

# Bryan C. Busby

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## EDUCATION

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B.Sc. in Pure Mathematics, University of Puerto Rico, UPR Mayagüez

Expected 2027

## RESEARCH EXPERIENCE

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Researcher, Villanova University (REU) – Advisor: Alexander Díaz-López 2025–present  
Studied arithmetical structures on graphs with emphasis on cycles with multi-edges. Contributed to manuscript in preparation.

Researcher, UPR Mayagüez – Advisor: Omar Colón-Reyes 2024–present  
Research on transient length bounds for Boolean monomial systems using graph-theoretical tools (walks, Frobenius number). Co-author on manuscript in preparation.

Researcher, UPR Mayagüez (CARSE) – Advisor: Rafael Rodríguez Solís 2023  
Developed GNU Radio program for RF propagation. Analyzed instrument tolerance effects on 5G propagation measurements.

High School Researcher, CROEM – Advisor: Edwin Benvenuti 2021  
Independent research on adjacency matrices and walks. Extended a known result in graph theory with applications to dynamical systems.

## MANUSCRIPTS IN PREPARATION

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Arithmetical Structures on Cycles with a multi-edge (with Alexander Díaz-López)

Transient Length Boundary for Finite Dynamical Systems (with Omar Colón-Reyes)

## PRESENTATIONS

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*Arithmetical Structures on Cycles with a multi-edge* – MAA MathFest, Sacramento, CA Aug 2025

*Finite Dynamical Systems: Transient Bounds for Boolean Monomial Systems* – SIDIM May 2024  
(PR Interdisciplinary Mathematics Symposium), UPR Ponce

*Development of Radio Wave Propagation Setup and Propagation Measurements at 5G Bands* – UPR Mayagüez 2023

*On the Adjacency Matrix and Walks* – Regional Math Fair (PR Dept. of Education) 2021

## EMPLOYMENT

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Food Server, Mayagüez Resort & Casino, Mayagüez, PR

2025–present

Food Server, Romano's Macaroni Grill, Mayagüez Mall, PR

2023–2024

## TECHNICAL SKILLS

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Python, TeX.

**LANGUAGES**

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Spanish (native); English (fluent).