SANTIAGO CAÑEZ

CURRICULUM VITAE, DATE: MAR 1, 2024

Department of Mathematics, Northwestern University
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Major Professional Interests

- Symplectic and Poisson geometry, mathematical physics
- Generalized geometry, supergeometry and derived structures
- Lie groupoids and differentiable stacks, Lie algebroids
- Undergraduate mathematics education at all levels

Education

- **University of California, Berkeley** — Berkeley, CA
  Ph.D. Mathematics, May 2011
  - Dissertation: *Double Groupoids, Orbifolds, and the Symplectic Category*
  - Advisor: Alan Weinstein
- **University of Arizona** — Tucson, AZ
  B.S. Mathematics, May 2002

Pre-Doctoral Awards

- Nikki Kose Memorial Teaching Prize (UC Berkeley) 2011
  - highest teaching honor conveyed by Department of Mathematics
- Outstanding Graduate Student Instructor (UC Berkeley) 2006
- Mentored Research Award (UC Berkeley) 2006

Postdoctoral Awards

- Charles Deering McCormick Distinguished Professorship of Instruction 2020
  - highest teaching honor conveyed by Northwestern University
- Weinberg College Arts & Sciences Alumni Teaching Award 2017
- Named to Associated Student Government Faculty Honor Roll 2014, 2022
- Departmental Excellence in Teaching Award 2014

Employment

- Professor of Instruction – Northwestern University, Evanston IL 2022–
- Co-Director, Causeway Postbaccalaureate Certificate Program 2023–
- Charles Deering McCormick Distinguished Professor of Instruction 2020–2023
- Director, Undergraduate Studies in Mathematics 2020–
- Associate Professor of Instruction — Northwestern University, Evanston IL 2018–22
- Director, Mathematical Experience for Northwestern Undergraduates 2016–20
- Assistant Professor of Instruction — Northwestern University, Evanston IL 2015–18
- Postdoctoral Lecturer — Northwestern University, Evanston IL 2012–15
- Lecturer — UC Berkeley, Berkeley CA 2011–12
- Graduate Student Researcher – UC Berkeley, Berkeley CA 2006–11
- Graduate Student Instructor – UC Berkeley, Berkeley CA 2003–11

Research Support

- Linzer Grant for Faculty Innovation in Diversity and Equity (Northwestern) 2018–19
  Eric Zaslow, Bryna Kra, John Alongi, Santiago Canez, Onnie Rogers: $25,000
- The Causeway Postbaccalaureate Program (National Science Foundation) 2019–2023
  Eric Zaslow, Bryna Kra, John Alongi, Santiago Canez, Onnie Rogers: $850,000

Publications

- Colley, S. and Canez, S. **Vector Calculus**, Pearson, 2021, 5*th edition*
- Canez, S. ***Double Groupoids and the Symplectic Category***, *J. Geom. Mech.* 10 (2018), no. 2, 217–250

Work Now in Progress

- ***Poisson*** 2***-Groupoids and Lie*** 2***-Bialgebroids***: Project aimed at understanding the notion of a Lie 2-bialgebroid in terms of graded geometry, and using this to develop the notion of a Poisson 2-groupoid as the correct integrating object. The eventual goal is to use this concept to better understand symplectic 2-groupoids and their relation to Courant algebroids.
- ***Causeway Postbaccalaureate Program***: Project aimed at developing a postbaccalaureate program in mathematics at Northwestern University. The target audience is that of underrepresented minority students with undergraduate degrees in mathematics, with the goal of helping to make them more competitive in graduate school applications.

Professional Talks

- ***Fun with Hyperbolic Geometry*** Jul 2023
  Causeway Seminar, Northwestern University
- ***The Projective Perspective*** Aug 2022
  Causeway Seminar, Northwestern University
- ***Supermathematics!*** Feb 2022
  Talk for Northwestern Undergraduate Mathematics Society
- ***A Journey Through the World of Groupoids*** Oct 2021
  Causeway Seminar, Northwestern University
- ***Projective Geometry and Arithmetic*** Nov 2020
  Talk for Northwestern Undergraduate Mathematical Society
- ***Tangles and Continued Fractions*** Oct 2019
  Talk for Northwestern Undergraduate Mathematical Society
- ***Supergeometry and Tangent Vectors*** Oct 2017
  Talk for Northwestern Undergraduate Mathematical Society
- ***Maxwell's Equations and Geometry*** Feb 2017
  Slivka Residential College Fireside Chat, Northwestern University
- ***The Cardinality of a Groupoid*** Nov 2016
  Talk for Northwestern Undergraduate Mathematical Society
- ***Projective Geometry and Quantum Mechanics*** May 2016
  Slivka Residential College Fireside Chat, Northwestern University
- ***The Linear Symplectic Category*** Oct 2015
  Talk for Northwestern Undergraduate Mathematical Society

