

Johan Benedict A. Cristobal

Email: jcristobal2@unl.edu

Website: <https://www.johanmath.com>

RESEARCH INTEREST

I study frames of teaching and learning. Specifically, how it changes or is shaped by the culture around the instructor. For my dissertation, I look into how new instructors develop their frames of teaching and learning and how these frames shape teaching practices to address the pervasiveness of the culture of exclusion in mathematics.

EDUCATION

University of Nebraska-Lincoln (UNL)

▷ Ph.D. in Mathematics *expected* May 2025

Advisor: Dr. Yvonne Lai | *Minor in Teaching, Learning, and Teacher Education*

▷ M.S. in Mathematics December 2021

University of California, Los Angeles

▷ B.S. in Mathematics of Computation June 2020

POSITIONS

Graduate Research Assistant *Various Projects*

- ▶ Educating Undergraduate Students for STEM Career Opportunities in Nebraska: Networks, Experiential-learning, & Computational Thinking (STEM CONNECT)
NSF/S-STEM DUE-1930211; PI Jim Lewis

Spring 2024 to **Present** – I co-analyzed/conducted interviews of (previous) STEM CONNECT students to collect and report on narratives about perseverance within a STEM degree and undergraduate education, with careful consideration of how to help students finish their STEM degrees. These students are primarily of minority and/or first-generation identity.

- ▶ College of Arts & Sciences Strategies Priorities: *Understanding the experiences of underrepresented students in 300-level mathematics courses*; PI Amy Bennett

Fall 2023 to **Present** – I co-analyzed underrepresented undergraduate student narratives about their experiences leading up to and taking a real analysis course for the purpose of creating and running a follow-up study with post-secondary mathematics professors and how they notice and frame these narratives with respect to their practice.

- ▶ Mathematics of Doing, Understanding, Learning and Educating for Secondary Schools (MODULE(S²)) – NSF DUE-1726744; PI Yvonne Lai

Summer 2022 to **Present** – I co-analyzed teachers' open-ended responses to survey data to identify qualitative signals of increased expectancy to succeed in teaching, doing, or learning mathematics, or value for inclusive teaching practices.

- ▶ Investigating the Role of Collaboration on the Development of Student Ideas using a Learning Progression for the Function Concept – NSF DRL-2101393; PI Edith Graf
Spring 2023 to Spring 2024 – I helped map the learning progressions to a Bottle filling activity made as a reality-based activity to learn the concept of functions. I participated and co-led the professional development meetings to learn about (virtual) talk moves.
- ▶ CSForAll: Adapt, Implement and Research at Nebraska (AIR@NE)
NSF DRL-1837476; PI Leen-Kiat Soh
Summer 2021 – I conducted interviews of the CSForAll: AIR@NE summer cohort. I checked the accuracy of summaries of previous interview transcriptions.

Graduate Teaching Assistant *Various Sub-Roles*

August 2020 - **Present** | Mathematics Department at UNL

- As a *Recitation Leader*, I ran recitations once or twice a week to review the lectures, hold guided problem-solving sessions, and address student’s homework concerns.
- As an *Instructor of Record*, I taught a section of students. I designed lectures to address student concerns during on the pre-lecture materials. I implemented mastery-based grading and helped update the lectures.
- ◆ As a *Course Developer*, I reordered the sections of the textbook to better scaffold topics and made the corresponding updates for the course materials (LaTeX and HTML/PreTeX) and online homework. I created Notes pages for students and instructors to use. I made videos for the Intermediate Algebra course and are embedded in the open-source textbook.

PAPERS IN JOURNALS

- [1] **Cristobal, J. B.** & Young, C., Lai, Y., Bonnesen, C., Strayer, J., Anhalt, C., Casey, S., Kohler, B., Lischka, A., & Ross, A. (in preparation). “What Aspects of Tertiary Mathematics Courses do Prospective Secondary Teachers Attribute to their Learning?” Preparation for the *Journal of Mathematical Behavior*, February/March 2024.

CONFERENCE PAPERS IN PROCEEDINGS

- [1] Funk, R., Pai, L., & **Cristobal, J. B.** (Accepted). “Persistence in a S-STEM grant: Understanding the Intersectional Experiences of Women Pursuing STEM.” Conference Paper for the *2024 American Society for Engineering Education Annual Conference & Exposition*.
- [2] Funk, R., Pai, L., Rader, B., **Cristobal, J. B.**, & Lewis, J. (Accepted). ““Someone has invested in me to do this”: Supporting Low-Income Students to Persist in STEM through a NSF S-STEM grant.” Poster Paper for the *2024 American Society for Engineering Education Annual Conference & Exposition*.
- [3] **Cristobal, J. B.** (2024). “Complicating the Relationship of Frames and Responses in Teacher Noticing.” Contributed Report for the *26th Annual Conference on Research in Undergraduate Mathematics Education*.

