

CONTACT INFORMATION

Pronouns:	she / ella
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RESEARCH INTERESTS

Algebraic Topology, Homotopy Theory, Topological Data Analysis, Mathematical Biology

APPOINTMENTS

Assistant Professor Member of the Black and Latinx/e Student Success Cohort	Jan 2025
Department of Mathematics, San Francisco State University	San Francisco, CA
William W. Elliott Assistant Research Professor	Jan 2022 – Jul 2024
Department of Mathematics, Duke University	Durham, NC

EDUCATION

Ph.D. in Mathematics	University of British Columbia
Thesis: Decomposition of topological Azumaya algebras in the stable range	2016 – 2021
Supervisors: Ben Williams & Alejandro Adem	
M.Sc. in Mathematics	Universidad Nacional de Colombia
Thesis: Cohomology of semidirect products	2014 – 2016
Supervisor: José Manuel Gómez Guerra	
B.Sc. in Mathematics	Universidad Nacional de Colombia
Magna Cum Laude	2009 – 2013

AWARDS, SCHOLARSHIPS & FELLOWSHIPS

Lathisms Honoree - Lathisms Hispanic Heritage Month Calendar	2024
NExT (New Experiences in Teaching) Fellow: Green’23 Cohort - MAA Project NExT	2023 – 2024
President’s Academic Excellence Initiative PhD Award - University of British Columbia	2020 – 2021
International Tuition Award - University of British Columbia	2016 – 2021
Faculty of Science PhD Tuition Award - University of British Columbia	2016 – 2020
Itoko Muraoka Fellowship - St. John’s College, Vancouver	2018
Academic Excellence Scholarship - Universidad Nacional de Colombia	2014 – 2016

PUBLICATIONS & PREPRINTS

5. Decomposition of symplectic vector bundles and Azumaya algebras. Arcila-Maya, N. (2023). Submitted. ArXiv
4. Decomposition of topological Azumaya algebras with orthogonal involution. Arcila-Maya, N. (2022). Accepted for publication after corrections at the Journal of Pure and Applied Algebra. ArXiv
3. Compactly supported \mathbb{A}^1 -Euler characteristic and the Hochschild complex. Arcila-Maya N., Bethea C., Opie M., Wickelgren K., Zakharevich I. (2022). Topology and its Applications 316. DOI
2. Decomposition of topological Azumaya algebras. Arcila-Maya, N. (2021). Canadian Mathematical Bulletin, 1-19. DOI
1. Numerical solution of a fractional differential equation Wave-Diffusion. Arcila Maya N., Acosta Medina C., and Trujillo Casanova S. (2013). NOOS Journal, Vol. 2, 43 - 48, Universidad Nacional de Colombia, Manizales.

TALKS

AT EVENTS

Vines and vineyards to understand ring-like formations within filamentous protein networks <i>Invited speaker - AMS 2024 Spring Southeastern Sectional Meeting</i>	Mar 2024 Florida State University
Topological Azumaya algebras and the decomposition problem <i>Invited speaker - AMS 2023 Spring Central Sectional Meeting</i>	Apr 2023 University of Cincinnati
Decomposition of topological Azumaya algebras in the stable range <i>Invited speaker - AT and TDA: A Conference in Honor of Gunnar Carlsson</i>	Aug 2022 University of Minnesota
Entendiendo álgebras topológicas de Azumaya <i>Invited speaker - I Encuentro de Estudiantes y Egresados de Matemáticas</i>	Jun 2021 Universidad Nacional de Colombia
Decomposition of topological Azumaya algebras with involution <i>Invited speaker - CMS Winter Meeting 2020 - Homotopy Theory Session</i>	Dec 2020 Montreal, Canada
Decomposition of Azumaya algebras <i>Invited speaker - Topology, Coast to Coast</i>	May 2020 University of British Columbia
Decomposition of topological Azumaya algebras <i>Invited speaker - CMS Winter Meeting 2019 - Topology Session</i>	Dec 2019 Toronto, Canada
Integral cohomology of BPU_n and the understanding of topological Azumaya algebras <i>Invited speaker - Women in Homotopy Theory and Algebraic Geometry II</i>	Mar 2019 Freie Universität