- ***Double Groupoids and the Symplectic Category*** Oct 2011
  "Gone Fishing" Poisson Geometry Meeting, Washington University in St. Louis
- ***Double Groupoids and the Symplectic Category*** Apr 2011
  Northern California Symplectic Geometry Seminar, UC Berkeley
- ***Poisson Groupoids and Double Lie Groupoids*** Nov 2007
  Groupoids Seminar, UC Berkeley
- ***Holomorphic Lie Algebroids and Groupoids*** Oct 2007
  Differential Geometry Seminar, UC Berkeley
- ***Generalized Complex Structures*** Feb 2006
  Generalized Geometry Seminar, UC Berkeley

Peer-Review and Related Activities

- Referee for *Journal of Symplectic Geometry* 2013
- Member of Northwestern Undergraduate Research Grant Review Committee 2018–
- Judge for Northwestern Office of Undergraduate Research Symposium 2023

Professional Affiliations and Service

- Member of the American Mathematical Society
- Member of the Mathematical Association of America
- Member of "Mathematics Programs that Make a Difference" Selection Committee - Committee of the American Mathematical Society 2023–
- Visiting Fellow of the Advanced Placement Calculus AB Exam Review Board 2023

Teaching and Advising

- **Courses Taught at Northwestern University**:

MATH 100: Quantitative Reasoning	Sp 19
MATH 110: Introduction to Mathematics	Fa 12, Wi 13
MATH 220: Differential Calculus of One Variable Functions	Fa 18
MATH 224: Integral Calculus of One Variable Functions	Fa 16/17
MATH 226: Sequences & Series	Fa 19
MATH 230-1: Multivariable Differential Calculus	Fa 22, Fa 23
MATH 281-2: Accelerated Mathematics for ISP	Wi 22
MATH 285-1,2,3: Accelerated Mathematics for MMSS	Sp 19, Fa 22, Wi 23, Sp 23
MATH 290-1,2,3: MENU Linear Algebra & Multivariable Calculus	2012–15, Fa 18, Wi 19
MATH 291-1,2,3: MENU Intensive LA & MV Calculus	2015–19, Fa 20
MATH 300: Foundations of Higher Mathematics	Sp 13/17/18, Wi 19
MATH 306: Combinatorics & Discrete Mathematics	Wi 19
MATH 320-1,2,3: Real Analysis	Fa 13, 2014–15, 2015–16, 2019–20, Fa 23
MATH 321-1,3: MENU Real Analysis	Fa 21, Sp 22
MATH 331-1,2,3: MENU Abstract Algebra	2020–21
MATH 340: Geometry	Sp 22
MATH 344-1: Introduction to Topology	Wi 17/18
MATH 360-1,2: MENU Applied Analysis	2019–20
MATH 381: Fourier Analysis & Boundary Value Problems for ISP	Fa 21
MATH 395: Undergraduate Seminar (category theory)	Sp 18

- **Courses Taught at Northwestern University for School of Professional Studies**:

MATH 202: Finite Mathematics	Wi 15
MATH 220-2: Single-Variable Integral Calculus	Su 21
MATH 230-1: Multivariable Differential Calculus	Su 16, Su 22
MATH 230-B/2: Multivariable Integral Calculus	Fa 16/17/18, Wi 21, Su 23
MATH 240: Linear Algebra	Wi 16/18, Su 16/17/18
MATH 300: Foundations of Higher Mathematics	Sp 14, Fa 15, Su 14/15/20/21/22/23
MATH 306: Combinatorics and Discrete Mathematics	Sp 18
MATH 320-A: Introduction to Real Analysis	Fa 13, Wi 17, Fa 20
MATH 330-A: Introduction to Abstract Algebra	Fa 13
MATH 334: Linear Algebra, Second Course	Su 14/15/18/19
MATH 340: Geometry	Wi 14, Sp 16

