

Alejandro De Las Peñas Castaño

Curriculum Vitae

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Education

- 2016 **B.Sc. in Mathematics**, *Universidad Nacional Autónoma de México*, Ciudad de México, México
- 2022 **M.Sc. in Mathematics**, *University of Virginia*, Charlottesville, VA
- 2020–Now **Ph.D. candidate**, *University of Virginia*, Charlottesville, VA

Publications

Papers

- [Cas25] Alejandro De Las Penas Castano. Zero cycles on products of elliptic curves with supersingular reduction. *In Preparation*, 2025.
- [CP22] Alejandro De Las Penas Castano and Badri Vishal Pandey. Inversion formulas for the j -function around elliptic points. *Archiv der Mathematik*, 119, 2022.

Scholarships and Awards

- 2025–Now **Jefferson Dissertation Year Fellowship**, *Jefferson Scholars Foundation*
The Jefferson Fellowship is premier graduate fellowship offered for Ph.D. candidates to complete their thesis. It covers a full year of stipends and travel.

Talks

- “Inversion Formulas for the j -function Around Elliptic Points” – Lightning talk at *100 Years of Mock Theta Functions* Conference at Vanderbilt University, May 2022
- “Classification of Imaginary Quadratic Fields with Unique Factorization” – UVA Graduate Student Seminar, Aug 2022
- “Group Cohomology and Elementary School Arithmetic: A Nontrivial Intersection” – UVA Graduate Student Seminar, Feb 2023
- “Inversion Formulas for the j -function Around Elliptic Points” – *35th Automorphic Forms Workshop at LSU*, Baton Rouge, May 2023
- “Computing Galois Groups with Number Theory” – UVA Graduate Student Seminar, Oct 2023
- “Inversion Formulas for the j -function Around Elliptic Points” – *AMS Spring Eastern Sectional Meetings* at Howard University, Washington DC, April 2024
- “Inversion Formulas for the j -function Around Elliptic Points” – *Joint Mathematics Meetings* at the special session on Modular Forms, Hypergeometric Functions, and related topics, Seattle, January 2025

Experience

Teaching

2014–2016 **Teaching Assistant**, *Universidad Nacional Autónoma de México*, Calculus I

Assistant to Mat. Julio César Guevara Bravo for the following courses:

SPRING 2014 Linear Algebra I

FALL 2014 Number Theory II

SPRING 2015 Analytic Number Theory

FALL 2015 Number Theory I

SPRING 2016 Analytic Geometry I

FALL 2016 Algebraic Number Theory

2020–2021 **Teaching Assistant**, *University of Virginia*, Charlottesville

Responsibilities:

FALL 2020 Grading for the course *MATH 1330: Basic Real Analysis*.

FALL 2020 Running a discussion session in the course *MATH 2310: Calculus III*.

SPRING 2021 Running discussion sessions in two different sections of the course *MATH 1330: Basic Real Analysis*.

2021–2023 **Lecturer**, *University of Virginia*, Charlottesville

Responsibilities:

FALL 2021 Main instructor in coordinated course under flipped classroom method for *MATH 1220: A survey of Calculus II*.

SPRING 2022 Main instructor in coordinated course under flipped classroom method for *MATH 1320: Calculus II*.

FALL 2022 Main instructor in coordinated course under flipped classroom method for *MATH 1220: A survey of Calculus II*

FALL 2023 Main instructor in coordinated course under flipped classroom method for *MATH 1220: A survey of Calculus II*

Leadership and Mentorship

Summer 2022 **Mentor for the University of Virginia REU in Number Theory**

Advised a project on Hecke nilpotency of modular forms modulo 2.

Summer 2023 **Mentor for the University of Virginia REU in Number Theory**

Advised a project on class number formulas for biquadratic fields.

Fall 2022 - **Mentor for the Directed Reading Program of UVA**, *University of Virginia*, Charlottesville

Fall 2024 During each of the five semesters in this period, I was a mentor in the DRP program working with five different undergraduate students who were interested in advanced math topics. The projects were (in order): Lattice based Cryptography, Unique Factorization of rings of integers, The Congruent Number Problem and Elliptic Curves, and Galois Theory, Structure theorem of finitely generated groups

Spring 2023 - **Vice President of the American Mathematical Society's Graduate Student Chapter**
present **at UVA**, *University of Virginia*, Charlottesville

Together with four other graduate students, and funding from the AMS, we organize social and math outreach events for the graduate students in the mathematics department such as career panels, math book clubs, grading parties, etc.

Fall 2024 - **Committee member for Directed Reading Program of UVA**, *University of Virginia*,
present Charlottesville

I help organize the DRP, for example: accepting undergraduate students and assigning mentees to mentors; help organize lunches or dinners for the participants of DRP, etc.

Miscellaneous

Referee Service

For the following journals: *Advances in Mathematics*, *The Ramanujan Journal*, *Research in Number Theory*, *Journal of Number Theory*