# Blake Jackson – Curriculum Vitae

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Contact	Department of	of Mathematics	blake.jackson@uconn.edu		
INFO	University of	Connecticut	+1 (205) 826-8062		
	Storrs, CT 06	268	www.blakejacksonmath.com		
Research Interests	Algebraic and enumerative combinatorics and representation theory are my areas of interest. I have two mathematical focuses: cluster algebras and symmetric functions. I am keenly interested in using categorification, computation, and machine learning to address open questions in cluster algebras, particularly through the lens of quiver combinatorics, and symmetric functions, specifically problems involving Dyck paths and Young tableaux.				
Employment	University of Connecticut				
	Assistant Research Professor, 2023-				
	Mentors: Kyu-Hwan Lee, Ralf Schiffler				
Education	University of Alabama				
	Ph.D. in Mathematics, August 2023				
	Advisor: Kyungyong Lee				
	Jacksonville State University				
	BA in Mathematics, May 2018				
	Mentor: Ja	aedeok Kim			
Honors and	2024	UConn Women's Volleyball Facult	y/Staff MVP (Most Valuable Professor)		
Awards	2023	Outstanding Teaching by a Ph.D.	Student, UA College of Arts & Sciences		
	2023	Outstanding Teaching by a Ph.D.	Student, UA Department of Mathematics		
	2020	Summer Research Fellowship, UA			
	2018-2019	National Alumni Association Fellow	vship, UA Graduate School (No teaching duties)		
	2018	Best Presentation, Kappa Mu Eps	ilon Regional Convention		
	2017	Top 3 Presentation, Kappa Mu Ep	osilon National Convention		
	2017	People's Choice Presentation, Kap	pa Mu Epsilon National Convention		
PUBLICATIONS	Journal Articles and Preprints				
	<ol> <li>Machine Learning Mutation-Acyclicity of Quivers (with K. Armstrong-Williams, E. Hirst, and K.H. Lee), R&amp;R Journal of Computational Algebra, arXiv: 2411.04209.</li> </ol>				
	6. Geometry of <i>c</i> -vectors and <i>C</i> -matrices for mutation-infinite quivers (with T. Ervin, K. Lee,				
	S. Nguyen), arXiv: 2410.08510.				
	5. A topology on the poset of quiver mutation classes (with T. Ervin), arXiv: 2403.20245.				
	4. Answering two OPAC problems involving Banff quivers (with T. Ervin)				
	Algebraic Combinatorics, $7(3)$ , 853-860 (2024). Link.				
	3. An intersection-dimension formula for preprojective modules of type $D_n$ , dissertation, 2023. arXiv: 2305.14249.				
	2. Permutations whose reverse shares the same recording tableau in the RS correspondence (with				
	T. Ervin, J. Lane, K. Lee, S. Nguyen, J. O'Donohue, and M. Vaughan)				
	Sém. Lothar. Combin., 86 (2022). Link.				

1. Mutations of reflections and existence of pseudo-acyclic orderings for type  $A_n$  (with T. Ervin, K.H. Lee, and K. Lee), arXiv: 2108.03309.

#### **Peer-Reviewed Conference Proceedings**

1. Geometry of C-matrices for mutation-infinite quivers (with T. Ervin, K. Lee, S. Nguyen) Proceedings of FPSAC 2024. Sém. Lothar. Combin., **91B** (2024). Link.

#### In Preparation

1. An intersection-dimension formula for modules of type  $\widetilde{D}_n$ .

### INVITED TALKS Seminars and Colloquia

	January 202	5 Algebra Seminar, University of Massachusetts Lowell		
	April 2024	Algebra Seminar, University of Connecticut		
	October 202	3 Algebra Seminar, University of Connecticut		
	October 202	2 Graduate Student Seminar, University of Alabama		
	September 2	021 Algebra and Topology Seminar, University of Alabama		
	August 2021	Graduate Student Seminar, University of Alabama		
	Conference	es		
	July 2025	Mathematical Congress of the Americas, Special Session, Miami		
	June 2025	CMS Summer Meeting, Special Session, Québec City		
	April 2025	AMS Eastern Sectional Meeting, Special Session, UConn		
	March 2025	AMS Southeastern Sectional Meeting, Special Session, Clemson University		
	March 2024	CombinaTexas, Texas A&M		
	November 20	AMS Southeastern Sectional Meeting, Special Session, (virtual)		
	April 2018	Kappa Mu Epsilon Regional Convention, Georgia Gwinnett College		
	January 201	8 American Association of College Teachers of Mathematics, JSU		
	April 2017	Kappa Mu Epsilon National Convention, Evangel University		
Mentoring	Graduate reading group			
	2024-	Co-mentored with Ralf Schiffler, Quivers with potential		
	2023-2024	Co-mentored with Ralf Schiffler, Cluster algebras and scattering diagrams		
	Undergraduate directed readings			
	2023	Jackie Barry: Banff and Louise quivers		
Service	Organization			
	2025	2025 Co-organizer for special session on Geometric and Algebraic Combinatorics,		
		AMS Eastern Sectional Meeting		
	2025	Co-organizer for special session on Probability and Combinatorics,		
		AMS Eastern Sectional Meeting		
	2021-2023	Co-founder and organizer, UA Graduate Student Seminar		
	2022	Panelist, UA Summer REU		
	Volunteering			

2024	Panelist, University of Alabama's Accelerated Master's Program
2021-2022	Tutor for AMC 10, AIME, and SAT

TEACHING

#### University of Connecticut (Primary Instructor)

MATH 2410 Differential Equations: Fall 2023, Summer 2024 (online), Fall 2024, Spring 2025 MATH 3160 Probability: Spring 2024 MATH 3094 Undergraduate Seminar in Algebraic Combinatorics: Fall 2024 MATH 3210 Abstract Linear Algebra: Spring 2025

## University of Alabama (Primary Instructor)

MATH 115 Pre-Calculus Alg & Trig: Fall 2019 MATH 121 Calculus & Applications (Business Calculus): Spring 2020 (in-person/online) MATH 125 Calculus I: Fall 2020 (online) MATH 126 Calculus II: Spring 2022 MATH 227 Calculus III: Summer 2021, Fall 2021 MATH 237 Applied Linear Algebra: Summer 2022 MATH 238 Differential Equations: Spring 2021 (hybrid)