

Ryan Kirk

kirk19@ecu.edu
Department of Mathematics • Office: Austin 228
East Carolina University • Greenville, NC 27858

Education	University of Maryland, College Park PhD, Mathematics Advisor: Christian Zickert Thesis: “Positive tuples of flags, piecewise circular wavefronts, and the 3-dimensional Einstein universe” MA, Mathematics Scholarly Paper: “Volume invariant of $SL(n, \mathbb{C})$ -representations of 3-manifolds”	2012-2019 May 2016
	University of North Carolina, Chapel Hill BSc, Mathematics with Honors and Highest Distinction (summa cum laude) Honors Thesis: “Examination of the product field of values”	2008-2012
Employment	East Carolina University Teaching Instructor Teaching Assistant Professor	August 2019-present 2019 - 2020 2020 - present
Research Interests	Geometric structures and representation varieties of surface and 3-manifold groups	
Papers and Preprints	“Piecewise circular curves and positivity”, with Jean-Philippe Burelle. Preprint: arXiv : 2108.08680 (2021) “Continuity properties of vectors realizing points in the classical field of values”, with Daniel Corey, Charles Johnson, Brian Lins, and Ilya Spitkovsky. Linear Multilinear Algebra 61 (2013), no. 10, 1329–1338. “The product field of values”, with Daniel Corey, Charles Johnson, Brian Lins, and Ilya Spitkovsky. Linear Algebra Appl. 438 (2013), no. 5, 2155–2173.	
Awards and Scholarships	Honored Instructor, ECU Graduate Research Assistantship, UMD Summer Teaching Buyout Award, UMD Aziz-Osborn Gold Medal in Teaching Excellence Award, UMD Dean’s Fellowship, UMD Alfred T. Brauer Prize in Mathematics, UNC Chapel Hill	Fall ’20 Spring ’17, Spring ’19 Summer ’16 2013 - 2014 2012 - 2014 Spring ’12
Talks and Posters Given	Student Geometry and Topology Seminar, University of Maryland Coadjoint orbits A preliminary look at $SL(n, \mathbb{C})$ -representations of 3-manifolds Shape coordinates for $PSL(2, \mathbb{C})$ -representations of 3-manifolds	Spring ’17 Fall ’15 Fall ’15
	Other Talks, University of Maryland Hyperbolic 3-manifolds and scissors congruence	Fall ’17, Spring ’16
	Joint Mathematics Meetings, Boston The product field of values (Poster)	Spring ’12

**Teaching
Experience****East Carolina University**
Greenville, NC

2019 - present

Math 3331: Introduction to Ordinary Differential Equations	Fall '24
Math 2172: Calculus II	Spring '22, '23, '24
Math 2154: Eng. Linear Algebra and Differential Eqs	Spring '20, '22
Math 2122: Calculus for the Life Sciences II (Distance Education)	Spring '23
Math 2121: Calculus for the Life Sciences I	Fall '22, '23
Math 2119: Elements of Calculus	Fall '21
Math 1065: College Algebra (In-Person and Distance Education)	Fall '21, '22, Spring '22, '23, '24
Math 1064: Applied Mathematics for Business (In-Person and Distance Education)	Fall '19, '20, Spring '20, '21
Math 1050: Explorations in Mathematics (In-Person and Distance Education)	Fall '19, '20, '23, '24 Spring '21, '24

University of Maryland, College Park
College Park, MD

2012 - 2019

Sole Contact Instructor:

Math 241: Calculus III	Summer '17
Math 141: Calculus II	Summer '14
Math 113: College Algebra and Trigonometry	Fall '15
Math 111: Introduction to Probability	Spring '13, '15
Math 110: Elementary Mathematical Modeling	Summer '15

Teaching Assistant:

Math 241: Calculus III	Fall '12, '14
Math 240: Introduction to Linear Algebra	Fall '13
Math 141: Calculus II	Spring '14
Math 140: Calculus I	Fall '16

Grader:

Math 740: Fundamental Concepts of Differential Geometry	Spring '16
Math 734: Algebraic Topology	Spring '16
Math 730: Fundamental Concepts of Topology	Fall '18
Math 600: Abstract Algebra I	Fall '17
Math 405: Linear Algebra	Fall '17, '18
Math 403: Introduction to Abstract Algebra	Spring '16
Math 240: Introduction to Linear Algebra	Summer '15
Math 113: College Algebra and Trigonometry	Summer '18, '19
Stat 100: Elementary Statistics and Probability	Summer '13

