) *Who Assesses the Assessments? Methodology for Classifying Assessment Items*. 2025 Division of Academic Innovation (DAI) Virtual Conference (virtual).

[8] Dux Speltz, E., Hoban, I.*, Rister, A.*, Aydinar, C., **Chamberlain Jr., D.**, Corbin, T., Gerber-Chavez, L., & Reed, Z. (2025, Apr 15) *Navigating the Frontier: Innovations and Insights in AI Research and Education*. 2025 Division of Academic Innovation (DAI) Virtual Conference (virtual).

[7] Reed, Z.* & **Chamberlain Jr., D.** (2025, Feb 14). *Promoting Argumentation and Discourse in Mathematics Courses*. 3rd Annual Humanistic STEM Symposium, Daytona Beach, FL (virtual).

[6] **Chamberlain Jr., D.***, Reed, Z.*, Rister, A.*, & Velez, M.* (2023, Feb 7). Roundtable discussion: *Practical Suggestions to Improve Online Discussions Across Disciplines*. 2023 Division of Academic Innovation (DAI) Virtual Conference (virtual).

[5] **Chamberlain Jr., D.*** & Jeter, R. (2020, Oct 20). *Incorporating Augmented Intelligence to Enhance Learning: Automatic and Diagnostic Item Generation (Auto-DIG)*. STEMpowered Faculty Symposium, Gainesville, FL (virtual).

[4] **Chamberlain Jr., D.*** & Jeter, R. (2019, Apr 5). *Creating Diagnostic Assessments: Automated Distractor Generation With Integrity*. 2019 Assessment in Higher Education: Enhancing Institutional Excellence, Gainesville, FL.

[3] **Chamberlain Jr., D.*** & Vidakovic, D. (2015, Apr 17). *APOS Theory in the Classroom*. Center for Instructional Effectiveness Annual Conference, Atlanta, GA.

[2] **Chamberlain Jr., D.***, Vidakovic, D., Stalvey, H., Burns, A., Meadows, L., & Kemp, A.* (2015, Apr 10). *Student Understanding of One Population Hypothesis Testing: A Piece of the Process*. Mathematics Graduate Student Miniconference, Atlanta, GA.

[1] **Chamberlain Jr., D.*** & Vidakovic, D. (2015, Apr 10). *Teaching Proofs with APOS Theory*. Mathematics Graduate Student Miniconference, Atlanta, Ga.

Conference Session or Workshop Organization

[9] **Chamberlain Jr., D.**, Reed, Z., & Margolis, C. (2025, Feb 27). Workshop: *Research on Technology in Undergraduate Mathematics Education*. 27th Annual Conference on Research in Undergraduate Mathematics Education: SIGMAA on RUME, Alexandria, VA.

[8] **Chamberlain Jr., D.** & Reed, Z. (2024, Feb 22). Workshop: *Research on Technology in Undergraduate Mathematics Education*. 26th Annual Conference on Research in Undergraduate Mathematics Education: SIGMAA on RUME, Omaha, NE.

[7] **Chamberlain Jr., D.** & Barber, R. (2023, Aug 2). Session: *Unspoken Research Components*. 2023 MAA MathFest, Tampa, FL.

[6] **Chamberlain Jr., D.** & Barber, R. (2023, Aug 2). Session: *Building a Research Program*. 2023 MAA MathFest, Tampa, FL.

[5] **Chamberlain Jr., D.**, Reed, Z., & Keene, K. (2023, Feb 23). Workshop: *Research on Technology in Undergraduate Mathematics Education*. 25th Annual Conference on Research in Undergraduate Mathematics Education: SIGMAA on RUME, Omaha, NE.

[4] **Chamberlain Jr., D.**, Acu, B., & Gasiorek, S. (2023, Jan 3). Session: *Navigating the Early Years of the Faculty Experience*. 2023 Joint Mathematics Meeting, Boston, MA.

[3] Vidakovic, D., Stalvey, H., **Chamberlain Jr., D.**, Kemp, A., Meadows, L., & Kellam, A. (2018, Mar 23-24). Session: *Active Learning in Undergraduate Mathematics*. MAA Spring 2018 Southeastern Section Conference, Clemson, SC.

[2] Vidakovic, D., Stalvey, H., **Chamberlain Jr., D.**, Kemp, A., & Meadows, L. (2017, Mar 10-12). Session: *Active Learning in Undergraduate Mathematics*. AMS Spring 2017 Southeastern Regional Conference, Charleston, SC.