- **Courses Taught at University of California, Berkeley as Sole Instructor**:

Math 16A: Analytic Geometry & Calculus I	Sp 12
Math 53: Multivariable Calculus	Su 08
Math 54: Linear Algebra & Differential Equations	Su 05/06
Math 74: Transition to Upper Division Mathematics	Fa 07
Math 104: Real Analysis	Su 10, Fa 11
Math 110: Abstract Linear Algebra	Su 09
Math 113: Abstract Algebra	Su 12
Math 185: Complex Analysis	Su 11

- **Student Projects Supervised**

- Estella Xu, *Coadjoint Orbits of Central Extensions of Lie Groups* Su 2023
  Summer Undergraduate Research Grant Project, Northwestern University
- Sean Carlson, *Casimir Functions on Linear Quotient Spaces* Su 2023
  Summer Internship Grant Program Research Project, Northwestern University
- Nick Dorai, *Lie 2-Groups and Coadjoint Orbits* Su 2022
  Summer Undergraduate Research Grant Project, Northwestern University
- Gwen Cooke, *Loop Groups and Poisson Brackets* Su 2021
  Summer Undergraduate Research Grant Project, Northwestern Universty
- Edgar Santos, *Graphs on Tori and Surfaces* Su 2021
  Causeway Postbaccalaureate Program Research Project, Northwestern University
- Nicholas Karris, *Lie 2-Algebras and Poisson brackets* Su 2020
  Summer Undergraduate Research Grant Project, Northwestern University
- Charlie Dziedzic, *Topology and C*-algebras* Su 2020
  Summer Undergraduate Research Grant Project, Northwestern Univeristy
- Justin Lin, *Ramsey Theory* 2019–20
  Honors Thesis in Mathematics, Northwestern University
- Jinming Zhang, *The Haar Measure Problem* Su 2019
  Summer Undergraduate Research Grant Project, Northwestern University
- Justin Lin, *Multicolor Ramsey Numbers* Su 2019
  Summer Undergraduate Research Grant Project, Northwestern University
- Yintian Zhan, *The Invariant Subspace Problem for Hilbert Spaces* Su 2018
  Summer Undergraduate Research Grant Project, Northwestern University
- Nicholas Irons, *Deformation Quantization and the Moyal Product* 2017–18
  Honors Thesis in Mathematics, Northwestern University

- Garrett Andrews, *Geometric Properties of Reflexive Banach Spaces* Su 2017
  Summer Undergraduate Research Grant Project, Northwestern University
- Joseph Buzzi, *Complements of Banach Spaces in their Biduals* Su 2017
  Summer Undergraduate Research Grant Project, Northwestern University
- Malcolm Lazarow, *Curvature on Principal G-Bundles* 2016–17
  Honors Thesis in Mathematics, Northwestern University
- Raghda Abouelnaga, *Functional Analysis* Su 2012
  Summer Research Project, UC Berkeley

Department, College, and University Service

- Member of Schapiro Secondary School Teacher Award Selection Committee 2023–24
- Member of Weinberg College Faculty Appeals Panel 2023–
- Member of University Teaching Awards Selection Committee 2023
- Member of School of Professional Studies Curriculum and Degree Board 2021–
- Member of Weinberg College Committee on Promotion & Retention Criteria 2019–20
- Member of Weinberg College Advisor Hiring Committee 2019
- Member of Residence-Based Instruction & Academic Support Working Group 2018–19
- Member of Weinberg College Committee on Degree Requirements 2016–17
- Chair of Mathematics Climate Committee 2021-22
- Chair of Mathematics Undergraduate Committee 2020–
- Member of Mathematics Undergraduate Committee 2015–
- Member of Mathematics MENU Committee 2015–21
- Member of Mathematics Teaching-Track Hiring Committee 2017–19
- Member of Mathematics Postdoctoral Lecturer Hiring Committee 2018–20
- Departmental Teaching Mentor for New Faculty 2015–
- Co-Director of Calculus Program 2015–16
- Instructor of Advanced Course at Evanston Township High School 2012–20
- Coordinator of Evanston Math Circle 2012–2023
- Departmental Tutoring Coordinator 2015–
- Departmental Representative at annual meeting of the Math Alliance 2014–2019
- Instructor of Quantitative Reasoning summer BRIDGE Course 2019–