Vance T. Blankers

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Current Employment

Director for Research Development and Collaboration	Spring 2025 – Present
Associate _____	Spring 2022 – Spring 2025
College of Science, Northeastern University	Boston, MA
Lecturer	Fall 2022 – Present
Mathematics Department, Northeastern University	Boston, MA

Research Interests

Moduli of Curves; Moduli Spaces; Combinatorial Algebraic Geometry; Birational Geometry; Enumerative Geometry

Education

Doctorate of Philosophy in Mathematics	May 2019
Colorado State University (CSU)	Fort Collins, CO
Thesis: *Properties of tautological classes and their intersections*	
Advisor: Dr. Renzo Cavalieri	
Bachelor of Arts in Mathematics Minor in Physics	May 2012
Concordia College	Moorhead, MN
Credo Honors Scholar, Summa Cum Laude	

Papers

Published

V. Blankers, S. Bozlee. *On compactifications of $\mathcal{M}_{g,n}$ with colliding markings*, Selecta Mathematica (2024), 30, 104.

V. Blankers. *Extremality of rational tails boundary strata in $\overline{\mathcal{M}}_{g,n}$*, European Journal of Mathematics (2022), 8, 523–539.

V. Blankers, R. Cavalieri. *Witten's conjecture and recursions for κ classes*, European Journal of Mathematics (2021), 3, 309–339.

V. Blankers, R. Cavalieri. *Wall-crossings for Hassett descendant potentials*, International Mathematics Research Notices (2020), doi:10.1093/imrn/rnaa077.

V. Blankers. *Hyperelliptic classes are rigid and extremal in genus two*, Épijournal de Géométrie Algébrique, Volume 4 (2020), Article no.2.

V. Blankers. *Properties of tautological classes and their intersections*, Dissertation, Colorado State University (2019).

V. Blankers, T. Rendfrey, A. Shukert, P. Shipman. *Julia and Mandelbrot sets for dynamics over the hyperbolic numbers*, Fractal Fract (2019), 3(1), 6.

V. Blankers, R. Cavalieri. *Intersections of ω classes in $\overline{\mathcal{M}}_{g,n}$*, Proceedings of Gökova Geometry-Topology Conference (2018).

Teaching

Northeastern University, as Instructor of Record	Boston, MA
Math 2331 – Linear Algebra	Spring 2025, Fall 2025
Math 1231 – Calculus for Business and Economics	Spring 2024
Math 1342 – Calculus 2 for Science and Engineering	Fall 2022, Spring 2023
Math 2321 – Calculus 3 for Science and Engineering	Spring 2026
Math 7363 – Introduction to Moduli Spaces	Fall 2021
Math 3175 – Group Theory	Fall 2020
Data Science 2001 – Programming with Data: Science Practicum	Spring 2020, Fall '23, '24
Math 1365 – Introduction to Mathematical Reasoning	Fall 2019

Colorado State University, as Instructor of Record	Fort Collins, CO
Math 271 – Applied Math for Chemists I	Fall 2017, Fall 2018
Math 272 – Applied Math for Chemists II	Spring 2018, Spring 2019
Math 317 – Advanced Calculus of One Variable	Summer 2016
Math 255 – Calculus for Biological Scientists II	Spring 2016, Fall 2016
Math 161 – Calculus for Physical Scientists II	Fall 2015, Spring 2019
Math 180 – One Year Calculus I	Fall 2014 – Spring 2015
Math 155 – Calculus for Biological Scientists I	Fall 2013, Spring 2014

Additional Experience

Northeastern University; Zelevinsky RTG Postdoctoral Fellow	Boston, MA
Mathematics Research, Teaching, and Outreach	Fall 2019 – Fall 2021

ClearEdge3D; Research and Development Intern	Denver, CO
Algorithm Development and Implementation	Summer 2019

Cargill, Inc.; Statistical Analysis Intern	Wayzata, MN
Statistical Modeling; Large Data Analysis, Interpretation, and Prediction	Summer 2012

