

# Johan Benedict A. Cristobal

Email: [jcristobal2@unl.edu](mailto:jcristobal2@unl.edu)

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

## RESEARCH INTEREST

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I examine frames of teaching and learning. Specifically, within the context of graduate student instructor (GSI) development, 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

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### University of Nebraska-Lincoln (UNL), Lincoln, NE

▷ 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 (UCLA), Los Angeles, CA

▷ B.S. in Mathematics of Computation June 2020

## POSITIONS

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### 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 helped conduct 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(S<sup>2</sup>)) – 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 **Present** – I helped map the learning progressions to a Bottle filling activity made as a reality-based activity to learn the concept of functions. I also went to 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 helped conduct interviews of the CSForAll: AIR@NE summer cohort. I also helped clean up 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**

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- [1] **Cristobal, J. B. A.** (Submitted). “Complicating the Relationship of Frames and Responses in Teacher Noticing”. Contributed Report for the *26th Annual Conference on Research in Undergraduate Mathematics Education*.
- [2] **Cristobal, J. B. A.** & 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*, January/February 2024.

## **TALKS (Reverse chronological)**

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- [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

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*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

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*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

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**UNL Math Day Committee** Fall 2023 - Present

*Graduate Student organizer for Volunteer outreach and Challenge activities*

Outreach event for Nebraskan high schoolers that encourage them to pursue a career in a mathematics-based trajectory. I aid in recruiting and organizing volunteers and in running sessions (Challenge activities) outside of the competition aspect of the Day.  
[math.unl.edu/math-day-university-nebraska-lincoln](http://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.

**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  
*Volunteer*

Using the building's outdated floor plans, I increased the readability and usefulness through a redesign and posted these maps at key places around Avery Hall. This solved the issue of students and visitors getting lost in the awkward numbering scheme of the building.

**Qualifying Exam Review and Preparation Session** Summer 2022  
*Math 830/831 - Ordinary and Partial Differential Equations*

I was chosen to lead the week-long review session to prepare students who are taking the Differential Equations qualifying exam for their PhD requirements. I utilized and updated material provided by the previous review leader.

## CONFERENCES

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

1. Pacific Math Alliance Conference | California State University at East Bay      October 2019
2. Field of Dreams Conference | St. Louis, Missouri      November 2019
3. † Field of Dreams Conference | Virtual      November 2020
4. Joint Mathematics Meetings | Virtual      January 2021
5. KUMUNI-ISU Conference on PDE, Dynamical Systems,  
and Applications | UNL, Lincoln, Nebraska      October 2021
6. paraDIGMS 2021 Fall Conference | Virtual      October 2021
7. Field of Dreams Conference | Virtual      November 2021
8. ◇ 6th Northeastern Conference  
on Research in Undergraduate Mathematics Education | Virtual      October 2022
9. † Field of Dreams Conference | Minneapolis, Minnesota      November 2022
10. 25th SIGMAA on RUME | Omaha, Nebraska      February 2023
11. Math 125 | Lincoln, Nebraska      April 2023
12. ◇ 7th Northeastern Conference  
on Research in Undergraduate Mathematics Education | Virtual      November 2023
13. † Joint Mathematics Meetings | San Francisco, California      January 2024
14. ◇ 26th SIGMAA on RUME | Omaha, Nebraska      February 2024

## AWARDS

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**1 Dean's Honor List** | Awarded Winter 2018 and Spring 2018 by UCLA.

**2 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

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**Mathematics**  $\text{\LaTeX}$ , 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>