

# Bernardo Rivas

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in bernardorivas-math    🌐 bernardorivas

## Employment

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**University of Toledo** Ohio, US  
Postdoctoral Fellow, Mathematics 2025 – Present

## Education

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**Rutgers University** New Jersey, US  
PhD in Mathematics 2019 – 2025

**Universidade de São Paulo (ICMC)** São Paulo, Brazil  
MS and BS in Mathematics 2012 – 2019

## Visiting appointments

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**University of Michigan**, Ann Arbor, MI 2025

**Rutgers University**, New Brunswick, NJ 2018

**Queen Mary University of London**, London, UK 2014

## Publications & Preprints

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**Topological Dynamics via Learned Hybrid Systems** Preprint

with K. Iwasaki, W. Kalies, A. Bloch, M. Ghaffari

<https://arxiv.org/abs/2511.08737> 

**Global Dynamics of Ordinary Differential Equations: Wall Labelings, Conley Complexes, and Ramp Systems** Preprint

with K. Mischaikow, E. Vieira, M. Gameiro, T. Gedeon, H. Kokubu, H. Oka

<https://arxiv.org/abs/2412.11078> 

## Talks

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**Global dynamics in systems biology** Denver, CO  
SIAM DS25 2025

**Computational dynamics of gene regulatory networks** Athens, OH  
Dynamics Seminar 2025

**Network dynamics via combinatorics, topology and homology** Toledo, OH  
AMS Seminar 2025

**Analytical bounds for combinatorial topological dynamics** Montreal, Canada  
Workshop – Combinatorial topological framework for nonlinear dynamics 2024

**A computational framework for dynamics of genetic regulatory networks** Washington, DC, US  
2024 Spring Eastern Sectional Meeting 2024

**Combinatorial topological method for gene regulatory networks** Leiden, Netherlands  
Workshop – Computing combinatorial dynamics in high dim. biological networks 2023

**Rigorous numerics of invariant manifolds** São Carlos, Brazil  
Summer Meeting in Differential Equations 2019

## Posters

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CBMS: Applied Mathematics and Machine Learning, Houston, TX, USA 2025

Id. of Gene Regulatory Network Function from Data, Providence, RI, USA 2022

International Congress in Mathematics, Rio de Janeiro, Brazil 2018

Workshop of Thesis and Dissertations, ICMC-USP, Brazil 2018

Algebraic Topology in Data and Dynamics, Montana State University, USA	2018
Summer Meeting in Differential Equations, ICMC-USP	2017
GeoGebra Global Gathering, Linz, Austria 201	2015

## Teaching

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### Rutgers University

#### Instructor

Introduction to Real Analysis	Summer 2024
Introduction to Mathematical Reasoning	Summer 2023
Elementary Differential Equations	Summer 2022

#### Teaching Assistant

Introduction to Real Analysis	Spring 2024
Introduction to Real Analysis	Fall 2023
Differential Equations for Engineering and Physics	Spring 2023
Mathematical Theory of Statistics	Fall 2022
Advanced Calculus for Engineering	Fall 2022
Differential Equations for Engineering and Physics	Spring 2022
Calculus I for the Mathematical and Physical Sciences	Fall 2021

#### ICMC-USP

Instructor for a minicourse on Differential Equations	Winter 2019
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## Service

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Mentor for Directed Reading Program	2024
Member of the Graduate Student Liaison Committee	2022 – 2024
Undergraduate representative in Mathematics Department Committee	2015 – 2016