Conference and Seminar Talks

Invited

A Research Development Model for Campus Belonging	October 2025
Building a Culture of Belonging Conference. Boston, MA	
Finding Joy in the Current Research Development Landscape	October 2025
NORDP NE Annual Fall Meeting. New Haven, CT	
Moduli theory of the r-braid arrangement	July 2025
Utah State University Pure Math Seminar. Logan, UT	
Descendent potentials of simplicially stable compactifications of $\mathcal{M}_{g,n}$	March 2023
Boston College AG/NT Seminar. Boston, MA	
Panel: Life With a Math Major (moderator)	April 2022
Western Algebraic Geometry Symposium. Fort Collins, CO	
Colliding point compactifications of the moduli space of curves	April 2022
Tufts Algebra Seminar. Medford, MA	
An alphabet of stability conditions	March 2022
NU Topology Seminar. Boston, MA	
Tropicalizing compactifications of $\mathcal{M}_{0,n}$	March 2022
AMS Special Session on Moduli in Algebraic and Tropical Geometry.	

Medford, MA

An alphabet of stability conditions   November 2021
     Valley Geometry Seminar at UMass Amherst. Amherst, MA

Alternative compactifications of the moduli space of curves   September 2021
     Virginia Commonwealth University G&T Seminar. Richmond, VA

Alternative compactifications of the moduli space of curves   September 2021
     Simon Fraser University NTAG Seminar. Burnaby, BC

Extremality of rational tails strata in $\overline{\mathcal{M}}_{g,n}$ October 2020
     Boston College NT & AG Seminar. Boston, MA

Extremal strata in $\overline{\mathcal{M}}_{g,n}$ May 2020
     FRAGMENT Seminar. Fort Collins, CO

Wall-crossings for descendant potentials on Hassett spaces   January 2020
     AMS Special Session on Cohomological Field Theories and Wall Crossing.
     Denver, CO

Witten's conjecture and recursions for κ classes   November 2018
     Geometry, Physics, and Representation Theory Seminar. Boston, MA

Descendant potentials for Hassett spaces with diagonal weights   May 2018
     Crossing the Walls in Enumerative Geometry conference. Snowbird, UT

Witten's conjecture for κ-classes   April 2018
     AMS Sectional; Special meeting on Moduli Spaces. Portland, OR

Combinatorial structures in moduli spaces of stable pointed curves   February 2018
     SF State Geometry & Topology Seminar. San Francisco, CA

Contributed

Moduli of color   January 2026
     NU Math Club. Boston, MA

Fractals in Minkowski Space   May 2025
     NU Math REU Colloquium. Boston, MA

The triangle of triangles   January 2025
     NU Math Club. Boston, MA

Fractals in Minkowski Space   October 2022
     NU Math Club. Boston, MA

Alice and Bob: a Love Story   February 2022
     NU Math Club. Boston, MA

Career Killers - Fun Problems to Avoid   November 2021
     NU Math Club. Boston, MA

Compactifying the moduli space of curves   October 2021
     NU Pick My Brain Seminar. Boston, MA

The triangle of triangles   March 2021
     NU Math Club. Boston, MA

Life after graduate school   September 2020
     CSU AMS Alumni Series. Fort Collins, CO

The tautological ring of the moduli space of curves   September 2019
     NU Pick My Brain Seminar. Boston, MA

The Witten conjecture for κ-classes on the moduli space of curves   January 2019
     Joint Math Meetings. Baltimore, MD

Descendant potentials on Hassett spaces and the Witten conjecture for κ-classes   September 2018
     FRAGMENT Seminar. Fort Collins, CO

Hyperelliptic classes are rigid and extremal in genus two   January 2018

Joint Math Meetings. San Diego, CA

Hyperelliptic classes are rigid and extremal in genus two (poster) October 2017
    Western Algebraic Geometry Symposium. Los Angeles, CA

The recursive structure of hyperelliptic loci in moduli spaces of curves September 2017
    FRAGMENT Seminar. Fort Collins, CO

Greenslopes Graduate Seminar (CSU)