[1] Vidakovic, D., Stalvey, H., **Chamberlain Jr., D.**, Kemp, A., & Meadows, L. (2016, Mar 5-6). Session: *Active Learning in Undergraduate Mathematics*. AMS Spring 2016 Southeastern Regional Conference, Athens, GA.

Invited Talks

[9] **Chamberlain Jr., D.** (2025, Apr 11). *Modeling Student Thinking to Improve Mathematics Assessments*. Invited by Georgia State University Department of Mathematics and Statistics Seminar Series.

[8] **Chamberlain Jr., D.** (2024, Mar 21). *Constructing Isn't Enough: Considering All Aspects of Proof*. Invited by University of Florida College of Education Special Topics Seminar Course.

[7] **Chamberlain Jr., D.** (2024, Mar 18). *What Your Course Design Says About You: How Epistemological Lens Can Drive Course Design*. Invited by University of Florida Mathematics Department Pedagogy Seminar Series.

[6] **Chamberlain Jr., D.** (2023, Mar 29). *Predicting Students' Thoughts to Provide Elaborative Feedback*. Invited by California State University Bakersfield Mathematics Department Seminar Series.

[5] Faulconer, E., Bourdeau, D., Kiernan, K., & **Chamberlain Jr., D.** (2023, Jan 21). *Non-Traditional Scholarly Publication*. Invited by Embry-Riddle Aeronautical University – Worldwide Research Scholars Program.

[4] **Chamberlain Jr., D.** & Faulconer, E. (2022, Apr 21). *How We Manage Large-Scale Data Collection*. Invited by Embry-Riddle Aeronautical University – Worldwide College of Arts and Sciences Brown Bag Lunch & Learn Series.

[3] Paolucci, C. & **Chamberlain Jr., D.** (2021, Mar 25). *A profile of the content knowledge development needs of Florida's alternatively-certified teachers*. Invited by University of Florida Education Policy Research Center Research Brown Bag Series.

[2] **Chamberlain Jr., D.** (2020, Nov 13). *Integrating Augmented Intelligence into Mathematics Education*. Invited by Florida International University Mathematics Education Seminar.

[1] **Chamberlain Jr., D.** (2020, Sept 17). *Automatic and Diagnostic Item Generation*. Invited by the University of Florida Lastinger Center.

Local Session or Workshop Organization

[16] Terwilliger, B, Deters, R., **Chamberlain Jr., D.**, Protas, M., & Reed, Z. (2025, May). *What Research Can Be Done Online?* ERAU Worldwide Research Scholars Workshop Series.

[15] Deters, R., Terwilliger, B., & **Chamberlain Jr., D.** (2025, April). *Research Sprint and Idea Blitz*. ERAU Worldwide Research Scholars Workshop Series.

[14] **Chamberlain Jr., D.**, Deters, R., & Terwilliger, B. (2025, March). *Open Data & Data Papers*. ERAU Worldwide Research Scholars Workshop Series.

[13] **Chamberlain Jr., D.**, Deters, R., & Terwilliger, B. (2025, February). *Identifying Research Gaps & Developing Original Ideas*. ERAU Worldwide Research Scholars Workshop Series.

[12] Terwilliger, B., Deters, R., & **Chamberlain Jr., D.** (2025, January). *Research Networking in the Online World*. ERAU Worldwide Research Scholars Workshop Series.

[11] **Chamberlain Jr., D.**, Deters, R., Terwilliger, B., & Faulconer, E. (2024, October). *Staying Current on Research Advancements in Your Field*. ERAU Worldwide Research Scholars Workshop Series.

[10] Deters, R., Terwilliger, B., **Chamberlain Jr., D.**, & Faulconer, E. (2024, September). *Navigating Common Student Research Challenges*. ERAU Worldwide Research Scholars Workshop Series.

[9] Deters, R., Terwilliger, B., **Chamberlain Jr., D.**, & Faulconer, E. (2024, August). *How to Use the WW-RSP Canvas Site & Other Resources*. ERAU Worldwide Research Scholars Workshop Series.

[8] Deters, R., Faulconer, E., Terwilliger, B., & **Chamberlain Jr., D.** (2024, June). *Mentoring: A Guided Expedition Through Research Pathways*. ERAU Worldwide Research Scholars Workshop Series.

[7] Faulconer, E., Deters, R., Terwilliger, B., & **Chamberlain Jr., D.** (2024, May). *Submitting to Beyond*. ERAU Worldwide Research Scholars Workshop Series.

[6] Terwilliger, B., Deters, R., Faulconer, E., & **Chamberlain Jr., D.** (2024, April). *Innovative Dissemination*. ERAU Worldwide Research Scholars Workshop Series.