TALKS (Reverse chronological)

- [1] *Coloring the Relationship of Frames and Responses in Teacher Noticing*
26th Annual Conference on Research in Undergraduate Mathematics Education (Special Interest Group of the Mathematical Association of America on Research in Undergraduate Mathematics Education, SIGMAA on RUME).
- [2] *Before and during teaching: New graduate student instructors' frames of teaching*
7th Northeastern Conference on Research in Undergraduate Mathematics Education.
- [3] *Bridging Frames and Sociomathematical Norms*
6th Northeastern Conference on Research in Undergraduate Mathematics Education.

TEACHING

Courses Taught as Instructor of Record.

- Math 302 - Math Modeling Spring 2023
- Math 101C - College Algebra Corequisite Fall 2022
- Math 101 - College Algebra Spring 2022
- Math 100A - Intermediate Algebra Fall 2021

Courses Worked on as Course Developer.

- ◆ Math 100A - Intermediate Algebra Summer 2023
- ◆ Math 101 - College Algebra Spring 2023
- ◆ Math 101C - Intermediate Algebra Corequisite Summer 2022 / Summer 2023

Courses Taught as Recitation Leader.

- Math 221 - Differential Equations Fall 2023
- Math 107 - Calculus II Spring 2021
- Math 106 - Calculus I Fall 2020

RELEVANT GRADUATE COURSE WORK for Education Research

Supplementary courses taken that are not part of the Mathematics Ph.D. program.

■ Educational Psychology Department:

859 - Statistical Methods

Quantitative Methods

900K - Qualitative Approaches to Education Research

Qualitative Methods

■ Teaching, Learning, and Teacher Education Department:

801 - Curriculum Inquiry

807C - Equitable Practices in Mathematics Education: Mathematics Classroom Discourse

861 - Education for a Pluralistic Society: Foundation and Issues

880E - Teaching with Technology: Instructional Technology in Mathematics

949B - Critical, Anti-colonial, & Decolonizing Theories in Education

SERVICE

- UNL Math Day Organizing Committee** Fall 2023 - Spring 2024
Graduate Student organizer for Volunteer outreach/management
- Outreach event for Nebraskan high schoolers that encourage them to pursue a career in a mathematics-based trajectory: math.unl.edu/math-day-university-nebraska-lincoln
- Graduate Student Teaching Table** Fall 2022 - Present
Co-founder and organizer
- Seminar designed for and by graduate students to discuss education or teaching issues we face at UNL as GSIs, using education literature to organize conversations.
- Session Moderator and Volunteer for RUME 26** February 2024
26th Annual Conference on Research in Undergraduate Mathematics Education at Omaha, NE
- Guest Peer-Reviewer for PRIMUS** Fall 2023
Problems, Resources, and Issues in Mathematics Undergraduate Studies – Volunteer
- Map of Avery Hall, Mathematics Department Building** Fall 2023
Self-motivated project/Volunteer
- Qualifying Exam Review and Preparation Session** Summer 2022
Math 830/831 - Ordinary and Partial Differential Equations

NOTABLE CONFERENCES & PROFESSIONAL MEETINGS

◇ = Spoke , ★ = Invited , † = Department Volunteer

1. Joint Mathematics Meetings | Virtual January 2021
2. KUMUNI-ISU Conference on PDE, Dynamical Systems, and Applications | UNL, Lincoln, NE October 2021
3. paraDIGMS 2021 Fall Conference | Virtual October 2021
4. Field of Dreams Conference | Virtual November 2021
5. ◇ 6th Northeastern Conference on Research in Undergraduate Mathematics Education | Virtual October 2022
6. † Field of Dreams Conference | Minneapolis, MN November 2022
7. 25th SIGMAA on RUME | Omaha, NE February 2023
8. ◇ 7th Northeastern Conference on Research in Undergraduate Mathematics Education | Virtual November 2023
9. † Joint Mathematics Meetings | San Francisco, CA January 2024
10. ◇ 26th SIGMAA on RUME | Omaha, NE February 2024
11. **Workshop:** Critical Issues in Mathematics Education 2024: Bringing Innovation to Scale: Teaching-Focused Faculty as Change Agents | Berkeley, CA April 2024

AWARDS

1 Walter Mientka Teaching Award | Awarded 2021 by the UNL Math Department.

“The Walter Mientka Award is given to students who demonstrate exceptional promise as a teacher based on their work during their first one or two years as a graduate teaching assistant in our department.”

SKILLS

Mathematics L^AT_EX, curriculum development

Statistical Methods RStudio

Programming C, C++, Python, Matlab, LISP, SQL, and HTML/CSS (Web-design)

Archaeological Studies ArcGIS, text processing, georeferencing

Languages English (fluent), Filipino/Tagalog (native fluent), Spanish (intermediate)

Content Creation

- Videos: <https://www.youtube.com/@johango> and textbook videos
- Graphics: <https://www.johanmath.com/design>
- Writing: <https://www.johanmath.com/writings>