University of North Carolina, Chapel Hill
Chapel Hill, NC

2008 - 2012

Grader:

Math 233: Calculus of Functions of Several Variables	Spring '09
Math 231: Calculus of Functions of One Variable I	Spring '09
Math 152: Calculus for Business and Social Sciences	Fall '08
Math 119: Introduction to Mathematical Modeling	Fall '09
Math 118: Aspects of Modern Mathematics	Summer '09
Math 110: Algebra	Summer '09

Service and Outreach	Service to the Department (ECU)		
	Mathematics Undergraduate Curriculum Committee	2023 - present	
	Zero-Cost Textbook Ad-Hoc Subcommittee of UCC	2023-2024	
	Calculus Textbook Committee	2023 - present	
	Curriculum Advisory Committee	2023	
	Director of College Algebra Search Committee	2023	
	Visiting Faculty Search Committee	2023	
	University Undergraduate Curriculum Committee	2022 - present	
	Peer Reviewer	Fall '22, Spring '23	
	Diversity, Equity, and Inclusion Ad-Hoc Subcommittee of UCC	2022	
	University Committee on Academic Integrity	2022 - present	
	Organizer of Math New Faculty Mentor Program	2022 - present	
	New Faculty Mentor	2022 - 2023, 2023 - 2024	
	Chair of Fixed-Term Faculty Search Committee	2022	
	Academic Advising of Math Majors	2022 - present	
	Fixed-Term Faculty Search Committee	2021, 2023	
	Director of NCEMPT Search Committee	2021	
	Reviewer of Honors College Applications	2020 - present	
	Ad-Hoc Subcommittee of Personnel Committee	2020	
	Learning Assistant Supervisor	Fall '20	
	Directed Reading Program, University of Maryland		
	Graduate Student Mentor		
	Daniel Sun, Cayley's Theorem: An Invitation to Group Theory	Fall '13	
	Hasan Touma, The Mathematics of the Rubik's Cube	Spring '14	
	Victor Gonzalez, Hyperbolic Geometry	Spring '16	
	Victor Gonzalez, Fractals and Möbius Transformations	Summer '16	
	Ajeet Gary, Applications of Differential Forms	Fall '17	
	Service to the Department (UMD)		
	Graduate Student Representative	2016 - 2018	
	Organizer of the Student Geometry and Topology Seminar	2017 - 2018	
	Organizer and Judge of the Spotlight Talks in Graduate Research	2017, 2018	
	Graduate Student Council Representative	2016 - 2017	
	Service in the Community		
	Community Outreach on Behalf of the Mathematics Department, Maryland Day 2015, 2017, and 2018		
	Faculty Training	"Inclusive Teaching in STEM Panel"	Spring 2024
		"Diversity, Inclusion, and Belonging"	Spring 2024
		"ECU Teaching Toolkit: Universal Design for Online Learning"	Spring 2024
		"How Bias Impacts Belonging"	Spring 2023
		"Teaching with Video"	Spring 2023
"Keep it Short! Using Short Topical Videos to Engage Students"		Spring 2022	
Safe Zone Training		Fall 2019	
Workshops and Conferences Attended	Curve 2015, Institut de Mathématiques de Jussieu, Paris, France, June 22-26, 2015		
	Geometries, surfaces and representations of fundamental groups, University of Maryland, June 22-24 2016		
	GEAR Junior Retreat, Stanford University, July 31-August 4 2017		
	Ventotene International Workshops on Moduli Spaces, Ventotene, Italy, September 11-16 2017		
	Virginia Topology Conference 2017: Hyperbolic 3-Manifolds and Beyond, University of Virginia, November 10-12 2017		

**Invited
Researcher**

Institut des Hautes Études Scientifiques, Bures-sur-Yvette, France,
October 23 - November 5 2017

**Other
Experience**

Tutor, University of Maryland Math Tutoring Room Fall '12 - Summer '19
REU in Matrix Analysis, The College of William and Mary Summer '11
Tutor, University of North Carolina Math Help Center Spring '09

Memberships

American Mathematical Society

References

Christian Zickert, University of Maryland, College Park
(301) 405-5072, zickert@math.umd.edu

William Schildknecht, University of Maryland, College Park
(301) 405-5055, wrs@math.umd.edu

Lawrence Washington, University of Maryland, College Park
(301) 405-5116, lcw@math.umd.edu