[5] Terwilliger, B., Deters, R., Faulconer, E., & **Chamberlain Jr., D.** (2024, March). *Marketing Your Research Experience*. ERAU Worldwide Research Scholars Workshop Series.

[4] Faulconer, E., Deters, R., Terwilliger, B., & **Chamberlain Jr., D.** (2024, February). *Discovery Day 2024*. ERAU Worldwide Research Scholars Workshop Series.

[3] Deters, R., Terwilliger, B., Faulconer, E., & **Chamberlain Jr., D.** (2024, January). *Funding Your Research*. ERAU Worldwide Research Scholars Workshop Series.

[2] **Chamberlain Jr., D.**, Faulconer, E., Terwilliger, B., & Deters, R. (2023, November). *Current Research Opportunities*. ERAU Worldwide Research Scholars Workshop Series.

[1] Faulconer, E., Terwilliger, B., Deters, R., & **Chamberlain Jr., D.** (2023, October). *Meet the Mentors*. ERAU Worldwide Research Scholars Workshop Series.

White Papers

[5] **Chamberlain Jr., D.**, Rittby, K., Gaines, B., & Slagel, J.T. (2025). The Fear-Opportunity Spectrum of Generative AI in the Mathematics Classroom. *MAA FOCUS, 17(3)*, 16-19. http://digitaleditions.walsworthprintgroup.com/publication/?m=7656&l=1
CRediT Roles: Writing - Original Draft, Writing - Review & Editing.

[4] Reid et al. (2024). Voices from the field: How did you come to engage in students-as-partners work? *International Journal for Students as Partners, 8(2)*, 241-259. https://doi.org/10.15173/ijsap.v8i2.5872
CRediT Roles: Writing - Original Draft, Writing - Review & Editing.

[3] Faulconer, E., **Chamberlain Jr., D.**, & Wood, B. (2024). *Community of Inquiry and Cognitive Load: Research Summary Document*. Zenodo. https://doi.org/10.5281/zenodo.11398144
CRediT Roles: Data Analysis, Writing - Review & Editing.

[2] Faulconer, E., **Chamberlain Jr., D.**, & Wood, B. (2024). *Community of Inquiry and Cognitive Load in online STEM: Transferability plan*. Zenodo. DOI: https://doi.org/10.5281/zenodo.11203344
CRediT Roles: Data Analysis, Writing - Review & Editing.

[1] Wood, B., Faulconer, E., & **Chamberlain Jr., D.**, (2024). *Gathering Nuanced Data for Understanding Student Withdrawals*. Zenodo. DOI: 10.5281/zenodo.11094757
CRediT Roles: Writing - Review & Editing.

Editorials

[2] Faulconer, E. & **Chamberlain Jr., D.** (2025). *Leading the Spiral: Supporting Faculty in Curriculum Innovation*. The Department Chair, 35(4), DOI: https://doi.org/10.1002/dch.30640

[1] Wood, B., Faulconer, E., & **Chamberlain Jr., D.** (2025). *Lessons from Professional Development for Remote STEM Faculty*. The Department Chair, 35(3), DOI: https://doi.org/10.1002/dch.30625

Pre-Prints

[3] **Chamberlain Jr., D.**[1], Jeter, R.[1], & Rozier, K. (2024, December 27). *An Integrated Methodology for Assessing Item Discrimination in Mathematics Assessments*. https://doi.org/10.31235/osf.io/xvh7y

[2] **Chamberlain Jr., D.**, & Jeter, R. (2024, August 9). *Utilizing Theoretically-Driven Distractors to Make Diagnostic Multiple-Choice Assessments Possible*. https://doi.org/10.31235/osf.io/vzhm7

[1] **Chamberlain Jr., D.**, & Faulconer, E. (2024, July 3). *Structural Framework for Interactions Between Community of Inquiry Presences, Cognitive Load, Demographics, and Grades*. https://doi.org/10.31235/osf.io/7ay4t

Teaching Experience

2024–present **Probability and Statistics**, *Developer/Instructor*
- Asynchronous online with $15 - 20$ students.

2024–present **Boundary Value Problems**, *Developer/Instructor*
- Asynchronous online with $15 - 20$ students.

2023–present **Introduction to Programming for Data Science**, *Developer/Instructor*
- Asynchronous online with $10 - 20$ students.

2021–present **Precalculus for Aviation**, *Developer/Instructor*
- Asynchronous online with $20 - 30$ students.
- October 2022: EagleVision with 20 students.

2021–present **Precalculus Essentials**, *Instructor*
- Asynchronous online with $20 - 30$ students.

