

Emily Barranca

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Assistant Professor

Department of Mathematics and Computer Science
St. Mary's College of Maryland
St. Mary's City, MD

Education

Ph.D. in Pure Mathematics Fall 2021-May 2024
Dissertation: *Graphs which are recognizable by spectrum as singleton sets and constructing cospectral pairs*
University of Rhode Island, Kingston, RI
Advised by Dr. Michael Barrus

M.S. in Pure Mathematics Fall 2019-Spring 2021
University of Rhode Island, Kingston, RI

B.A. in Mathematics and B.A. in Computer Science Fall 2015-Spring 2019
Swarthmore College, Swarthmore, PA
President of Women+ in Mathematics and Statistics Organization Fall 2017, Spring 2018

Teaching Experience

Assistant Professor, St. Mary's College of Maryland

Calculus II	Fall 2024
Linear Algebra	Fall 2024
Advanced Topics in Linear Algebra	Spring 2025
Discrete Mathematics	Spring 2025

Graduate Teaching Assistant and Instructor of Record, University of Rhode Island

Math Tools for Computing	Fall 2023
Calculus II	Fall 2023
Calculus I	Fall 2022, Spring 2023
Applied Calculus (in person, remote synchronous, remote asynchronous)	Spring 2020 - Spring 2022
Applied Precalculus	Fall 2019

Publications

Barranca, E., Small, S. G. (2017). Siena's Tasks Track System. *NIST Special Publication 500-324: The Twenty-Sixth Text REtrieval Conference Proceedings (TREC 2017)*.

In Preparation

On double stars determined by their spectrum

Spectrally recognizable induced subgraphs

Presentations

- Characterizing some graphs which are recognizable by spectrum* (poster) April 2023
Women in Algebra and Combinatorics. Northeast Conference Celebrating the Association for Women in Mathematics: 50 Years and Counting, University at Albany
- Characterizing some graphs which are recognizable by spectrum* April 2023
AMS New England Graduate Student Conference, Brown University
- Characterizing some graphs which are recognizable by spectrum* March 2023
Discrete Mathematics Seminar, University of Rhode Island
- Using adjacency spectra of graphs to look for induced subgraphs* January 2023
Joint Mathematics Meetings, AWM Women in Graph Theory Session, Boston, MA
- Integral Cographs* April 2021
Discrete Mathematics Seminar, University of Rhode Island
Based on the 2019 paper of the same name from Allen and Tura.
- Special Sets of Vertices in Paley Graphs* January 2019
Joint Mathematics Meetings AMS Contributed Paper Session on Geometry, Baltimore, MD

Workshops & Projects

- Graduate Research Workshop in Combinatorics* Summer 2022
University of Colorado, Denver
Projects: Minimal square tilings of rectangles, Coloring problems in Paley graphs
- Implementation of Karr's Summation Algorithm* Fall 2021
Implemented in Maple
Advised by Dr. Edmund Lamagna
University of Rhode Island Department of Computer Science and Statistics
- Profile Hidden Markov Models for Protein Sequence Alignment* Spring 2018
Implemented in Python
Advised by Dr. Sara Mathieson
Swarthmore College Department of Computer Science

Trainings

- Diversity and Inclusion Badge for Graduate Students* Spring 2023
University of Rhode Island
- Talk Saves Lives: Suicide Prevention Training* Summer 2021
American Foundation for Suicide Prevention
- QPR Suicide Prevention Training* Spring 2018
QPR Institute

References

Dr. Michael Barrus
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Department of Mathematics and Applied Mathematical Sciences
University of Rhode Island

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Dr. Edmund Lamagna
Professor
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Dr. Erin Denette (*Teaching reference*)
Teaching Professor
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