AT SEMINARS

Decomposition problem for topological Azumaya algebras with an involution of the first kind <i>Invited speaker - Topology Seminar</i>	Apr 2023 University of Virginia
Decomposition problem for topological Azumaya algebras with an involution of the first kind <i>Invited speaker - Topology Seminar</i>	Apr 2023 John Hopkins University
Algebras topológicas de Azumaya y el problema de descomposición <i>Invited speaker - Seminario de Topología Algebraica y Geometría</i>	Apr 2023 Virtual
Topological Azumaya algebras and the decomposition problem <i>Invited speaker - Homotopy Theory Seminar</i>	Apr 2023 University of Pennsylvania
Decomposition of topological Azumaya algebras in the stable range <i>Invited speaker - Peripatetic Seminar</i>	Apr 2022 University of Calgary
Decomposition of topological Azumaya algebras with symplectic involution <i>Geometry & Topology Seminar</i>	Mar 2022 Duke University
Decomposition of topological Azumaya algebras <i>Invited speaker - Topology Seminar</i>	Oct 2020 University of Illinois Urbana-Champaign
Cohomology Operations <i>QTOP Math - Series: Stable homotopy theory</i>	Fall 2019 University of British Columbia
What is a topological Azumaya algebra? <i>Reading Seminar - Series: Power Operations & Miscellaneous</i>	Spring 2019 University of British Columbia

WORKSHOPS ATTENDED

Climate Science at the Interface Between Topological Data Analysis and Dynamical Systems Theory - <i>AMS - Mathematics Research Community</i>	Jul 2024
<i>Algebraic K-theory and Brauer Groups - Banff International Research Station</i>	Jun 2024
<i>Representation of Codes Using Group Algebras - Rethinking Number Theory</i>	Jun 2023
<i>VSU CBMS Conference on Topological Data Analysis and Persistence Theory - Valdosta State University</i>	Aug 2022
<i>Motivic Homotopy: Interactions and Applications - IAS Park City Mathematics Institute</i>	Jul 2021
<i>Cohomology of Finite Groups: Interactions and Applications - Research Institute for Mathematics: MFO</i>	Aug 2020
<i>Women in Topology III - Hausdorff Research Institute for Mathematics: HIM</i>	Aug 2019
<i>Workshop Women in Topology - Mathematical Sciences Research Institute: MSRI</i>	Nov 2017

TEACHING EXPERIENCE

Math 105L: Laboratory Calculus and Functions I <i>Instructor - One section</i>	Spring 2024 <i>Department of Mathematics - Duke University</i>
Math 611: Algebraic Topology I <i>Instructor - One section</i>	Fall 2023 <i>Department of Mathematics - Duke University</i>
Math 218D2: Vectors and Matrices <i>Discussion facilitator - Four sections</i>	Spring 2023 <i>Department of Mathematics - Duke University</i>
Math 401/701: Introduction to Abstract Algebra <i>Instructor - One section</i>	Fall 2022 <i>Department of Mathematics - Duke University</i>
Math 112L: Laboratory Calculus II - Online <i>Instructor - One section</i>	Summer 2022 <i>Department of Mathematics - Duke University</i>
Math 112L: Laboratory Calculus II <i>Instructor - Two sections</i>	Spring 2022 <i>Department of Mathematics - Duke University</i>
Math 152: Linear Systems - Online <i>Instructor - One section</i>	Spring 2021 <i>Department of Mathematics - University of British Columbia</i>
Head TA of the Mathematics Learning Center (MLC) <i>40 to 60 graduate and undergraduate TAs</i>	2019–2020 <i>Department of Mathematics - University of British Columbia</i>
Mathematical Logic <i>Instructor - One section</i>	Fall 2013 <i>Department of Mechatronics Engineering - Universidad de Caldas</i>

In what follows, all items marked with a star (★) are activities related to Justice, Equity, Diversity and Inclusion.

MENTORING EXPERIENCE

★ AWM - Mentoring Network MENTORED A GRADUATE STUDENT: <i>Dhanusshya Raghu</i> Mentors are paired with undergraduate students to meet monthly to discuss career goals, resources, and build community.	Summer 2023 – Present <i>Ramanujan Institute for Advanced Study in Mathematics</i>
Summer Project MENTORED A MATHEMATICS UNDERGRADUATE STUDENT <i>Festus Akinsola</i> - An introduction to vines and vineyards	Summer 2023 <i>Duke University</i>
Math 491: Non-research Independent Study MENTORED TWO MATHEMATICS AND COMPUTER SCIENCE UNDERGRADUATE STUDENTS <i>Ryan Iki and Mark Reutin</i> - An introduction to topological data analysis	Spring 2023 <i>Duke University</i>
★ Twoples - Online Directed Reading Program MENTORED A MATHEMATICS UNDERGRADUATE STUDENT <i>Alice Mehalek</i> - Group actions, Sylow theorems, and modules	Spring 2022 <i>University of Alaska Southeast</i>