Alice and Bob: a Love Story	February 2019
Career Killers - Fun Problems to Avoid	September 2018
Some Differential Equations in Enumerative Geometry	February 2018
Impossible Things and Where to Find Them	August 2017
Topological Primes	February 2017
Obstructions and Pathologies	October 2016
Fat Points Nowhere and Everywhere: a Brief Introduction to Schemes	February 2016
Graph Theory on the Moduli Space of Curves	September 2015
The Double Ramification Cycle	April 2015
Counting Curves, Stable Maps, and Gromov-Witten Invariants	September 2014

Splinter Graduate Seminar (CSU)

Schemes and You	February 2019
The tautological ring of the moduli space of curves	September 2018
A differential operator on generating functions of intersection numbers	October 2017
Stick-figure Reproduction (and Graph Multiplication)	March 2017
Hyperelliptic Curve Classes on $\overline{\mathcal{M}}_{g,n}$	October 2016

Category Theory Lab (CSU)

Sheaves in category theory and algebraic geometry	October 2018
Moduli problems	July 2018

Mathematical Physics Lab (CSU)

Introduction to Minkowski space	February 2019

Solving Problems in Applied Math Lab (CSU)

Mandelbrot and Julia sets over the hyperbolic numbers	October 2018

Workshops

Co-organized

NORDP NE: Collaborative Research Development for Impact Fall 2025
    Yale University, New Haven, CT

Combinatorics of Moduli of Curves Summer 2024
    Banff International Research Station (BIRS), Alberta, Canada

Selected Attended

Summer Graduate School in Tropical Geometry (as TA) August 2022
    Mathematical Sciences Research Institute (MSRI), Moraga, CA

Riemann Surfaces and Their Moduli Spaces February 2020
    Salt Lake City, UT

Stability, Moduli Spaces and Applications December 2019
    Chicago, IL

Flat Surfaces and Algebraic Curves	September 2018
Oberwolfach, Germany	
Crossing the Walls in Enumerative Geometry	May 2018
Snowbird, UT	
University of Georgia Summer Workshop in Algebraic Geometry	August 2016
Athens, GA	
Summer School in Gromov-Witten Theory	June – July 2014
Pingree Park, CO	

Service

Organizing

NU Summer Math REU	Summer 2021, Summer 2024
Lunch in the Time of COVID Seminar	Summer 2020 – Summer 2022
Pick My Brain Seminar	Fall 2021
Geometry, Physics, and Representation Theory Seminar	Fall 2020 – Fall 2021
Math Grads Tube Water Polo Manager	Fall 2017 – Spring 2019
CSU Summer REU	Summer 2018
Dynamics Over the Hyperbolic Numbers	
Splinter Graduate Seminar	Spring 2018
Western Algebraic Geometry Symposium	Fall 2016
Mindful Mathematics Education, Learning, and Didactics	Fall 2015 – Spring 2016
FRAGMENT	Fall 2015
Math Grads Soccer Manager	Summer 2015
Greenslopes Graduate Seminar	Spring 2015

Mentoring

Northeastern Graduate Student Mentor	Fall 2021
Graduate Student Mentor	Fall 2016 – Spring 2018
CSU Graduate Student Representative	Fall 2016 – Spring 2017

Refereeing

Selecta Mathematica
Geometry & Topology
Combinatorial Theory
Communications in Mathematical Physics
PUMP Journal of Undergraduate Research

Association Participation

National Org. of Research Development Professionals (NORDP)	Spring 2022 – Present
Northeast Region Communications Coordinator	Fall 2025 – Present
American Mathematical Society (AMS)	Fall 2017 – Present
CSU Student Chapter Founder/Treasurer	Fall 2017 – Spring 2019
Society of Applied and Industrial Mathematics	Fall 2013 – Spring 2019
Student Chapter Member	

Other Outreach

Northern Colorado Math Circles (for Middle School Students)
Session Facilitator

Decomposing Compositions	Summer 2018
Eot-Cat-Cit	Summer 2017
It's All Greek to Me: Math in the Ancient World	Summer 2016