

Sarah Brauner

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<i>Education</i>	University of Minnesota PhD Candidate in Mathematics Advisor: Vic Reiner M.S. in Mathematics Major topic: combinatorics and reflection groups Minor topic: algebraic topology Smith College Post-Baccalaureate Program for Women in Mathematics, GPA: 4.0 Reed College B.A. in Mathematics/Economics, GPA: 3.87	September 2017 – Present 2016 - 2017 2012 - 2016
<i>Papers</i>	(With F. Glebe and D. Perkinson) “Enumerating Linear Systems on Graphs,” <i>Mathematische Zeitschrift</i> (2020). arXiv:1906.04768. (With T. Friedmann) “On Specht Modules and the CataLAnKe Theorem,” arXiv:1803.10918, 2018.	
<i>Conference Proceedings</i>	(With F. Glebe and D. Perkinson) “Enumerating Linear Systems on Graphs” <i>Séminaire Lotharingien de Combinatoire</i> 82B (2019), Article # 17 Formal Power Series and Algebraic Combinatorics (FPSAC), Ljubljana, Slovenia.	
<i>Awards</i>	NSF Graduate Research Fellowship (<i>3-year grad. fellowship</i>) UMN Science and Engineering Graduate Fellowship (<i>3-year grad. fellowship</i>) UMN School of Mathematics Naresh Jain Fellowship (<i>travel fellowship</i>) Phi Beta Kappa Reed College Meier Award for Distinguished Thesis in Economics Reed College President Commendation for Academic Excellence, 2013, '14, '15, '16	2019 2017 2017 2016 2016 2013, '14, '15, '16
<i>Grants</i>	UMN Campus Climate Grant co-PI (<i>partial funding for MPM 2020</i>) AMS Student Travel Grant Reed College McGill Lawrence Grant (<i>to conduct research in South Africa</i>)	2019 2018 2014
<i>Invited Talks</i>	Random walks and hyperplane arrangements <i>Reed College Mathematics Colloquium</i> Reed College, Portland, OR	2020

	Enumerating Linear Systems on Graphs	2019
	<i>AMS Central Fall Sectional Meeting: Combinatorial Algebraic Geometry</i>	
	University of Wisconsin, Madison WI	
	<i>CAGE (Combinatorics, Algebra, and Geometry) Seminar</i>	
	Drexel University, Philadelphia PA	
	<i>AMS Northeast Spring Sectional Meeting: Chip Firing and Divisor Theory</i>	
	University of Hartford, Hartford CT	
	<i>Smith College Mathematics Colloquium Lunch Talk</i>	
	Smith College, Northampton MA	
	On Specht Modules and the CataLANKe Theorem	2018
	<i>AMS Central Fall Sectional Meeting: Combinatorics in Algebra and Geometry</i>	
	University of Michigan, Ann Arbor MI	
<i>Contributed Talks</i>	Enumerating Linear Systems on Graphs (Poster)	2019
	<i>Formal Power Series and Algebraic Combinatorics (FPSAC)</i>	
	Ljubljana, Slovenia	
	<i>ALGECOM XVI</i>	
	Loyola University, Chicago, IL	
	A generalization of the free Lie algebra and its representations	2018
	<i>USTARS (Underrepresented Students in Topology and Algebra) Conference</i>	
	Reed College, Portland OR	
<i>Local Talks</i>	Solomon's descent algebra and hyperplane arrangements	February 2020
	<i>Student Combinatorics Seminar</i>	
	An introduction to reflection groups	November 2019
	<i>AMS Intro to Research Seminar</i>	
	Topics in Hyperplane Arrangements (series)	Fall 2019
	<i>Hyperplane Arrangement reading group</i>	
	A guide to combinatorics at Minnesota	November 2019
	<i>AWM Lunch talks</i>	
	Eulerian representations for coincidental reflection groups	August 2019
	<i>Student Representation Theory Seminar</i>	
	Enumerating Linear Systems on Graphs	February 2019
	<i>UMN Math Club</i>	
	Garnir relations and Specht modules	March 2018
	<i>Student Combinatorics Seminar</i>	
	A generalization of the free Lie algebra	November 2017
	<i>Student Combinatorics Seminar</i>	
<i>Teaching</i>	University of Minnesota	
	TA, Calculus II for UMN Talented Youth Mathematics Program	2019 - 2020
	TA, UMN Combinatorics REU	Summer 2019
	BEAM (Bridge to Enter Advanced Mathematics)	
	Instructor and course designer, Logical Reasoning (for 6th graders)	Summer 2018
	Smith College	
	TA in Tutoring Center, Calculus I, II, III and Linear Algebra	2016 - 2017

Reed College

TA in Tutoring Center, Calculus I, II, III and Linear Algebra	2014 - 2016
Tutor for Introductory Analysis, Multivariate Calculus, Linear Algebra	2013 - 2016
Grader, Math 382: Algorithms & Data Structures	Spring 2016
TA and Grader, Microeconomic Theory	2015 - 2016
TA and Grader, Introduction to Economics	2013 - 2014

<i>Organizing</i>	Graduate Student Combinatorics Conference (GSCC) 2021	April 2021
	National weekend conference organized by and for graduate students.	
	<i>Co-organizer</i> with E. Banaian, G. Dorpalen-Barry, E. Kelley, E. Stucky, L. Webster	

Mathematics Project at Minnesota (MPM)	2019 - Present
A 4-day workshop for undergraduates from groups underrepresented in math to build community and prepare students for a successful undergraduate career.	
<i>Co-organizer</i> with H. Chandramouli, E. Banaian, M. Philbin	January 2020
<i>Mentor</i> : Planned and implemented several workshop sessions	January 2019

UMN Math Club	2018 - Present
Weekly club for undergraduate math majors to build community and foster mathematical curiosity	
<i>Co-organizer</i> with M. Avery	

UMN Graduate Student Combinatorics and Algebra Seminar	2018 - 2019
<i>Co-organizer</i> with E. Banaian	

CAUSE	2018 - 2019
Co-founding member of interdisciplinary group devoted to building community and improving retention amongst underrepresented minorities in graduate programs at UMN	

<i>Mentoring</i>	Research mentor for undergraduates N. Pham and A. Christiansen	2019 - Present
	<i>Directing research project on chip-firing</i>	
	Directed Reading Project (DRP) course on graph theory with S. Perron	2018
	Mentor for undergraduate math majors through MPM	2018 - Present
	<i>Assist with application materials for fellowships, REUs and graduate school</i>	
	Mentor and host for incoming graduate students	2018 - 2019
	UMN Women in Science and Engineering Graduate Mentor	2017 - 2019
	<i>Mentor for UMN undergraduates interested in STEM</i>	
	Reed College International Student Mentor	2013

<i>Outreach</i>	Teacher at Saturday Enrichment for MathCEP, University of Minnesota	
	<i>Logic Games and Puzzles</i> (grades 5-6)	April 2019
	<i>Fractals and Chaos</i> (grades 5-6)	March 2018
	<i>Graph Theory</i> (grades 7-8)	January 2018
	<i>Cryptology</i> (grades 5-6)	December 2017
	Volunteer math tutor for adults seeking GED, <i>Franklin Public Library</i>	2017 - 2019
	MathFest Teaching Assistant: Platonic Solids (grades 6-8), <i>Reed College</i>	May 2016
	Volunteer tutor for low-income youth (grades 9-12), <i>Friends of the Children</i>	2012 - 2016

<i>Biography</i>	Born January 9, 1993 in New York, NY
	Citizenship: United States