PROFESSIONAL SERVICE

★ Founder and Co-organizer - Pares Ordenados: Online DRP in Spanish <i>Free mentorship program serving Spanish-speaking math undergraduate students in Latin America</i>	Spring 2023 – Present <i>Worldwide Community</i>
★ Member of the Duke Math DEI team <i>Department of Mathematics</i>	Fall 2023 - Spring 2024 <i>Duke University</i>
★ Member of the Prison Engagement Initiative Network MEMBER OF THE IN-PRISON EDUCATION TASK FORCE - <i>The Kenan Institute for Ethics</i> Interdisciplinary Duke University network committed to engaging prisons, the people affected by prisons, and the politics and pathways surrounding mass incarceration.	Fall 2023 <i>Duke University</i>

PROFESSIONAL DEVELOPMENT

TEACHING & MENTORING TRAINING

★ Cultivating an Inclusive Teaching & Learning Community through Narrative Change <i>Center for Truth, Racial Healing & Transformation (TRHT)</i> Workshop: 1 hour	Duke University Nov 8, 2023
Best Practices in Mentoring <i>Duke Graduate Academy</i> Workshop: 6 sessions of 75 minutes each	Duke University Summer 2023
Instructional Skills Workshop <i>Centre for Teaching, Learning and Technology (CTLT)</i> Workshop: 3 sessions of 4 hours each	University of British Columbia Spring 2021
Transitioning to Online Teaching: A Blended Approach <i>Centre for Teaching, Learning and Technology (CTLT)</i> Workshop: 12 hours	University of British Columbia Summer 2020
Foundations of Pedagogy <i>Centre for the Integration of Research, Teaching, and Learning (CIRTL)</i> Workshop: 8 sessions of 2 hours each	University of British Columbia Fall 2019

DEI TRAINING & EVENTS ATTENDED

★ Neurodiversity Student Panel - Duke Neurodiversity Connections <i>Personal experience from neurodivergent students - Practical advice for teaching and mentoring</i>	Duke University Sep 26, 2023
★ Bystander Training - Kenan Institute for Ethics <i>Workshop: 3 hours</i>	Duke University Summer 2023
★ Mathematics for Human Flourishing <i>Talk by Professor Francis Su</i>	Duke University December 2022

PROJECT NEXT

Professional development program for early career mathematicians focusing on enhancing math education, promoting inclusivity, and guiding early career faculty in research, scholarship, and service.

★ Engaging Students Meaningfully with Proof <i>Workshop: 80 minutes</i>	Tampa, Florida Summer 2023
★ Creating a Vibrant & Inclusive Community <i>Workshop: 80 minutes</i>	Tampa, Florida Summer 2023
Helping Students Value Learning Outcomes over Grades <i>Workshop: 80 minutes</i>	Tampa, Florida Summer 2023
Developing and Establishing Modeling/Computational Courses <i>Workshop: 80 minutes</i>	Tampa, Florida Summer 2023
Charting your Career Course <i>Workshop: 80 minutes</i>	Tampa, Florida Summer 2023
Jumpstarting Your Scholarship <i>Workshop: 2 sessions of 2 hours each</i>	Tampa, Florida Summer 2023

MISCELLANEOUS

Science & Research Communication - Duke Graduate Academy <i>Workshop: 6 sessions of 2 hours each</i>	Duke University Summer 2023
Generational differences in the workplace: Fact or Fiction - Alumni UBC <i>Webinar: 1 hour</i>	University of British Columbia Spring 2019
Presentation Skills I - MITACS <i>Workshop: 8 hours</i>	University of British Columbia Spring 2019
Skills of Communication - MITACS <i>Workshop: 8 hours</i>	University of British Columbia Spring 2017

OUTREACH

★ FEMMES+ Capstone 2023

Led an activity together with two of my students

Duke University

Apr 2023

★ Festival of Numbers

Facilitated recreational activities with children and teenagers

Red Matemática Antioquia

Aug 2015

Youth Math Contest

Made a digital solution manual for the contest

Universidad Nacional de Colombia

Fall 2013

PROFESSIONAL AFFILIATIONS

AWM : Association for Women in Math

MAA : Mathematical Association of America

SACNAS : Society for Advancement of Chicanos/Hispanics & Native Americans in Science

TECHNICAL SKILLS

Data Analysis : Python, Jupyter, GitHub

Other : \LaTeX , Microsoft Office, HTML

LANGUAGES

English : Fluent

Spanish : Native