

# Sebastian David Melzer – Curriculum Vitae

## Education

- **PhD in Mathematics** 2021 – 2025  
New Mexico State University, Las Cruces, United States  
*Priestley duality for frames* – Advisor: Guram Bezhanishvili
- **MSc in Logic** 2018 – 2020  
Universiteit van Amsterdam, the Netherlands  
*Canonical formulas for the Lax Logic* – Advisor: Nick Bezhanishvili
- **BSc in Computing Science** 2015 – 2018  
Universiteit van Amsterdam, the Netherlands  
*Thread-oriented program algebra* – Advisors: Inge Bethke and Alban Ponse

## Employment

- **Graduate Assistant** 2021 – 2025  
New Mexico State University, Department of Mathematical Sciences
- **Teaching Assistant** 2017 – 2018  
Universiteit van Amsterdam, Faculty of Science
- **Teaching Assistant** 2017  
Universiteit van Amsterdam, Faculty of Economics and Business

## Preprints and publications

- Guram Bezhanishvili, Papiya Bhattacharjee, and Sebastian Melzer 2024  
*Maximal  $d$ -spectra via Priestley duality*  
Submitted
- Guram Bezhanishvili and Sebastian Melzer in press  
*Algebraic frames in Priestley duality*  
**Algebra Universalis**
- Guram Bezhanishvili and Sebastian Melzer 2023  
*Deriving dualities in pointfree topology from Priestley duality*  
**Applied Categorical Structures**, 31(34)
- Guram Bezhanishvili and Sebastian Melzer 2022  
*Hofmann-Mislove through the lenses of Priestley*  
**Semigroup Forum**, 105(3):825-823

# Talks

## Conference Talks

- **Topology, Algebra, and Categories in Logic (TACL)** July 2024  
Universitat de Barcelona, Spain  
*The maximal spectrum of  $d$ -elements is not always Hausdorff*
- **BLAST** April 2024  
University of North Texas, Denton, United States  
*When is  $\max(dL)$  Hausdorff?*
- **Interacciones entre topología sin-puntos, álgebra y categorías (ITAC)** October 2023  
Universidad Autónoma de San Luis Potosí, Mexico (online)  
*Priestley duality for  $d$ -frames*
- **BLAST** May 2023  
University of North Carolina, Charlotte, United States  
*Algebraic Frames in Priestley duality*
- **American Mathematical Society Special Session (AMS)** September 2022  
University of Texas, El Paso, United States  
*How to derive well-known dualities in point-free topology from Priestley duality*
- **Topology, Algebra, and Categories in Logic (TACL)** June 2022  
Universidade de Coimbra, Portugal.  
*Hofmann-Mislove through the lenses of Priestley*
- **BLAST** June 2021  
New Mexico State University, Las Cruces, United States (online)  
*Canonical formulas for  $IK_4$*

## Seminar Talks

- Frame Theory Seminar – **Chapman University** December 2024  
Orange, California, United States  
*Priestley duality for frames*
- Foundations Seminar – **New Mexico State University** November 2022  
Las Cruces, New Mexico, United States  
*Topics in Pointfree Topology: Duality Theorems*
- The Utrecht Logic in Progress Series – **Universiteit Utrecht** March 2021  
Utrecht, the Netherlands (online)  
*Canonical formulas for the Lax Logic*

## Tutorials

- **Meeting on Interactions between Topology, Algebra, and Categories (MITAC)**  
Universidad Autónoma Metropolitana, Mexico City, Mexico November 2024  
*Priestley duality and its applications to pointfree topology*

## Teaching experience

### Lecturer

#### New Mexico State University

- Trig & Pre-calculus Spring 2025
- College Algebra Spring + Fall 2024  
Spring + Fall 2023  
Fall 2022

### Teaching Assistant

#### New Mexico State University

- Introduction to Ordinary Differential Equations Fall 2022
- Introduction to Real Analysis Spring 2022
- Introduction to Higher Mathematics Fall 2021

#### Universiteit van Amsterdam

- Image Processing and Computer Vision Spring 2018
- Statistical Reasoning Spring 2018
- Discrete Mathematics and Logic Fall 2017
- Algorithms and Data Structures in Python Fall 2017

## Awards

- Anna Schrufer Kist Endowed Scholarship 2024
- Joseph E. Kist Fellowship 2024  
2023  
2022  
2021
- Grad Success Scholarship 2021
- Charles Swartz Endowed Scholarship 2021