

# ISABEL BARRIO SANCHEZ

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## EDUCATION

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**University of Pittsburgh.** Ongoing, expected completion May 2026  
Ph.D. in Mathematics.  
Research area: Numerical Analysis and Scientific Computing.  
Areas of Interest: Fluid Structure Interaction, Computational Fluid Dynamics.

**West Virginia University Institute of Technology** 2017-2021  
Bachelor of Science in Mathematics.  
Cumulative GPA: 4.0/4.0.  
Minors: Computer Science, Economics.

## COMPUTER SKILLS

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Languages: Python, MatLab, Java, C++.  
Research: FreeFem++, AMReX.  
Other: HTML/CSS, UNIX.

## WORK EXPERIENCE

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**Teaching Assistant - University of Pittsburgh** 2021-present

- Led recitations and held office hours for various courses in the Mathematics department.
- Was the main instructor for Business Calculus in Summer 2022.
- Graded upper-level undergraduate courses: Numerical Mathematical Analysis and Modeling in Applied Math.

**Student Assistant – Lawrence Berkeley National Lab** Summer 2023

- 10-week research internship under Dr. Ann Almgren and Dr. John Bell at the Applied Mathematics and Computational Science Division of the Lawrence Berkeley National Lab.
- Culminated with a research paper “A New Re-redistribution Scheme for Weighted State Redistribution with Adaptive Mesh Refinement”. Submitted for publication to the Journal of Computational Physics.
- Contributed to the repository AMREX-Fluids/CAMR.

**Assistant for the Computer Science Department – WVU Tech****2018-2021**

- Developed and led STEM camps and after-school programs for rural and high-poverty girls in Southern West Virginia. Presented my work at the 2020 ASEE Conference.
- Received grants from NCWIT to develop these programs.
- Assisted Dr Afrin Naz on her Computer Science classes and labs.

**TRIO Peer Tutor – WVU Tech****2018-2020**

- Tutored math courses to low-income and first-generation college students.
- Courses tutored: College Algebra, Trigonometry, Calculus 1, 2, and 3, Differential Equations, and Probability and Statistics.
- Included online tutoring through Spring 2020.

**Fall Orientation Leader – WVU Tech****2018, 2019, 2020**

- Coordinated big groups of students to be active and enthusiastic in their community.
- Lead Orientation Leader the two last years (led the other OLs).
- Included virtual orientation in Fall 2020 having to manage big groups and events online.

**RESEARCH**

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- I. Barrio Sanchez, A. S. Almgren, J. B. Bell, M.T. Henry de Frahan, W. Zhang, “A new Re-redistribution Scheme for Weighted State Redistribution with Adaptive Mesh Refinement”, 2023, Submitted to the Journal of Computational Physics.
- Working on a project on partitioned methods for two-domain problems with Dr. Catalin Trenchea and Dr. Rebecca Durst.
- A. Naz, M. Lu, C. Broyles, I. Barrio Sanchez, “Competition of VEX Educational Robotics to Advance Girl’s Education (COVERAGE)”, June 2022, 2020 ASEE Virtual Annual Conference.

**PRESENTATIONS**

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- “A new Re-redistribution Scheme for Weighted State Redistribution with Adaptive Mesh Refinement.” AWM Student Seminar, November 10, 2023.
- “A new Re-redistribution Scheme for Weighted State Redistribution with Adaptive Mesh Refinement.” Computing Sciences Summer Program Poster Session, August 10, 2023.
- “Competition of VEX Educational Robotics to Advance Girl’s Education (COVERAGE).” 2020 ASEE Virtual Annual Conference, Computers in Education Division Technical Session 10: STEM Outreach, June 2020.

## TEACHING

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### University of Pittsburgh

Year	Term	Type	Class
2023	Fall	Grading	Numerical Mathematical Analysis (MATH 1070, 29 students)
		Grading	Numerical Mathematical Analysis (MATH 1070, 11 students)
		Grading	Modeling in Applied Math 1 (MATH 1360, 20 students)
	Spring	Recitation	Calculus 1 (MATH 0220, 32 students)
		Recitation	Calculus 2 (MATH 0230, 25 students each) x2
2022	Fall	Recitation	Business Calculus (MATH 0120, 25 students)
			Calculus 2 (MATH 0230, 22 students)
			Calculus 2 (MATH 0230, 18 students)
	Summer	Lecture	Business Calculus (MATH 0120, 15 students)
	2021 Fall	Recitation	Calculus 1 (MATH 0220, 25 students)
		Recitation	Calculus 1 (MATH 0220, 22 students)
		Recitation	Calculus 2 (MATH 0230, 24 students)

## HONORS AND ACTIVITIES

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2018-2021 Outstanding Freshman, Sophomore, Junior, and Senior for the Mathematics Department.

2017-2021 Intercollegiate women's basketball student-athlete at WVU Tech.

Four-time Conference Champions and three National Appearances.

River States Conference scholar-athlete award every semester.