[1] Co-first authors.

2018–2021 **Analytic Geometry and Calculus I**, *Instructor*
- Fall 2019, Fall 2020: Special flipped class for ∼15 Pre-Health PostBac students.
- Summer 2018: Special flipped classroom with ∼20 freshmen engineering students.
- Spring 2018: Large lecture with 200+ students.

Spring 2021 **Sets and Logic**, *Developer/Instructor*
- Modified Moore's Method with ∼30 students.

Summer 2019 **Analytic Geometry and Calculus II**, *Instructor*
- Flipped class with ∼20 students.

Spring 2019 **Elementary Differential Equations**, *Instructor*
- Large lecture with 120+ students.

2017–2021 **College Algebra**, *Developer/Coordinator/Instructor*
- Multiple sections of Pure Online (∼150 students) and Hyrbid (∼200 students) per semester.
- Curriculum overhaul with focus on understanding of functions.
- Developed open-source online homework system/textbook with dynamically-generated problems.
- Developed automatically-generated assessments based on students' varying levels of understanding functions.

2013–2017 **Various courses**, *Instructor of Record as graduate student*
- Elementary Statistics (flipped, ∼40 student sections).
- Intermediate Algebra (traditional, ∼20 student section).
- College Algebra (flipped, ∼40 student sections).
- Support for College Algebra (co-req course, flipped, ∼40 student sections).
- Precalculus (flipped, ∼40 student sections).

Mentoring

2024–present **Graduate Research**

2020–present **Undergraduate Research**

2019–2020 **Masters of Arts in Teaching Mathematics**

2019–2021 **3rd\4th year First Generation Student Life Coach**

2018–2021 **University Minority Mentor Program**

Professional Leadership

2022–present **Council Member** for Mathematical Association of America Council on Teaching and Learning.

2022–present **Subcommittee Chair** for Mathematical Association of America Subcommittee on Technology in Mathematics Education (STME). Member since 2021.

2022 **Nominating Committee Member** for the Research in Undergraduate Mathematics Education (RUME) community.

2020–2022 **Program Committee Member** for Research in Undergraduate Mathematics Education (RUME) annual conferences.

2018–2019 **Huddle Leader** for the *Florida College System* year-long Florida Mathematics Re-Design workgroups.

Professional Service

2022–present **Grant Reviewer** for the National Science Foundation.

2017–present **Journal Reviewer** for
- *Scatterplot* since 2025;
- *International Journal of Innovative Science and Modern Engineering* since 2024;
- *Educational Studies in Mathematics* since 2022;
- *Mathematical Thinking and Learning* since 2021;
- *International Journal of Research in Mathematics Education* since 2020;
- *Journal of Assessment in Higher Education* since 2019;
- *Journal of Mathematical Behavior* since 2017; and
- *Problems, Resources, and Issues in Mathematics Undergraduate Studies* since 2017.

2017 **Poster judge** for *Joint Mathematics Meeting, Atlanta, GA*.

2016–present **Conference Reviewer** for *Annual Conference on Research in Undergraduate Mathematics Education*.

University Service

2025 **Committee Member** for ERAU-WW End-of-Course Faculty Survey committee.

2024 **Hiring Committee Member** for Director of IT Service Management & Worldwide IT Services.

2023–present **Educational Experiences Member** for the ERAU-WW Quality Enhancement Plan committee.

2023–present **Grant Reviewer** for ERAU Faculty Innovative Research in Science and Technology (FIRST) grant.

2022–2023 **Grant Reviewer** for ERAU-WW Faculty SEED grant.

2022–2025 **Academic Technology Committee Chair** for ERAU-WW Faculty Senate.

College Service

2024 **Hiring Committee Member** for tenured Department Chair search for Department of Behavioral and Social Science.

2022–2023 **Faculty Council Member** for ERAU-WW College of Arts and Sciences.

2020–2021 **Steering Committee Member** for the University of Florida College of Liberal Arts and Sciences.

2019–2021 **Curriculum Committee Chair** for the University of Florida College of Liberal Arts and Sciences. *Member 2019–2020.*

2018 **Commencement Marshal** on behalf of the College of Liberal Arts and Sciences for the University of Florida's Spring 2018 and Summer 2018 undergraduate commencement ceremonies.

Departmental Service

2024–present **Committee Member** for Department of Mathematics, Science, and Technology standing committees:
- **Member**, Curriculum (*Chair 2024-2025*);
- **Member**, Operations; and
- **Member**, Research & Promotion.

