

# Daniel Tolosa

Algebraic Topology | Topological Data Analysis | Math Biology

dtolosav@asu.edu  
www.linkedin.com/in/daniel-tolosa  
website: danieltolosa.com

## Employment

Presidential Postdoctoral Fellow Jan 2025  
**School of Mathematical and Statistical Sciences**, Arizona State University Tempe, Arizona, USA  
Visiting Postdoctoral Researcher Aug 2024 - Dec 2024  
**Max Planck Institute of Molecular Cell Biology and Genetics** Dresden, Germany

## Education

Ph.D. in Mathematics May 2024  
**Purdue University** (*Advisor: Manuel Rivera*) West Lafayette, Indiana USA  
B.S. in Mathematics 2017  
**National University of Colombia** Bogotá, Colombia

## Selected Talks

### Upcoming Talks

- *Title TBD* AMS Spring Southeastern Sectional Meeting, Special Session in Diversity in Mathematical Biology, Florida State University, 2024.
- *Title TBD* Joint Mathematical Meetings, Special Session in Equivariant techniques in stable homotopy theory, San Francisco, CA, 2024.

### Invited Talks

- *Quantifying biological pattern formation: a time-dynamic persistent homology approach*, Topology Data Analysis Seminar, Michigan State University, 2023.
- *Cyclic homology of categorical coalgebras and the free loop space*, Topology Seminar, Michigan State University, 2023.
- *Cyclic homology of categorical coalgebras and the free loop space*, Topology Seminar, University of Minnesota, 2023.
- *An algebraic model for the free loop space as an  $S^1$ -space*, Topology Seminar, Indiana University, 2023.
- *An algebraic model for the free loop space as an  $S^1$ -space*, Topology Seminar, Purdue University, 2023.
- *Quantifying biological pattern formation: a time-dynamic persistent homology approach*, Applied Geometry and Topology Seminar (Online), Potsdam University, Germany, 2023.
- *An algebraic model for the free loop space as an  $S^1$  space*, Algebra and Geometry Seminar, University of Genova, Italy, 2023.
- *Topological techniques to quantify biological pattern formation*, AMS Spring Sectional Meeting, University of Cincinnati, 2023.

### Contributed Talks

- *An algebraic model for the free loop space as an  $S^1$  space*, Midwest Topology Seminar, UIUC, 2023.
- *Quantifying biological pattern formation in time*, Synergies between TDA and Life Sciences Workshop (Online), Heidelberg University, Germany, 2023.
- *Time dynamics in Topological Data Analysis of Zebrafish Patterns* Student Colloquium, Purdue University, 2022.

## Teaching and Mentoring Experience

### Instructor of Record

- *Applied Calculus 2* (2 Sections), Purdue University . . . . . Spring 2022
- *Applied Calculus 1* (2 Sections), Purdue University . . . . . Fall 2021

### Teaching Assistant (Recitation)

- *Multivariate Calculus* (3 Sections), Purdue University . . . . . Fall 2019, Summer 2021, Spring 2022
- *Linear algebra and differential equations* (2 sections), Purdue University . . . . . Fall 2020
- *Discrete mathematics and applications* (2 sections), Purdue University . . . . . Summer 2020
- *Calculus 2* (2 sections), Purdue University . . . . . Fall 2018 and Spring 2019
- *ODEs and Linear Algebra* (1 section), National University of Colombia . . . . . Spring 2016
- *Fundamentals of mathematics* (1 section), National University of Colombia . . . . . Fall 2015

### Mentor

- *Undergraduate reading program: algebraic topology*, Daniel Armeanu, Purdue University . . Spring 2024
- *UREP-C: Mentoring a visiting scholar*, Mateo Matijasevick, Purdue University . . . Spring 2021

## Awards and Honors

- Teaching Academy Graduate Teaching Award, Purdue University . . . . . 2024
- Service Award: topology seminar organizer, Purdue University . . . . . 2024
- Excellence in Graduate Teaching Award, Purdue University . . . . . 2023
- Summer research grant awarded by Purdue University. . . . . Summer 2023
- Summer research assistantship supported by NSF grant. . . . . Summer 2022