2022–present **Program Coordinator** for Department of Mathematics, Science, and Technology programs:
- Bachelor's Degree in Data Science (2025-present);
- Minor in Applied Data Science (2022-present);
- Minor in Applied Mathematics (2022-2023);

2021–present **ERAU-WW Hiring Committee Participant**:
- **Chair**, Tenure-track candidate in Physical Science (2024-2025);
- **Member**, Tenured Department Chair (2024);
- **Member**, Tenure-track candidate in Data Science (2022-2023)

2021–present **Course Mentor** for Department of Mathematics, Science, and Technology
- **Current**
  - DSCI 411 - Applied Data Science Capstone (since 2025)
  - DSCI 201 - Intro to Data Science (since 2024)
  - CSCI 251 - Intro to Programming for Data Science (since 2023)
  - MATH 112 - Applied Calculus for Aviation (since 2023)
  - MATH 111 - Pre-Calculus for Aviation (since 2022)
  - STAT 412 - Probability & Statistics (since 2022)
  - MATH 502 - Boundary Value Problems (since 2021)
- **Past**
  - MATH 546 - Application-Based Advanced Engineering Mathematics (2021–2024)
  - GNED 103 - Basic Mathematics (2021–2022)
  - MATH 106 - Basic Algebra & Trigonometry (2021–2022)

2020–2021 **Hiring Committee Member** for tenure-track candidate of University of Florida College of Education.

2017–2021 **Committee Member** at University of Florida Department of Mathematics for standing committees:
- Teaching Methods (*Chair 2019–2021*);
- Online Course Development;
- Teaching Assistant Training; and
- Undergraduate Committee Lower Division.

Professional Affiliations

2023–present **Tech in Math Ed (TiME) Organizer** for the special topic research group of SIGMAA on RUME.

2015–present **SIGMAA on RUME**: Special Interest Group of the Mathematical Association of America on Research in Undergraduate Education

2015–present **MAA**: Mathematical Association of America

Awards and Fellowships

Aug 2024 **Recognition Award**, from ERAU-WW College of Arts and Sciences for dedicated service, hard work, and leadership during time as Acting Chair for the Department of Mathematics, Science, and Technology.

Apr 2023 **Monetary Award**, 2022-2023 Faculty 'Superstar' Champion badge from ERAU-WW COAS Dean and Chancellor.

Apr 2023 **Recognition Award**, 2022-2023 ERAU-WW COAS Faculty Council Collegiality nominee.

2022–2023 **Fellowship**, Mathematical Association of America Project NExT. Red22 cohort.

Travel Grants

2025 **Internal**, from ERAU-WW Faculty Development Research Program for Conference on Research in Undergraduate Mathematics Education, February 27 - March 1.

2024 **External**, from WestEd for Workshop on Future Directions for Mathematics Education Research, Policy, and Practice, April 17-19.

2023 **External**, from Institute for Mathematics and its Applications University of Minnesota for Workshop on Developing Online Learning Experiments Using Doenet, May 22-26.

2023 **Internal**, from ERAU-WW Faculty Development Research Program for Conference on Research in Undergraduate Mathematics Education, February 23-25.

2022 **Internal**, from ERAU-WW Faculty Development Research Program for Joint Mathematics Meeting 2022, January 5-8.

2021 **Internal**, from UF Center for Applied Mathematics for Joint Mathematics Meeting 2021, January 6-9

2020 **Internal**, from UF College of Liberal Arts and Sciences for Joint Mathematics Meeting 2020, January 15-18.

2017 **External**, from the American Mathematical Society for the AMS Spring 2017 Southeastern Sectional Meeting, March 10-12.

Notable Coursework

Mathematics **33 Graduate-Level Credit Hours**: Advanced Matrix Analysis I & II, Abstract Algebra I & II, Real Analysis I & II, Partial Differential Equations, Special Topics in Mathematics I & II (Topology, Graph Theory), Directed Research (Graph Theory), Mathematical Biology. *Qualifying Exams in Matrix Analysis and Abstract Algebra.*

Mathematics Education **15 Graduate-Level Credit Hours**: Teaching College Mathematics, Qualitative Research in Education I & II, Epistemology of Advanced Mathematical Concepts, Learning Theories in Collegiate Mathematics Education. *Qualifying Exam in Collegiate Mathematics Education.*

Statistics **6 Graduate-Level Credit Hours**: Mathematical Statistics, Linear Statistical Analysis.

Data Science **5 Coursera Courses**: Introduction to Data Science in Python, Applied Plotting, Charting & Data Representation in Python, Applied Machine Learning in Python, Applied Text Mining in Python, Applied Social Network Analysis in Python.